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AGRICULTURAL MARKETING IN INDIA

Report on the MARKETING OF GROUNDNUTS IN INDIA AND BURMA

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INTRODUCTION.

This report deals with the marketing of groundnuts—an important crop of Peninsular India, which although developed comparatively recently outstrips every other oilseed in India in respect of area and production. India now ranks first in the world not only in the production of this crop but also in respect of the quantities of groundnut kernels placed on the world markets. In spite of this unique position, the groundnut cultivator in India does not generally get more than seven and a half annas of the rupee paid by importers in the United Kingdom or retail consumers in India.

In this report, which sets out the plain facts of the situation, there is plenty of evidence to show that better returns can be secured for producers by effecting economies in distribution, cutting out wasteful practices and placing kernels of better quality on export market. Much could also be achieved by further developing the oil crushing industry in India, particularly with a view to establishing an export trade and finding new uses for the oil, *e.g.*, by hydrogenation and at the same time increasing the consumption of groundnut cake in India. Proper drying of the produce, better methods of decortication, improvement in conditions of storage and handling, the regulation of market charges and introduction of mutual terms in trade contracts are other measures, which will strike the reader as essential.

Thanks and acknowledgments are due to a large number of merchants, oil millers, trade bodies, producers, government departments and others for their kind co-operation and assistance given to the marketing staff throughout the country. Acknowledgment should also be made for the use of figures and material contained in a number of government and trade publications, of

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which particular mention may be made of the following.

Survey of Oilseeds and Vegetable Oils : Groundnut Products—Imperial Economic Committee.

Oils and Fats : Production and International Trade—International Institute of Agriculture.

Reviews of the Oilseed, Oil and Oil Cake Markets—Frank Fehr & Co.

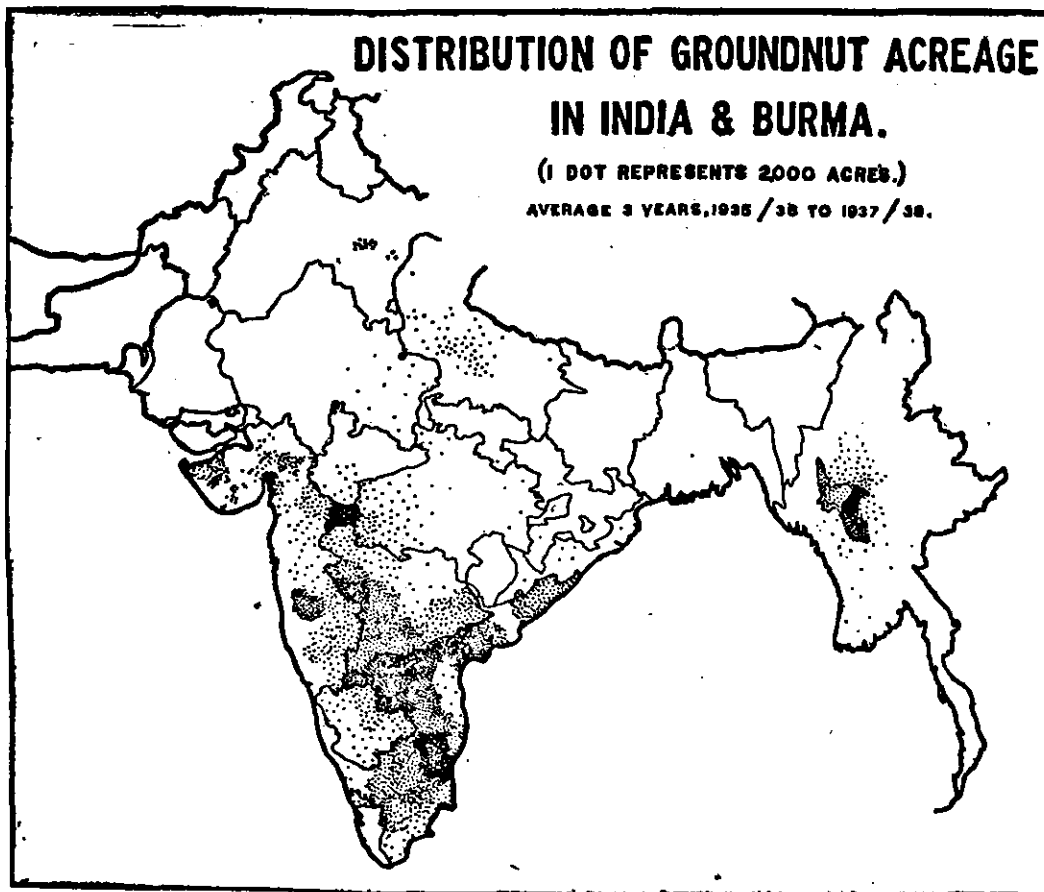
NOTE.—The Government of India should not be regarded as assuming responsibility for all or any of the material contained in this report.

THE GENERAL READER ANXIOUS TO GET A QUICK GRASP OF THE SUBJECT IS ADVISED TO READ THROUGH THE INTER-CHAPTERS AT PAGES 51, 81, 116, 132, 155, 181, 212, 232, 254, 309, 319 AND 328. IT IS HOPED, HOWEVER, THAT THESE MAY CREATE SUFFICIENT INTEREST TO LEAD TO A MORE DETAILED STUDY OF THE FULL REPORT.

OFFICE OF THE AGRICULTURAL MARKETING ADVISER
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CHAPTER I.—SUPPLY.

A.—World production and trade.

(1) HISTORY.

The origin of the plant *Arachis hypogaea*, although not known with certainty, is generally believed to be Brazil, from where it was introduced into Asia and Africa in the sixteenth century. It is a tropical to sub-tropical annual plant which thrives in a variety of soil and climatic conditions. The fruits are known as groundnuts, earth nuts, peanuts and monkey nuts.

(2) ACREAGE AND PRODUCTION.

The main countries in which groundnuts are now cultivated are India, China, French West Africa, the United States of America and British West Africa. In French West Africa, the bulk of groundnut production is in Senegal, while Nigeria and Gambia are the main groundnut producing areas in British West Africa. Besides the above-mentioned countries, groundnuts are also cultivated in Burma, Netherlands East Indies (mainly Java and Sumatra), Indo-China, Japan, Formosa, Madagascar, Phillipines, Australia, Argentina, Mexico, Egypt, British East Africa (Tanganyika and Kenya), Union of South Africa, Belgian Congo, Mozambique, Portuguese Guinea, Spain and Bulgaria.

As statistics about the acreage and production of groundnuts prior to 1914 are absent or incomplete for several important producing countries, it is not possible to know exactly the progress made in groundnut cultivation in the world since the War of 1914-18. The increased demand for groundnuts and groundnut oil in years immediately after contributed to a rapid development in groundnut cultivation in almost all the producing countries and the world area under groundnuts in 1928-32 averaged over 12 million acres, excluding China. Estimates of area and production in China became possible since 1933 and including the area in this country the world area in 1933-38 rose to an average of over 19 million acres.

The average acreage and production of groundnuts in the various countries of the world during the quinquennia 1928-32 and 1933-37 are summarised in Appendix I and shown on the diagram facing page 2.

It will be noticed that India has the largest groundnut area in the world. Her groundnut acreage went up from an average of 6.1 million acres during 1928-32 to an average of 7.0 million acres during 1933-37 and 8.5 million acres in 1938. It is interesting to note that the groundnut acreage in India before 1914 was just over 2 million acres. In China, groundnut cultivation was of little consequence until towards the end of the last century, after which several factors led to increased cultivation of this crop. An official

estimate made in 1930 put the area under groundnuts as nearly 2.25 million acres, which expanded to an average of nearly 3.6 million acres in 1933-37. The acreage in Senegal rose from an average of 1.5 million acres in 1928-32 to 1.6 million acres in 1933-37. The acreage in the United States of America similarly rose from 1.4 to nearly 1.7 million acres.

The production in India rose from an average of nearly 2.5 million tons during 1928-32 to an average of over 2.8 million tons during 1933-37 and 3.2 million tons in 1938. The production in China which was reckoned as about 1 million tons in 1930 averaged about 2.7 million tons during 1933-37, *i.e.*, a little less than the production in India. In Senegal, the production increased from 0.4 million tons to 0.5 million tons. In the United States of America, the increase in production was similar to that in Senegal.

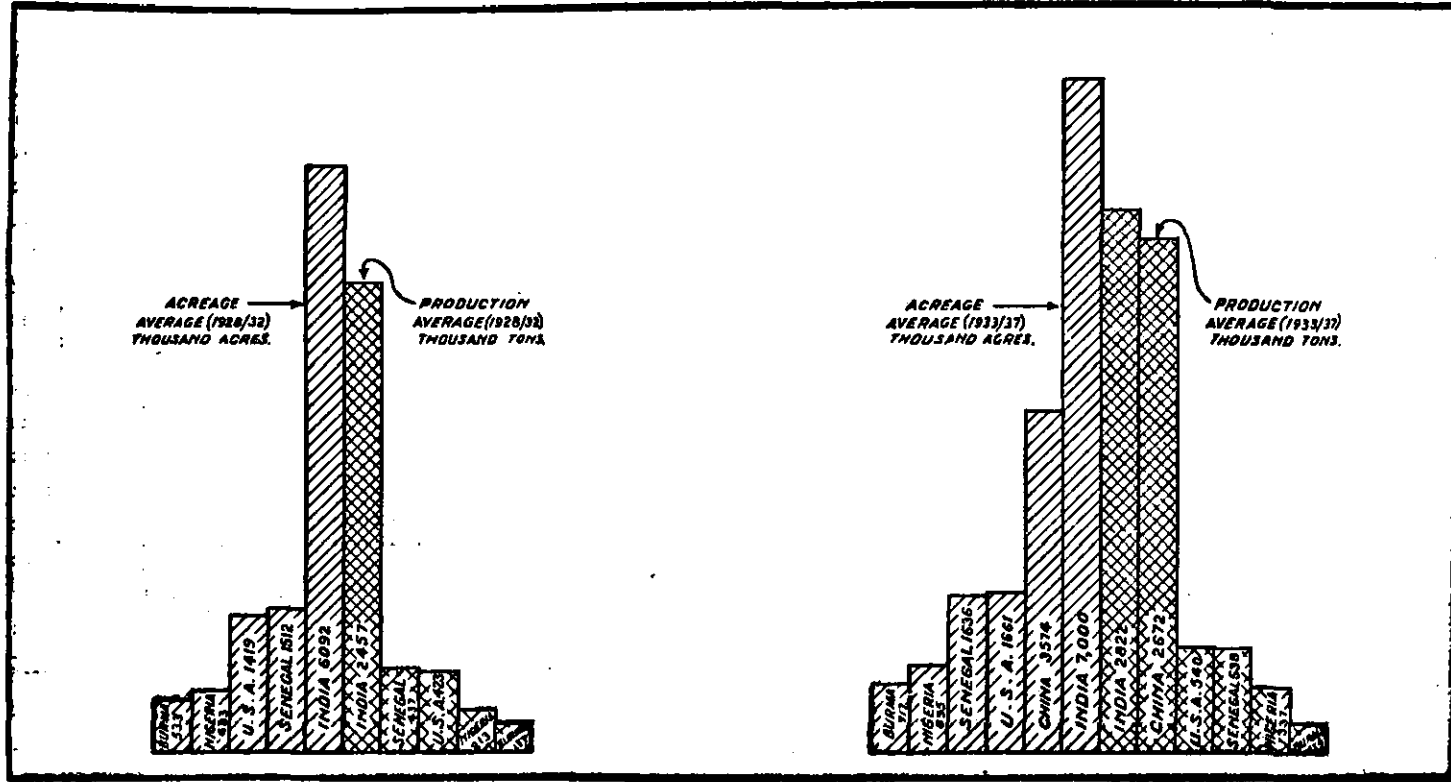
Taking an average of the 5 crops harvested from 1933 to 1937, 19.4 million acres were under groundnut cultivation in the world producing about 8.2 million tons of nuts, of which more than 40 per cent were in countries in the British Empire. India accounted for 36 per cent of the acreage and 34 per cent of the production. China had less than 19 per cent of the world acreage but accounted for more than 32 per cent of the production. United States of America had nearly 9 per cent of area but contributed less than 7 per cent to the production. Senegal's share in acreage and production was similar to that of the United States but Senegal together with other French Colonies accounted for 16 per cent of the total acreage and nearly 10 per cent of the production. The respective shares of the various countries in the world acreage and production of groundnuts vary on account of there being considerable difference in the yield per acre obtained in different parts of the globe. In China the yield per acre averaged over 1,600 lb., while in India the average yield was about 900 lb. The yields in French West Africa and the United States of America were still lower, being generally less than 800 lb. per acre.

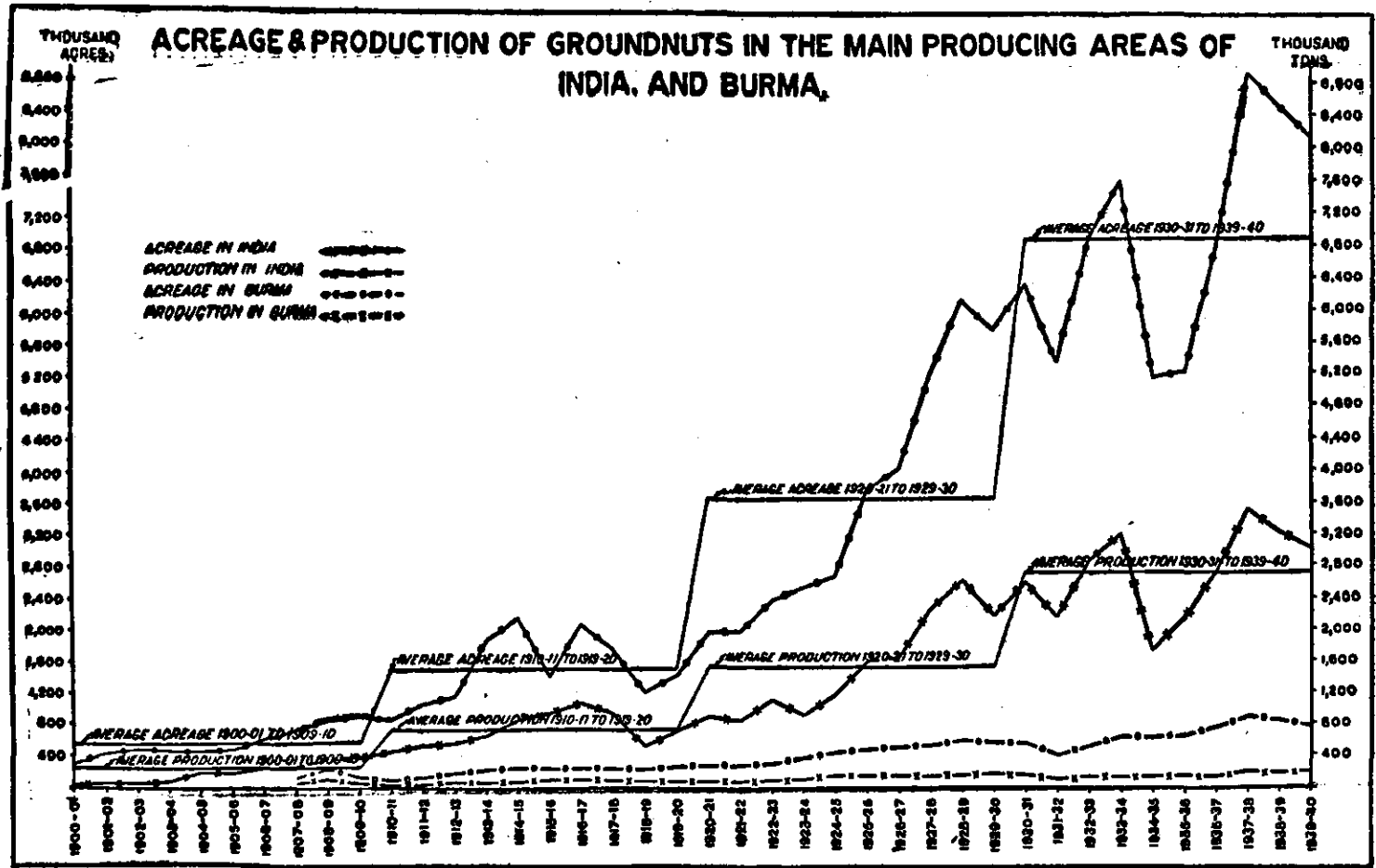
(3) TRADE.

Almost all the main groundnut producing countries enter the world trade in this commodity. Some consume a part of their production and export the balance, while others export almost all their output. A notable exception is the United States of America which consume all their groundnut production. Spain and Burma also consume all the groundnuts grown by them.

The exports are both of decorticated and undecorticated nuts. The quantities imported and exported by different countries in the quinquennia 1928-32 and 1933-37 and in 1938 are summarised in Appendix II. It is at once seen that in both the quinquennia India was by far the largest exporter of groundnuts although she retained a considerable portion of her crop for domestic consumption. The exports are mostly of decorticated nuts. Next in importance is French West Africa, where Senegal contributes the bulk of the exports. These are mainly of undecorticated nuts. The British Colonies of Nigeria and Gambia export almost all their production

ACREAGE AND PRODUCTION OF GROUNDNUTS IN THE CHIEF PRODUCING COUNTRIES OF THE WORLD.





and take a substantial share in the world trade. The former exports decorticated and the latter mainly undecorticated nuts. China, on the other hand, which has a production as big as India's, does not export more than a tenth of her production and ranks only fourth according to the volume of exports. The home market in her case is of greater importance than the export market. The nuts are exported both as decorticated and undecorticated nuts. Other countries which export more than ten thousand tons annually are Mozambique, Portuguese Guinea, Tanganyika and Netherlands East Indies.

The best markets for the exporters of groundnuts are the European countries. France occupies the first place as a consumer of groundnuts importing both decorticated and undecorticated nuts. The bulk of her supplies are drawn from French Colonies as in recent years, she has regulated her imports by quotas, reserving a proportion of the imports for Colonial produce besides levying an import duty on groundnuts of foreign origin. As a result of this preference for Colonial produce, Senegal's share in the total imports into France rose from two-fifths in 1928-32 to more than three-fifths in 1932-37, while British India's share fell from nearly 40 per cent. in 1928-32 to 24 per cent. in 1933-37. The total imports into France from all countries averaged 668 thousand tons in 1928-32 and rose to an average of 778 thousand tons in 1933-37 and 834 thousand tons in 1938.

Germany was the next biggest consumer but the quantities imported by her sharply declined in 1933-37. Her imports during 1928-32 averaged 534 thousand tons, but they dropped to an average of 296 thousand tons in 1933-37 recovering to 384,000 tons in 1938. Italy registered a small increase in her imports, the total rising from an average of 110 thousand tons during 1928-32 to an average of 114 thousand tons during 1933-37, but there was a sharp decline to 52 thousand tons in 1938. The imports into the United Kingdom show a steady increase. Her total imports which were both in the form of kernels and nuts in shell and averaged 122 thousand tons during 1928-32 rose to 171 thousand tons during 1933-37 expanding further to 327 thousand tons mostly as kernels in 1938. The bulk of her imports are now drawn from India and other Empire Countries. India accounted for 50 per cent of the imports into the United Kingdom in 1928-32 and 54 per cent in 1933-37. Netherlands is another big consumer of groundnuts and the imports appear to be steadily increasing. Similar expansion in consumption is also noticeable in Belgo-Luxemburg, Czechoslovakia and Denmark.

B.—Production in India and Burma.

(1) ACREAGE.

✓ (a) *Trend of acreage.*—Unlike most other oilseeds, groundnut cultivation in India is of comparatively recent origin, and no other crop has grown to such dimensions as this in such a short period. Although it is believed that groundnuts were introduced in India in the 16th century, the area under groundnuts till the beginning of present century was less than 300,000 acres.

The acreage under groundnuts since 1900-01 in the main producing areas of India included in forecasts of this crop and in Burma are given in Appendix III. The figures for different years are not strictly comparable as new areas were added from time to time when groundnut cultivation assumed importance in those areas. The figures for Madras up to 1906-07 relate only to *ryotwari* villages and estimates for certain *zamindari* and whole *imam* villages have been added since that year. In case of Bombay, the figures refer only to the chief groundnut growing districts up to 1913-14, after which figures for other districts have been added. Figures for Mysore, the Central Provinces, and Hyderabad, are available from 1917-18, 1918-19 and 1919-20 respectively. Notwithstanding this, the figures clearly show a steady upward trend of groundnut cultivation in India.

The area under groundnuts, as will be seen from the diagram facing page 3, expanded gradually in the earlier years of the present century till over 2 million acres came under groundnut cultivation when the War began in 1914. The dislocation of the groundnut crushing industry in France during the War caused a temporary decline in the acreage but after 1920 the acreage again began to expand steadily and the crop has become of great commercial importance during the last fifteen years. The following decennial averages of groundnut acreage in the main producing areas show that the acreage increased by nearly a million acres between 1910 and 1920, over two million acres between 1920 and 1930 and over three million acres between 1930 and 1940.

Acreage under groundnuts in the main producing areas of India.

(Thousand acres.)

Average 1900-01 to 1909-10	..	..	575
Average 1910-11 to 1919-20	..	..	1,498
Average 1920-21 to 1929-30	..	..	3,643
Average 1930-31 to 1939-40	..	..	6,898

The acreage in the main producing areas of India to-day is about 30 times what it was in the beginning of the century, and more than 4 times of what it was before the 1914-18 War.

Besides the expansion of acreage in the main producing areas, investigations made during the survey indicate that groundnut cultivation is carried on or is being taken up in several other provinces and States besides those mentioned above and the tendency almost everywhere is towards an increase. The area in these other tracts—further reference to which will be made later—is estimated to have averaged 277 thousand acres in the quinquennium ending 1937-38 and 400 thousand acres in 1938-39 and 1939-40.

The factors which have contributed to the rapid expansion of groundnut acreage in India are diverse. Firstly, the groundnut is a hardy plant, and can easily be grown under a variety of soil and climate conditions—in many cases on soils where other crops could not be raised economically. Secondly, with the increasing world demand for vegetable oils, groundnuts have a good export demand. Thirdly, groundnut oil provided India with a cheap oil, which has

lent itself to many uses. It can, therefore, be safely predicted that India will see yet further increase in groundnut cultivation.

Burma.—The acreage in Burma has also increased considerably—from the earliest reported figure of 137,000 acres|| in 1907-08 to a peak of 896,000 acres in 1937-38. The last three crops have been somewhat below this level, being reported as 840,000 acres, 760,000 acres and 766,000 acres respectively.

(b) *Total acreage.*—The acreages referred to in the preceding paragraph, refer only to those provinces and States which supply estimates of area and yield of their groundnut crop for the All-India forecasts. The statistics of acreage (and production) included in the final forecasts (or where practicable revised and finally adjusted figures) are published in "Estimates of Area and Yield of Principal Crops in India", and are reported to have covered 94 per cent of the total groundnut area in India in 1931-32 and 1932-33, 98 per cent from 1933-34 to 1936-37 and 97 per cent from 1937-38 to 1939-40.

In addition to the statistics, published in "Estimates of Area and Yield", a more complete set of figures (regarding acreage only) is published later in "Agricultural Statistics of India", which appear more than a year after the "Estimates of Area and Yield" and more than two years after the period to which the figures relate. These latter statistics give the acreages for some provinces and States, in addition to those included in the earlier publication. The areas to which the data available in the two publications refer, are as under :—

	Areas included in groundnut crop forecasts for which acreage and production figures are published in "Estimates of Area and Yield".	Additional areas not included in groundnut crop forecasts, for which acreage figures are available in "Agricultural Statistics".
British Provinces ..	Madras, Bombay, Burma, Central Provinces and Berar and Orissa.	Bengal, Bihar, United Provinces and Sind.
Indian States ..	Hyderabad, Mysore and Bombay States.	Baroda, C. I. States*, Gwalior, Madras States†, Punjab States‡, Simla Hill States, Rajputana States§ and United Provinces States||.

As the figures have often to be revised and adjusted after the final forecasts, the figures given in "Agricultural Statistics" vary at times—on occasions quite considerably—from those given earlier in "Estimates of Area and Yield".

The figures given in "Agricultural Statistics" have also to be supplemented by those for areas not reported even in this publication, the most notable omission being the Punjab and certain Central India

* Barwani, Indore, Narsingarh, Orchha, Rajgarh.

† Banganapalle, Cochin. Pudukkottai, Sandur.

‡ Patiala.

§ Bharatpur, Bikaner, Bundi, Dholpur, Jaipur, Jhalawar, Kotah, Tonk.

|| The provincial marketing report gives the area under groundnuts prior to 1907-08 as 4,000 acres in 1902-03, 12,000 acres in 1903-04, 16,000 acres in 1904-05, 37,000 acres in 1905-06 and 79,000 acres in 1906-07.

States, e.g., Dhar. Groundnut cultivation has steadily gained ground in some of the districts of the Punjab ; there were 34,000 acres under groundnuts in 1937-38. Dhar now has nearly 5,000 acres under groundnuts.

On the other hand, "Agricultural Statistics" report some acreages under groundnuts in stray years in areas where no groundnut cultivation is reported to be done. For example, 632 acres were reported in Ajmer-Merwara in 1930-31 and 887 acres in Kashmir in 1932-33. These are apparently due to errors in reporting. Discrepancies arising out of faulty reporting have also been observed in some cases between published figures and those collected from State records during the survey. For instance, the figures published for Baroda State are 34,773 and 42,596 acres in 1933-34 and 1934-35 respectively but have been found to be 47,861 and 50,380 acres on examination of State records. Similarly, the published figures for Gwalior are 9,850 in 1934-35 and 10,806 in 1935-36 but the figures now ascertained are 14,262 in 1934-35 and 15,285 acres in 1935-36. The reason of the discrepancy is that the figures supplied by the State for publication in "Agricultural Statistics" refer only to *khalsa** areas and do not include the acreage figures in *jagir*† areas of the State.

The acreage under groundnuts in provinces and States, which are not included in the forecasts and for which figures could be available in "Agricultural Statistics", provincial marketing reports or from local authorities or by local enquiries are given for seven years in Appendix IV.

The total groundnut acreage may be summarised as below :—

Total acreage under groundnuts in India.

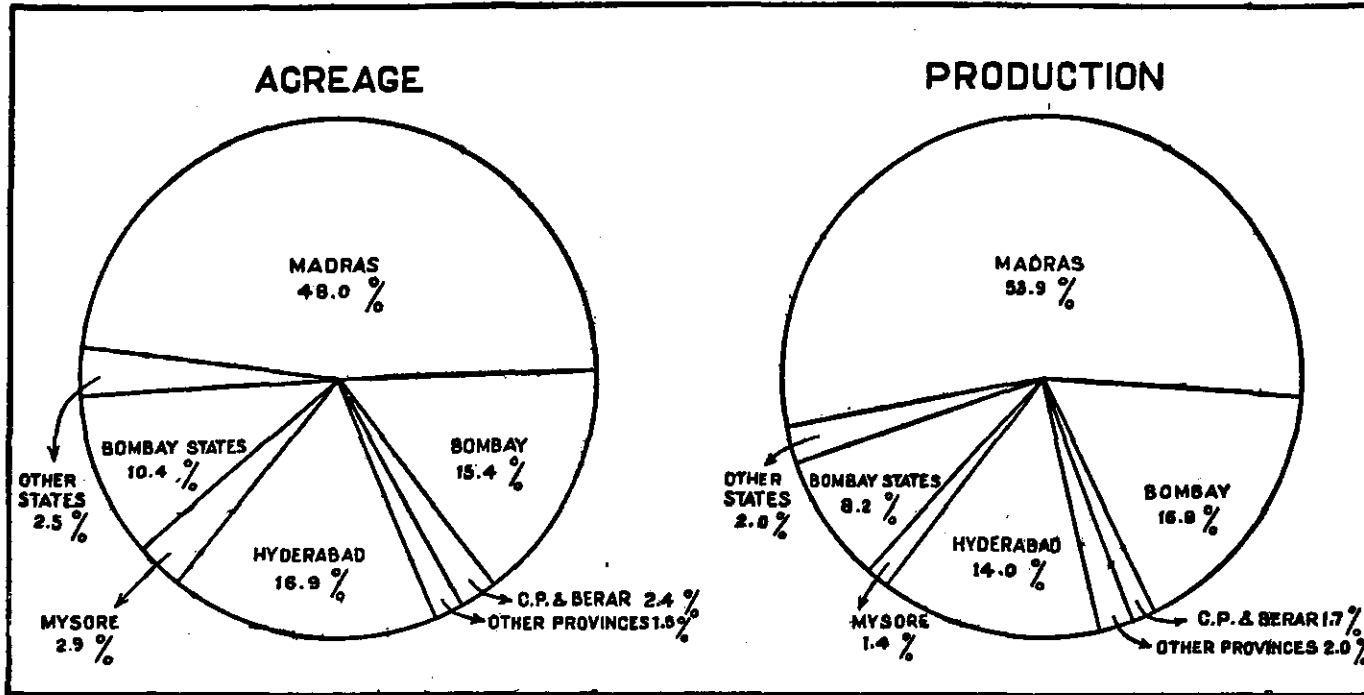
(Thousand acres.)

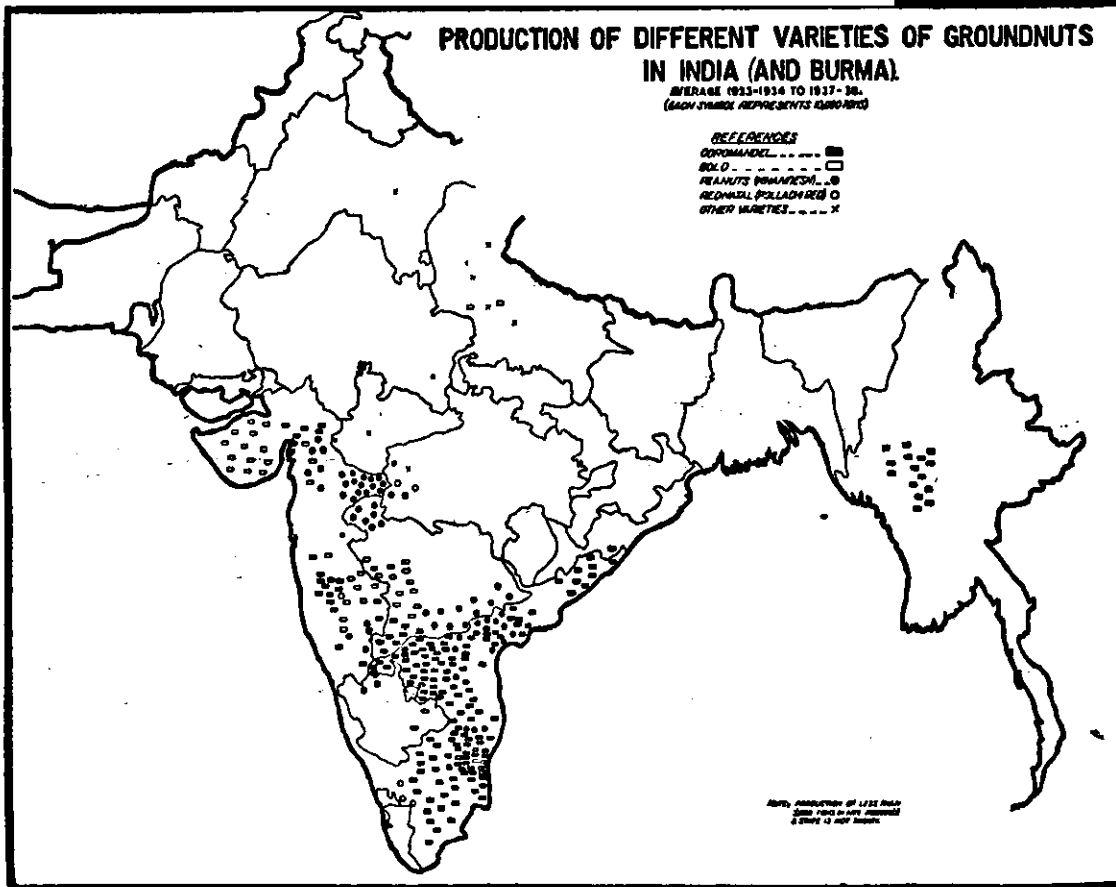
Year.	Acreage in areas included in groundnut crop forecasts. (Appendix III).	Acreage in areas not included in groundnut crop forecasts. (Appendix IV).	Total.
1933-34	7,586	182	7,768
1934-35	5,141	196	5,337
1935-36	5,207	254	5,461
1936-37	6,784	332	7,116
1937-38	8,898	423	9,321
Average	6,723	277	7,000
1938-39	8,506	421	8,927
1939-40	8,287	404	8,691
1940-41	8,357	..	..

* Areas in State territory.

† Areas in Feudatory territory.

SHARE OF DIFFERENT PROVINCES AND STATES IN THE ACREAGE AND PRODUCTION OF GROUNDNUTS IN INDIA.
(AVERAGE 1933/34 TO 1937/38.)





The total area between 1933-34 and 1937-38 thus varied between 5·3 million and 9·3 million, averaging 7 million acres. It may be added that in order to make the groundnut crop forecasts represent the total acreage (and production), as far as possible, arrangements should be made to include the areas (and production) at least in the United Provinces*, the Punjab, Baroda and Gwalior States in the forecasts.

Burma.—The acreage in Burma averaged 717 thousand acres in the quinquennium 1933-34 to 1937-38, the figures for individual years during the period being between a maximum of 896 thousand acres in 1937-38 and 625 thousand acres in 1934-35.

(c) *Distribution of acreage.*—The map facing page 1 shows the distribution of groundnut acreage in India. The relative share of the different provinces and States—taking an average of five years 1933-34 to 1937-38—is shown in the diagram opposite page 6.

Madras which was the first province to cultivate this oilseed in India has the biggest groundnut area, the average for the period referred to being nearly 3·4 million acres. Its share in the total Indian groundnut acreage has declined with the increase in cultivation in other provinces and States but even now Madras accounts for 48 per cent. of India's total groundnut acreage. The two main centres of production are (i) the ceded districts of Kurnool, Bellary, Anantapur, and Cuddapah accounting for over 34 per cent of the province's groundnut acreage, and (ii) the central districts of Chittoor, North Arcot, Salem, South Arcot, Trichinopoly and Coimbatore, contributing over 36 per cent to the province's total. The remaining share is spread over Vizagapatam, Kistna, Guntur, Chingleput, Tanjore, Madura, Ramnad and other districts.

Next in importance is Bombay Presidency with an average of over 1 million acres. The province accounts for nearly 15 per cent of India's groundnut acreage. The chief areas of production are in the districts of East and West Khandesh accounting for over 33 per cent of the provincial groundnut acreage and Satara, Sholapur, Bijapur and Belgaum districts, which, together have more than 39 per cent of the province's groundnut area.

The third important groundnut area lies in Hyderabad. Statistics for this area have been improved in recent years and for this reason as well as the expansion in groundnut acreage, the area in Hyderabad now appears to exceed that of Bombay. The average, during the quinquennium 1933-34 to 1937-38, works to nearly 1·2 million acres or nearly 17 per cent of India's total groundnut acreage. The crop is mainly concentrated in the western districts of Gulbarga, Osmanabad and Bhir and the southern districts of Raichur and Mahboobnagar.

The other areas of importance are Bombay States, Mysore and the Central Provinces. Bombay States, as this term is used in the forecasts of Indian groundnut crop, comprise of a number of Gujarat, Western India, Deccan and Karnatak States; more than 700,000 acres are under groundnuts in these States, of which the

*Since the Report went to the press, the United Provinces have been included in the groundnut crop forecasts.

major portion is contributed by the Western India States of Bhavnagar, Junagadh, Nawanagar and Gondal, which together have an average area of about 500,000 acres.

Mysore has a groundnut acreage of 200,000 acres, the bulk of the crop being sown in the northern and eastern districts of the State, *viz.*, Chitaldrug, Tumkur and Kolar districts. Chitaldrug district alone has about one-third of the State's groundnut acreage.

Central Provinces and Berar have an average acreage of 170,000 acres, of which the greater portion lies in the south-western corner of the province in the districts of Buldana, Akola, Amraoti and Nimar.

The above-mentioned areas contribute over 96 per cent of India's total groundnut area, the balance being spread over mainly in the United Provinces, Baroda State, the Punjab, a number of States in Central India*, of which Indore may be mentioned, and Madras States, of which Banganapalle and Pudukkottai are of some importance. The acreage in the United Provinces and the Punjab during the quinquennium averaged 85 thousand acres and 16 thousand acres respectively, while in Baroda State it averaged 69 thousand acres. Groundnuts are also cultivated on a small scale in Bengal, Bihar and some Rajputana States†, of which Jaipur may be noted.

(d) *Irrigated acreage.*—The groundnut crop is mainly rain-fed. In Madras, the area under irrigated groundnuts varied between 86 and 218 thousand acres during ten years ending 1937-38, and averaged 149 thousand acres in the quinquennium 1933-34 to 1937-38, as will be seen from the following figures :—

Irrigated area under groundnuts in Madras.

1928-29	..	118	1933-34	..	147
1929-30	..	136	1934-35	..	96
1930-31	..	141	1935-36	..	110
1931-32	..	86	1936-37	..	176
1932-33	..	136	1937-38	..	218

In Bombay, the irrigated area during the same period averaged less than 30 thousand acres. In other provinces and States also, the irrigated area under this crop is comparatively small and is not estimated to exceed 50 thousand acres. The total irrigated area under groundnuts may, therefore, be reckoned as not exceeding 3 per cent of the total groundnut area in India.

(e) *Time of sowing and harvesting.*—Groundnut is a *khariif* crop, the sowing of which commences in May and continues till August; the harvesting begins in September and extends up to January. The bulk of the crop, however, is sown in June-July and harvested in November-December. A summer crop is also grown in some districts of Madras; this is sown in February-March and harvested in June-July.

* Besides the States, acreages for which are reported in "Agricultural Statistics" (see page 5), groundnut cultivation is also reported from Dhar, Ratlam, Jaora, Khilchipur and Dewas States.

† Besides the States, acreages for which are reported in "Agricultural Statistics" (see page 5), groundnut cultivation is also reported from Karauli and Partabgarh States.

The Coromandel and Bold varieties require about 5 months to mature, while Peanuts and Red Natal varieties mature in a shorter period of nearly 3½ months. The latter consequently are harvested earlier. The local varieties mature in 7 months. The following table summarises the position regarding the time of sowing and harvesting of different varieties in different areas :—

Periods of sowing and harvesting of groundnuts in India and Burma.

—	Coromandel.	Bold.	Peanuts.	Red Natal.
MADRAS—				
<i>Irrigated—</i>				
Sowing ..	Feb./March	..	Feb./March	..
Harvesting ..	June/July	..	May/June	..
<i>Rain-fed—</i>				
Sowing ..	May/Aug. ..	..	May/July ..	April.
Harvesting ..	Oct./Jan. ..	..	Sep./Nov. ..	Aug./Sep.
BOMBAY—				
Sowing ..	June/July ..	June/July	June/July ..	June/July.
Harvesting ..	Nov./Dec.	Oct./Dec. ..	Sep./Oct. ..	Sep./Oct.
HYDERABAD—				
Sowing ..	Same as Bombay.	June/July ..	Same as Bombay.	..
Harvesting ..	Do.	Nov./Dec. ..	Do. ..	..
CENTRAL PROVINCES—				
Sowing ..	..	June/July ..	Do. ..	June/July.
Harvesting ..	..	Oct./Nov. ..	Do. ..	Sep./Oct.
MYSORE—				
Sowing ..	July/Aug. ..	..	Do.	..
Harvesting ..	Nov./Dec. ..	..	Do.	..
UNITED PROVINCES—				
Sowing ..	..	June/July ..	..	..
Harvesting ..	..	Nov./Dec. ..	..	..
BURMA—				
Sowing ..	..	May/June ..	..	..
Harvesting ..	..	Oct./Dec. ..	..	..

It would be of interest to mention here that the major portion of groundnuts in other countries entering the world trade is harvested about the same time as the bulk of Indian crop.

(2) PRODUCTION.

(a) *Estimation of production.*—The outturn of groundnut crop, like other crops, is calculated on the formula, area \times standard yield \times seasonal factor.

The first factor is available fairly accurately as most of the provinces and States which grow groundnuts have got agencies for reporting areas under different crops.

The second factor, standard or normal yield which may be defined as "the average yield per acre on average soil in a year of average character" is determined in different provinces on the basis of crop cutting experiments. These figures are examined every 5 years in the light of results of experiments conducted during the period and revised, if necessary. In the case of groundnuts, standard yields are available only for Madras and Bombay but they have not been revised for a long period. In Madras, the standard yield has been reckoned as 1,120 lb. per acre in all districts for at least 25 years. In Bombay, the standard yield in the quinquennium ending 1916-17 was estimated between 1,000 and 1,500 lb. for unirrigated crop in some of the districts, the average for the province being 1,390 lb. per acre. The standard yield for irrigated crop was reckoned as 2,500 lb. per acre. During the next quinquennium, the standard yield for unirrigated crop was worked out for two more districts as 800 lb. and 1,000 lb. per acre and the average for the province came down to 1,150 lb. The standard yield for irrigated crop was not changed. There has been no subsequent change in these figures—2,500 lb. for irrigated crop and 1,150 lb. for unirrigated crop. In the Central Provinces, standard yields have been worked for small and large varieties at 650 lb. and 1,100 lb. per acre respectively, but standard yields for different districts or for the whole province have not yet been worked out. In Hyderabad, a standard yield of 1,000 lb. was estimated in 1930. In other areas no standard yields have been worked out and the outturn is estimated on the basis of local enquiries.

The third factor, which represents the percentage a particular year's crop is estimated to be of a normal crop, is worked out every year on the basis of reports about the condition of crop in question. This is generally done on the *annawari* system in which a certain number of annas are taken to represent a normal outturn and the crop under report is expressed as so many annas higher or lower than the normal. In some tracts, 16 annas express a normal outturn while in other areas 12 annas represent a normal outturn and 16 annas represent a bumper crop. The anna notation is then converted into a percentage, taking 100 as the normal crop.

The three factors mentioned above are multiplied together to arrive at the estimate of the outturn.

Burma.—The standard yield in Burma is reckoned between 850 and 1,300 lb. in different districts, the average for the province being 1,000 lb. per acre.

(b) *Trend of production.*—The production of groundnuts in the main producing areas of India and in Burma (which are included in the crop forecasts and estimates of outturn of which are published in the “Estimates of Area and Yield of Principal Crops in India”) are given in Appendix V. The figures, for different years, as in the case of acreage, are not strictly comparable on account of new areas having been added from time to time, but it will be clear from the diagram facing page 3 that with the expansion of acreage, the production of groundnuts has also increased—from less than 100 tons in the beginning of the century to over 3 million tons from the last 3 crops. The following decennial averages of production in the main producing areas show that there was an increase of nearly 500 thousand tons in the average production in the decennium 1910-11 to 1919-20 as compared to the average of previous 10 years.

Production of groundnuts (in shell) in the main producing areas of India.

(Thousand tons.)

Average 1900-01 to 1909-10	..	..	..	256
Average 1910-11 to 1919-20	..	..	..	735
Average 1920-21 to 1929-30	..	..	..	1,535
Average 1930-31 to 1939-40	..	..	..	2,722

The average during 1920-21 to 1929-30 increased by 800 thousand tons and during 1930-31 to 1939-40 by nearly 1,200 thousand tons. ✓

The production of non-reporting areas (see Appendix VI) has also increased in recent years. For instance, the production in the United Provinces, which averaged 1,500 tons in the quinquennium ending 1932-33, rose to an average of 47,000 during the quinquennium 1933-34 to 1937-38, the production in the year 1937-38 amounting to 73,000 tons. Similarly, the Punjab produced only about 300 tons in 1932-33, but the average production during the five years ending 1937-38 amounted to nearly 7,000 tons.

Burma.—The production in Burma was in the neighbourhood of 100 thousand tons up to 1922-23, rising to 165 thousand tons in 1923-24. This level was more or less maintained for seven years when in 1931-32 the production sharply declined to 117 thousand tons. It recovered in the next year but remained about 140 thousand tons till 1936-37 till the peak production of 200 thousand tons was reached in 1937-38.

(c) *Total production.*—The total production of groundnuts in India may be arrived at by adding to the production reported in the final forecasts the estimated production in areas not included in the forecasts. Such areas have been indicated in section “Total acre-

age" (page 5); their estimated production, worked from data obtained from various provinces and States during the survey, is given in Appendix VI. The production in these areas averaged 112,000 tons during the quinquennium 1933-34 to 1937-38.

Again, the figures included in the crop forecasts for the production in Hyderabad State need correction up to 1936-37. They fall short of total exports from the Dominion and are, therefore, obviously under-estimates. The Statistics Department examined the position in 1935-36, revised their *annawari* valuation for future calculations from 16 annas to 12 annas for a normal crop and decided that the figures of production up to 1935-36 should be taken with an increase of 33½ per cent.

The total production of groundnuts in India may, therefore, be summarised as under :—

Total production of groundnuts (in shell) in India.
(Thousand tons.)

Year.	Production in areas included in groundnut crop forecasts. (Appendix V.)	Production in areas not included in groundnut crop forecasts. (Appendix VI.)	Production in Hyderabad State in excess of figures included in crop forecasts. (1/3rd of the production.)	Total production in India.
1933-34 ..	3,186	68	125	3,379
1934-35 ..	1,740	75	75	1,890
1935-36 ..	2,114	105	96	2,315
1936-37 ..	2,714	136	..	2,850
1937-38 ..	3,501	175	..	3,676
Average ..	2,651	112	59	2,822
1938-39 ..	3,219	179	..	3,398
1939-40 ..	3,165	177	..	3,342
1940-41 ..	3,405	..	..	..

The total production of groundnuts thus averaged nearly 2·8 million tons between 1933-34 and 1937-38 rising to 3·4 million tons and 3·3 million tons in 1938-39 and 1939-40 respectively.

Burma.—The production of groundnuts in Burma during the quinquennium 1933-34 to 1937-38 averaged 155,000 tons and rose to 180,000 tons, 186,000 and 195,000 tons in 1938-39, 1939-40 and 1940-41 respectively.

(d) *Yield per acre.*—The yields obtained per acre in the different provinces and States of India, arrived at by dividing the production in the various provinces and States by their respective acreage, are given below for the last seven years :—

Yield of groundnuts (in shell) per acre in India and Burma.

	1933-34.	1934-35.	1935-36.	1936-37.	1937-38.	Average.	1938-39.	1939-40.
<i>Reporting areas—</i>								
Madras ..	1,053	877	1,068	1,062	990	1,014	958	1,054
Bombay ..	1,115	974	1,050	924	873	987	907	817
Central Provinces	612	571	585	692	580	606	576	620
Hyderabad* ..	808	696	810	656	741	747	791	659
Bombay States ..	866	534	796	641	761	713	651	650
Mysore ..	670	371	335	407	419	446	429	424
<i>Average for reporting areas ..</i>	<i>978</i>	<i>791</i>	<i>951</i>	<i>896</i>	<i>881</i>	<i>903</i>	<i>848</i>	<i>825</i>
<i>Non-reporting areas ..</i>	<i>839</i>	<i>856</i>	<i>921</i>	<i>913</i>	<i>930</i>	<i>906</i>	<i>952</i>	<i>960</i>
<i>Average for India ..</i>	<i>974</i>	<i>793</i>	<i>950</i>	<i>897</i>	<i>883</i>	<i>903</i>	<i>853</i>	<i>861</i>
Burma ..	504	516	489	416	500	484	480	548

* On the basis of revised figures.

In Madras, the outturn per acre varied from 877 lb. to 1,068 lb. per acre during the quinquennium 1933-34 to 1937-38, the average for the period being 1,014 lb. per acre. The yields in the two subsequent years were 958 and 1,054 lb. per acre in 1938-39 and 1939-40 respectively. The yields in Bombay were somewhat lower than Madras and averaged 987 lb. in the quinquennium referred to above. The yields in the Central Provinces were much lower than Madras and Bombay, having varied from 571 to 692 lb., the average for the quinquennium working to 606 lb. Mysore shows still lower yields, the average for the same period being 446 lb. only. The yields in Hyderabad with the revised figures averaged 747 lb. per acre. The yield for all the reporting areas taken together averaged 903 lb. during the quinquennium 1933-34 to 1937-38 falling to 848 and 825 lb. per acre in 1938-39 and 1939-40 respectively. The yields in non-reporting areas taken together do not differ appreciably from the average yield in reporting areas although the yield in the United Provinces, where groundnut cultivation is done mostly on light soils, is somewhat high being reckoned at an average of 15 maunds or 1,234 lb. per acre for the province. The yield for all the groundnut areas in India also works to an average of 903 lb. per acre during the quinquennium 1933-34 to 1937-38 ; this, however, declined to 853 lb. in 1938-39 and 861 lb. in 1939-40.

It will be observed that the yields obtained from year to year in any province are invariably lower than the standard yield for the province. This shows that the seasonal factor, taking each province

as a whole, has been generally reckoned as less than 100 and a crop above normal has not been reported in any province. The actual yields, however, at least in Madras, do not appear to be as widely different from standard yields as is the case with many other crops.

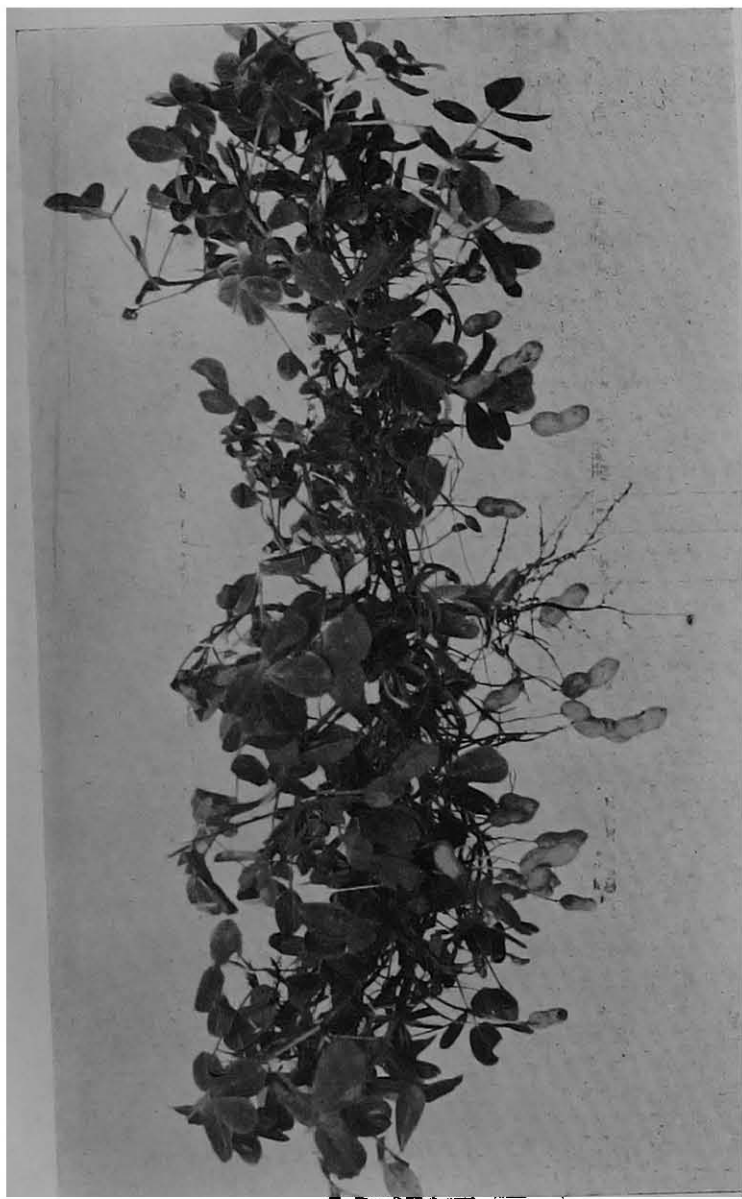
An examination of the yields obtained in earlier years shows that the yields in Madras up to 1914-15 were generally under 900 lb. and became higher later with the introduction of improved varieties. On the other hand, the yields in Bombay up to 1919-20 worked to near about 2,000 lb. per acre which fell in later years to near about 1,000 lb. This is explained by the fact that the crop was formerly estimated on the basis of irrigated crop but with the introduction of imported varieties more and more of the crop began to be grown rain-fed and the production is now estimated on the basis of unirrigated crop. In Hyderabad, the yields were very low in earlier years—as little as under 300 lb. per acre—but have risen in subsequent years with the cultivation of better varieties and revision of production estimates as already discussed.

The variation in the yields per acre from year to year and in different areas is brought about by a number of factors such as variety grown, nature of soil, treatment given to the crop and season. Spreading varieties generally give higher yields than bunch varieties. Higher yields are also obtained in light soils as compared with heavy soils. The yields under irrigated conditions are nearly double those of the rain-fed crops. The following table, which gives the yields obtained from year to year from different varieties under different conditions at certain government research stations, will indicate the extent of variation caused by different factors.

Yield of groundnuts (in shell) per acre obtained at some government stations.

Name of station.	Variety.	Condition.	Yield per acre (lb.).				
			1933-34.	1934-35.	1935-36.	1936-37.	1937-38.
Nandyal (Kurnool district) ..	Coromandel	Rain-fed	1,744	1,172	1,628	..	661
Do. ..	Peanuts	Do.	944	1,606	898	..	846
Palakuppam (South Arcot district) ..	Coromandel	Do.	1,318	1,650	1,036	864	..
Do. ..	Peanuts	Do.	1,284	1,700	1,007	800	..
Palur (South Arcot) ..	Coromandel	Irrigated	2,690	2,667	..	..	2,328
Akoja ..	Peanuts	Rain-fed	..	..	609	1,820	..
Do. ..	Small Japan	Do.	..	..	606	1,900	..
Do. ..	Bold (A. K. 10)	Do.	..	..	1,287	2,755	..
Baldana ..	Bold (A. K. 10)	Do.	..	..	1,468	1,765	..

[Facing page 14.



GROUNDNUT PLANT (TRAILING OR SPREADING TYPE).

Facing page 15.]



GROUNDNUT PLANT (ERECT OR BUNCH TYPE).

It will be interesting to compare here the yields obtained per acre in other groundnut growing countries of the world. The yields obtained in Africa and the United States of America are not higher than those obtained in India but China, Argentina, European countries and Mauritius, as will be seen from the following table apparently produce much more per acre than India :—

Yield of groundnuts (in shell) per acre in some groundnut producing countries of the world.

—	1933.	1934.	1935.	1936.	1937.
India	976	796	954	902	883
Senegal	785	642	723	785	741
Union of South Africa ..	491	348	446	491	..
United States of America ..	660	660	758	758	803
China	1,722	1,624	1,499	1,868	..
Argentina	1,115	1,124	1,133	625	669
Spain	2,061	2,016	1,972	..	..
Italy .. ..	..	..	..	1,758	1,695
Mauritius	2,230	2,230	2,230	2,230	2,230

Source.—Adapted from International Year Book of Agricultural Statistics, 1938-39.

(e) *Distribution of production.*—The share of different provinces and States in the production of groundnuts, taking the average of the quinquennium 1933-34 to 1937-38, is shown in the diagram facing page 6.

Madras, which ranks first in groundnut acreage, has also the largest production, the average production during the period referred to above being 1.5 million tons or nearly 54 per cent of the total production in India.

Bombay produced on an average 474 thousand tons contributing nearly 17 per cent to the total.

Hyderabad, which has an acreage bigger than that in Bombay, contributed a smaller share of nearly 14 per cent to the total production. The average production during the quinquennium, using the revised figures, amounted to 394,000 tons.

Bombay States and Mysore produced, on an average, 232 thousand and 41 thousand tons, their shares in the total being about 8 and 11 per cent respectively. The Central Provinces contributed 46,000 tons, her share being similar to that of Mysore. Other provinces and States which accounted for nearly 4 per cent of the total production produced on an average 112 thousand tons, of which the United Provinces and Baroda contributed 47 and 28 thousand tons respectively

(f) *Types and varieties produced.*—Groundnuts grown in India fall under four main varieties though they are marketed under a number of trade names. In some cases, the same variety is known by different names in different provinces.

The four varieties are called (i) Coromandel, (ii) Bold, (iii) Peanuts and (iv) Red Natal. They are borne on two types of plants shown in plates facing pages 14 and 15, the trailing or spreading type and the erect or bunch type. Coromandel and Bold belong to the trailing type, the pods being formed on the running stems of plants, which creep along the ground. Peanuts and Red Natal are of erect or bunch type, the pods clustering round the bunched stems of the plants.

The different varieties owe their origin to seeds imported from different sources and differ in respect of shape and size of pods, thickness and weight of shell, number, shape and size of kernels contained in pods, the colour of the testa, i.e., the thin skin covering the kernels and the oil content of the kernels. The nuts in shell and kernels of the different varieties as they are called in trade are shown in plates facing pages 16 to 19 and their characteristics are briefly discussed in the following lines :—

(i) *Coromandel.*—This variety is the product of seed imported from Mozambique and is also called Mozambique or Mauritius. The nuts are smaller than Bold and the pods have a somewhat ill-defined constriction in the middle. The shell is thicker than peanuts but thinner than Bold. The kernels are big in size, oval in shape and are covered with light red coloured skin, the colour of which darkens with age. The oil content is less than Peanuts but generally more than Bold.

(ii) *Bold.*—This variety owes its origin to Big Japan seed and is also called Big Japan. The pods are larger than Coromandel and the constriction is more well-defined. The shell is thicker than Coromandel. The kernels are oval, larger than Coromandel, and covered with light red coloured skin, which darkens quickly.

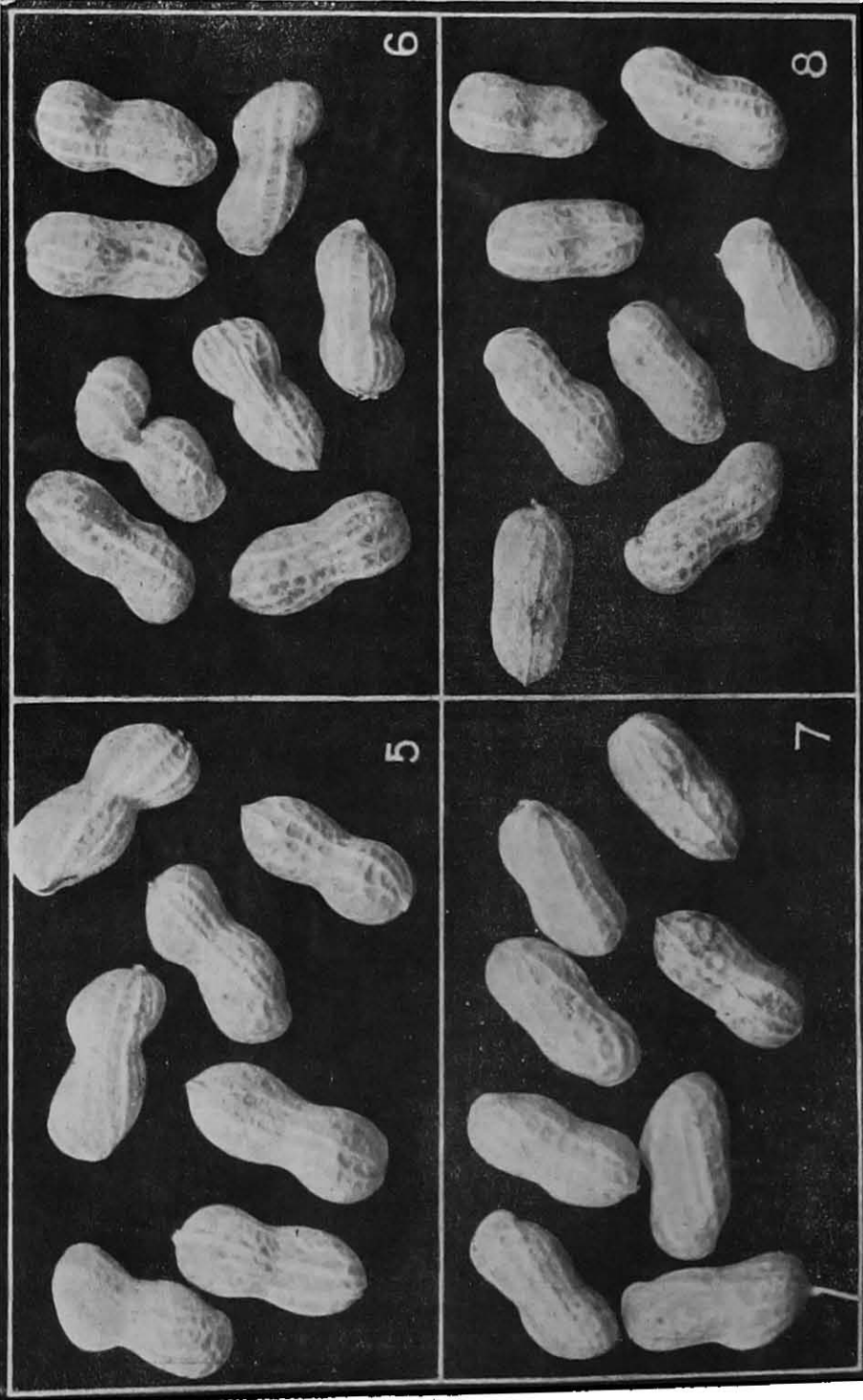
(iii) *Peanuts.*—This variety also called Spanish or Spanish Peanuts or Natal was originally cultivated from seed imported from Spain but was later replaced by seed from America. The pods are smaller than Coromandel and Bold and have a well-pronounced constriction in the middle. The shell is thin and the kernels are small and round, and are covered with light rose coloured skin, which peels off easily and darkens with age. The kernels have the highest oil content of all varieties. Peanuts grown in Bombay and neighbouring districts are traded in under the name Khandesh in Bombay and are somewhat bigger in size than those grown in Madras.

(iv) *Red Natal.*—This variety owes its origin to Small Japan seed and is called Lal Boria in Bombay. Lal Dana and Small Japan in the Central Provinces and Pollachi Red or Calicut Red in Madras. The constriction in the pods is less pronounced than in Peanuts. The kernels are round and have deep dark red coloured skin. The oil content is generally lower than Peanuts.

These four varieties have resulted in some other varieties with minor differences, caused by difference in climate and soil conditions.



COMMERCIAL VARIETIES OF GROUNDNUTS IN SHELL.
1. Kathiawar Bold. 2. Bold. 3. Coromandel. 4. Karad.



COMMERCIAL VARIETIES OF GROUNDNUTS IN SHELL.
5. Khandesh. 6. Khandesh quality. 7. Peanuts. 8. Red Natal.

The agriculture departments have also tried to evolve varieties to suit local conditions. Some of these varieties are described below :—

Khandesh quality.—Peanuts grown in areas adjoining Khandesh districts of Bombay, *i.e.*, the districts adjoining Khandesh in Bombay and Hyderabad State, have a somewhat lower oil content as compared with the produce of Khandesh districts proper and are traded in under the name Khandesh quality.

Superior Bold.—The bold nuts grown in Kathiawar States are larger than those grown in Bombay and have a thicker shell which has a cleaner and more whitish appearance. This variety is specially suitable for edible purposes and is sold under the name Superior Bold or Kathiawar Bold.

Karad.—This variety which has replaced Bold variety in Satara district of Bombay is the product of Mozambique or Mauritius seed and is between Bold and Coromandel, both in size and appearance. This variety is also called Pondicherry and it is possible that the seed came to Bombay Presidency from Pondicherry where some Senegal seed was introduced.

Virginia.—This variety came from America and is found in Surat district of Bombay. It is similar to Bold.

A. K. 10 and A. K. 8-11.—These are selections of Bold variety introduced by the Agriculture Department, Central Provinces and are grown in the northern and eastern parts of the Central Provinces and in small quantities in the United Provinces. The pods as well as kernels are big in size, the shell is thick and the selections are suitable for edible use.

A. K. 12-24.—This is a selection of Peanuts introduced by the Agriculture Department in the Central Provinces.

Local and non-descript varieties.—A number of local and non-descript varieties are met with in different provinces and States. In Madras, these varieties, owing to their susceptibility to disease attacks and long period required for maturing, have gradually been replaced by imported varieties, but they are still found, to some extent, in Bombay and other areas, *e.g.*, the United Provinces, the Punjab and a number of States.

(g) *Distribution of varieties.*—The different varieties discussed in the preceding section are concentrated in different areas depending to some extent on soil and rainfall conditions, but often more than one variety is grown in the same district. The areas where the different varieties are cultivated and the extent of their cultivation are indicated in the following lines :—

Madras.—The main quality grown is Coromandel, its cultivation extending almost throughout the presidency and covering more than four-fifths of the total groundnut area in the province. Peanuts cover a little more than a tenth of the province's groundnut area and are grown only in a few districts along with Coromandel. The proportion of Peanuts in the area under groundnuts in these districts is estimated as follows :—

Proportion of area under Peanuts in certain districts of Madras Presidency.

	Per cent.
Guntur	60
North Arcot	25
Kurnool	15
Kistna	10
Cuddapah	10
Salem	10

Red Natal (Pollachi Red), which contributes only about 3 per cent of the total area, occurs mainly in the Pollachi *taluk* of Coimbatore district and parts of Madura district.

Bombay.—All the four main varieties are grown. More than one variety are found in most of the districts. Local and other main varieties are also grown. Peanuts (Khandesh) account for the largest area amounting to a little less than half of the total groundnut area of the province. Although cultivated in a number of districts this variety is concentrated in East and West Khandesh, Panchmahals, Bijapur, Dharwar and Belgaum districts. Bold variety contributes more than a quarter of the province's groundnut area and is concentrated mainly in Sholapur, Belgaum, Panchmahals, Kaira, Ahmedabad and Poona districts. Coromandel and Karad are grown mainly in Satara, Belgaum, Dharwar and Bijapur districts and contribute more than one-fifth of the province's groundnut area. Red Natal is grown mainly in Satara and to a small extent in Poona and Panchmahals districts. The area under this variety does not exceed 2 per cent of the total area. Virginia is grown in Surat district while the local (indigenous) varieties, although scattered almost all over the province, are found mostly in Nasik, Poona and Ahmednagar districts. These varieties together account for nearly 3 per cent of the groundnut area.

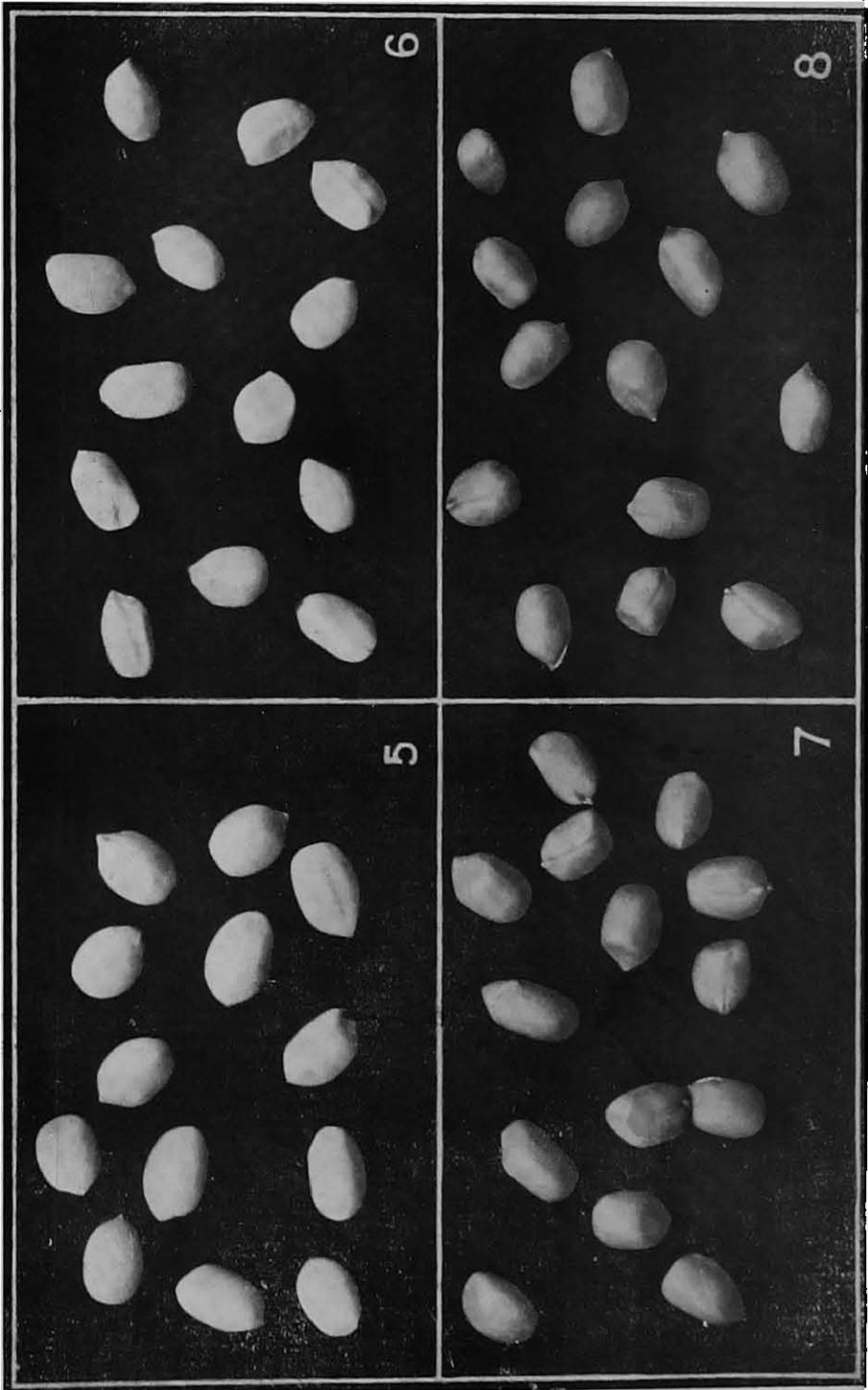
Central Provinces.—The main varieties grown are Red Natal (Small Japan) and Peanuts. Red Natal accounts for more than two-fifths of the total groundnut area in the province and is cultivated in Akola, Amraoti, Buldana, Betul, Nimar and Yeotmal districts. Peanuts cover nearly a third of the total area, being cultivated in most of the districts where Small Japan is grown. The main district of Peanut cultivation is Buldana. Bold variety is grown in Saugor, Hoshangabad, Raipur and Bilaspur districts and contributes nearly a tenth of the total area. Two selections of Bold, namely, A. K. 10 and A. K. 8-11 introduced by the Agriculture Department are becoming popular. Besides Bold, local varieties are also grown in several districts.

Hyderabad.—Three varieties, *viz.*, Coromandel, Bold and Peanuts are grown, all the three or two varieties being grown in most of the districts. Bold variety covered more than half of the groundnut area a few years back, but Peanuts are increasing in popularity and now account for more than two-fifths of the area, the variety being



COMMERCIAL VARIETIES OF GROUNDNUT KERNELS.
1. Kathiavar Bold. 2. Bold. 3. Coromandel. 4. Karad.

Facing page 19.]



cultivated mainly, in Mahboobnagar, the western district of Aurangabad, and the north-eastern districts of Nalgonda and Warangal. Bold covers more than a third of the groundnut area and is grown mainly in Gulbarga, Bidar, and Osmanabad districts. Coromandel contributes more than a fifth of the area and is grown mainly in Raichur district.

Mysore.—Coromandel and Peanuts are the main varieties grown, the area under Coromandel being somewhat more than that under Peanuts. Coromandel is cultivated mainly in Tumkur, Kolar, Bangalore, Hassan and parts of Mysore district and Peanuts in Chitaldrug, Shimoga and Kadur districts. Small quantities of other varieties are also grown.

Bombay States.—Bold forms the main variety covering nearly four-fifths of the area, while Peanuts account for nearly a tenth of the area. Bold variety produced in Kathiawar States is of superior Bold quality.

Other areas.—Of the other areas, Madras States produce mostly Coromandel with some Red Natal in Cochin State. Gwalior grows mainly Bold with some Peanuts and local varieties, while Baroda grows Bold and Peanuts almost in equal proportions. In the United Provinces and the Punjab Bold, Virginia and local varieties are grown.

The estimated production of different varieties in the various provinces and States of India is given in Appendix VII and their distribution is illustrated on map facing page 7. Taking the average production of the quinquennium 1933-34 to 1937-38, the production of different varieties is reckoned to be as under :—

Production of different varieties of groundnuts (in shell) in India:

—	Estimated production.	Proportion of total production.
	(Thousand tons)	(Per cent.)
Coromandel	1,574	56
Bold	506	18
Peanuts	618	22
Red Natal	62	2
Other varieties	62	2
	2,822	100

Burma.—Most of the area is under spreading types locally known as Burmese, only 2 to 3 per cent of the area being under Peanuts.

(h) *Production in terms of kernels.*—The proportion of kernels and shell varies in different varieties, and in the same variety grown in different areas and under different conditions. The proportion of kernels in the same variety in the same area also somewhat differs in different years depending on seasonal conditions which may favour or retard the development of kernels. The exact soil and climate factors which bring about this variation in the proportion of kernels, or shelling percentage as it is called, are not accurately known ; some experiments are in progress at research stations to study the causes but the problem still needs considerable further study.

A number of commercial samples of nuts of different varieties was collected in 1935-36 from different parts of India and the proportion of kernels and shell determined. Among the 46 samples of Coromandel variety collected in Madras, the proportion of kernels was found to vary from 53 per cent to nearly 78 per cent, the average for all the samples being nearly 69 per cent. The samples from Anantapur and Bellary districts gave the highest percentage of kernels, being in both cases over 73 per cent, while samples from North Arcot and Kurnool districts gave nearly 64 per cent and 66 per cent kernels respectively. Peanuts from Bellary district averaged over 75 per cent kernels, while those from Guntur district averaged about 64 per cent only, the average for the province being nearly 72 per cent.

Nuts of Khandesh variety collected in Bombay Presidency gave from 60 to 72 per cent kernels, the average for the province being a little less than 72 per cent. The proportion of kernels in Bold variety ranged from nearly 72 to over 74 per cent, the average for the province of Bombay being 73 per cent. Samples of Bold variety from Hyderabad, however, gave an average yield of a little over 66 per cent kernels and those from the United Provinces a still lower average of 64 per cent kernels. Pods of Red Natal variety gave an average yield of over 75 per cent in Madras and 73 per cent in the Central Provinces. Allowing for the variations discussed above, the proportion of kernels in different varieties may be roughly taken as under :—

Bold	..	..	..	..	68 per cent.
Coromandel	..	..	..	..	69 per cent.
Peanuts	..	..	..	..	72 per cent.
Red Natal	..	..	..	..	74 per cent.

Taking into account the production of different varieties given in Appendix VII, the kernels from the total groundnut crop in India amount to 70 per cent of the crop. The average production of nuts in shell during the quinquennium 1933-34 to 1937-38, amounting to 2,822,000 tons, may, therefore, be reckoned as yielding 1,975,400 tons of kernels.

C.—Retention by producers.

Groundnuts are consumed or retained by producers for (i) payment of harvesting wages, (ii) seed for sowing, (iii) edible use and (iv) oil crushing.

(i) *Payment of harvesting wages.*—The labour employed for harvesting groundnuts is often paid in kind, 1/10th to 1/6th of the produce collected being given when payment is not made in cash.

Most of the nuts given away as harvesting wages, however, find their way to the market and cannot, therefore, be taken as consumed on producers' holdings. It is estimated that the nuts consumed by the labour during harvesting and retained by them for eating out of nuts received by them as wages do not amount to more than 1 per cent of the production.

(ii) *Seed for sowing*.—The seed required for sowing, as will be shown in a later chapter, amounts, on an average, to nearly 12 per cent of the production, but all the quantity so required is not found on producers' holdings. It is estimated that nearly 80 per cent of the seed required for sowing comes from producer's own stocks (*vide* Chapter XI) and allowing for the quantities obtained by borrowing from other cultivators, it may be reckoned that nearly 90 per cent of the seed requirements are derived from producers. The quantities retained for seed may, therefore, be taken as roughly 11 per cent of the production.

(iii) *For edible use*.—The cultivators generally do not retain large quantities for their edible use. Some nuts are eaten during the time they are stored with the producers before being sold and nuts found in excess of sowing requirements, are also consumed. The consumption of nuts on producers' holdings is estimated to be nearly 1 per cent of the production.

(iv) *Oil crushing*.—Cultivators, as a rule, do not retain groundnuts for crushing, although in Madras and Bombay, they sell considerable quantities for crushing to owners of stone or wooden *chekkus* in their villages. Only such cultivators as are themselves owners of *chekkus* retain nuts for their crushing. The quantities retained by such cultivators are estimated, on an average, to be nearly 2 per cent of the production in India. Thus nearly 15 per cent of the production is retained by producers.

D.—Season of marketing.

The season of marketing for groundnuts generally commences from October and is over by February, the periods of greatest activity varying in different areas depending mainly on the type of groundnuts grown. The erect varieties—Peanuts (Khandesh) and Red Natal—move to the markets nearly a month in advance of spreading varieties consisting mainly of Coromandel and Bold.

The monthly arrivals at a number of markets in Madras, Bombay, the Central Provinces and Hyderabad expressed as percentages of their respective total annual arrivals are given in Appendix VIII and illustrated in diagram facing page 22. It will be observed that in the markets of Madras Presidency the arrivals begin to increase after October and reach the peak in December. November to January is the period of highest activity, more than 56 per cent of the arrivals reaching the markets during these three months. After these three months of rushing the crop to the markets, the arrivals continue on a lower level throughout the year. The irrigated crop, which is harvested in June-July, is disposed of before the arrival of the main rain-fed crop. This accounts for the upward tendency seen in the graph between July and August.

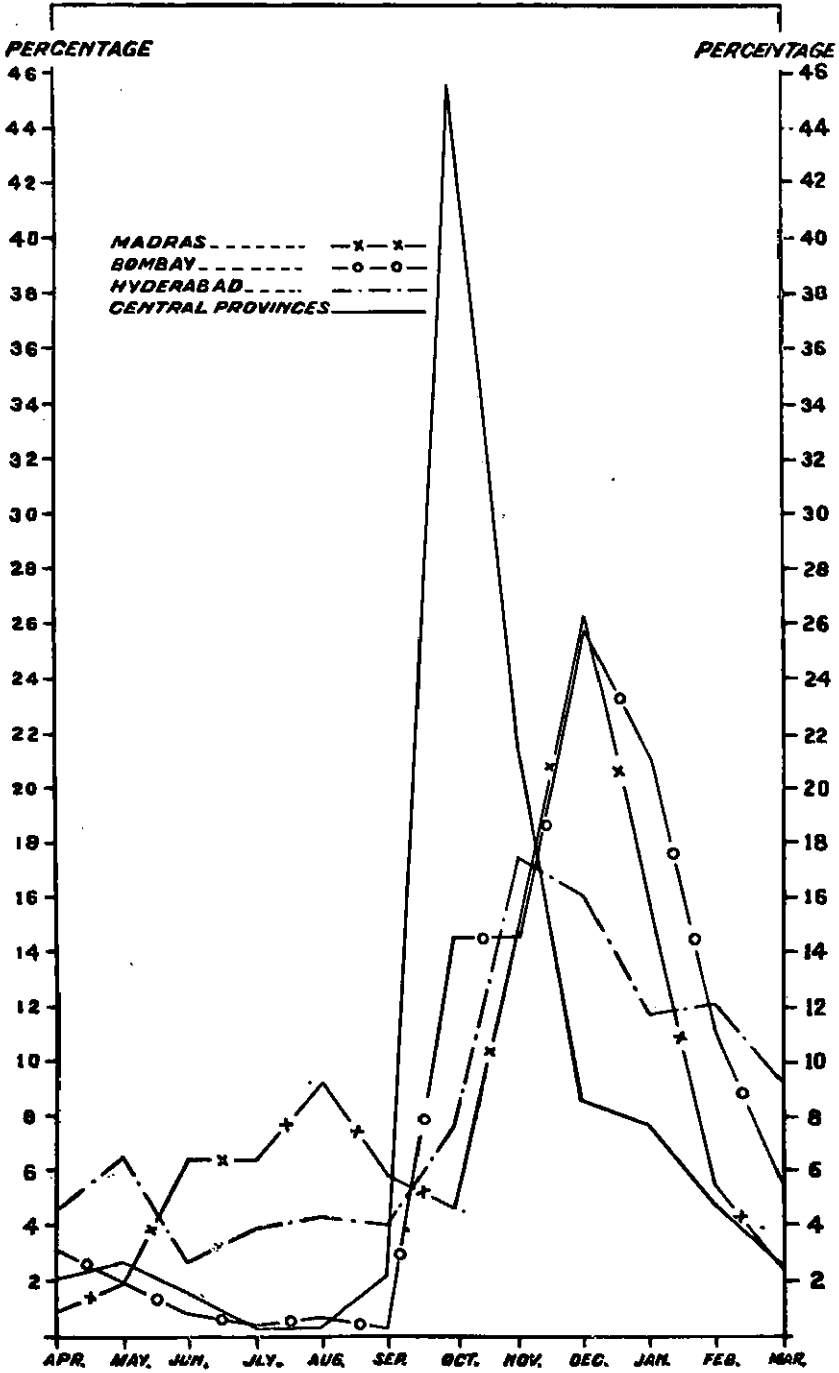
In Bombay, the marketing of early varieties commences in October while in the case of late ones it begins in December. In Khandesh district—where erect varieties are largely grown—about 75 per cent of the arrivals are in the months of October to December, while in markets further south—where spreading varieties are grown—a similar proportion moves to markets in the months of December to February. Taking an average of three markets, 61 per cent of the arrivals were in the months, November to January, and 87 per cent during five months, October to February. The quantities arriving in the markets begin to decline after January and reach very low levels by May so much so that arrivals during the four months, June to September, total only about 2 per cent of the annual arrivals. In Hyderabad, the movement of the crop begins from the middle of October and remains very brisk up to the end of December, although fair quantities continue to arrive at the markets till March. The three months, November to January, account for 45 per cent of the annual arrivals while the arrivals in six months, October to March, amount to 74 per cent of the annual arrivals. In the Central Provinces, the bulk of crop consists of erect varieties and consequently the season of marketing is somewhat earlier than in other provinces, more than 67 per cent of the arrivals being in the two months, October and November. The season of marketing in other provinces and States is similar and the bulk of the arrivals in markets are from November to January. Allowing for the differences noticed above, at least 60 per cent of the marketable surplus of groundnuts produced in India leave the producers' hands during the three months, November to January.

The produce arriving in the assembling markets begins to move towards ports and crushing centres soon after. This can be seen from the monthly despatches by rail from a number of stations in the producing areas.

The monthly despatches from a number of stations in various provinces and States expressed as percentages of their annual despatches are given in Appendix VIII and illustrated in the diagrams facing pages 23 and 24. An average of despatches from forty-nine stations in Madras shows that 57 per cent of the annual despatches were in three months, December to February. The despatches from Pollachi station provide an exception to the general movement. The crop of Pollachi Red variety in Pollachi *taluk* of Coimbatore district matures earlier about July and begins to be despatched from August. The despatches are heaviest in the month of September after which they show a decline in October and November to rise again in December when the later maturing varieties begin to move. In Bombay, the movement by rail begins to become brisk from November and is at its height in December and January, the three months, November to January accounting for 49 per cent of the annual despatches. The despatches from stations in Hyderabad State show a position very similar to that in Bombay. In Mysore State, the movement by rail is mainly from October to January, during which period more than 75 per cent of the annual despatches take place. Central Provinces show a position similar to Mysore, while in the United Provinces,

PERIODICITY OF ARRIVALS OF GROUNDNUTS AT MARKETS.

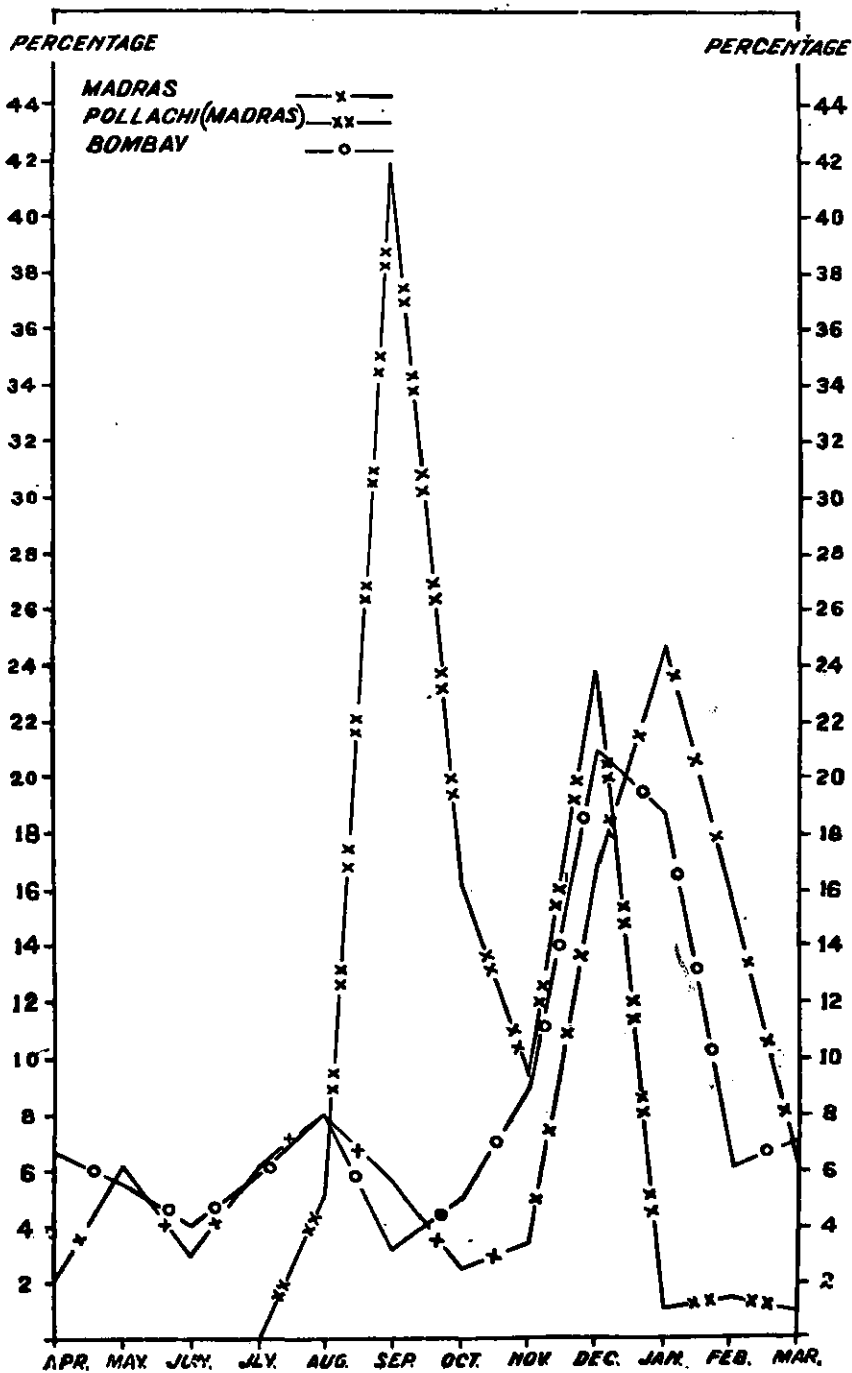
(Monthly arrivals expressed as percentages of total annual arrivals.)



Facing page 23.]

PERIODICITY OF DESPATCHES OF GROUNDNUTS BY RAIL.

(Monthly despatches expressed as percentages of total annual despatches.)



where most of the nuts grown are of spreading varieties, more than 60 per cent of the despatches are from November to January.

A reflection of the periodical movements by rail from producing areas may be seen in the arrivals at ports, illustrated in the diagram facing page 25 based on figures of the monthly arrivals at the ports of Madras, Bombay and Calcutta expressed as percentages of their respective total annual arrivals. At Madras ports, the arrivals begin to increase from November and remain at a comparatively high level up to March, the arrivals between November and March being nearly 56 per cent of the annual total. At Bombay, the arrivals between November and March account for 60 per cent of the total arrivals. The arrivals at Calcutta port are of small magnitude being mainly for crushing and not for export abroad, but nearly 75 per cent of the arrivals are from November to March.

E.—Imports.

The imports of groundnuts into India are mostly in the form of nuts in shell, intended mostly for seed for sowing. The quantities imported yearly vary from nothing to a few hundred tons, the highest recorded imports being in 1914-15 when over 600 tons were imported. (See Appendix IX).

The bulk of imports are into Bombay and are derived mostly from Portuguese East Africa. Bombay's imports amounted to 205 tons in 1900-01, 607 tons in 1914-15, 463 tons in 1920-21 and 227 tons in 1921-22. Madras, which is the biggest groundnut producing province, did not import more than a few tons annually, drawing her requirements mostly from Straits Settlements.

Bengal, where groundnut cultivation has been attempted but recently, imported from Straits Settlements 101 tons in 1924-25 and 119 tons in 1929-30.

Burma.—Burma's annual imports of groundnuts have varied since 1900-01 between 1 ton and 362 tons, being generally drawn almost entirely from Straits Settlements. Only in some years she has imported groundnuts from Hongkong.

F.—Exports.

The exports of groundnuts from India are all by sea. Appendix X shows the quantities exported annually from the beginning of the present century.

The bulk of exports are through ports in British India while considerable quantities are also exported through ports in Kathiawar States and the French and Portuguese possessions in India. The exports from the ports in French and Portuguese possessions are mainly the produce of British India.

(1) EXPORTS FROM BRITISH INDIA PORTS.

(a) *Quantities.*—The exports from British India ports amounted to only a few thousand tons in the beginning of the present century and went on steadily increasing in subsequent years so that

the average annual exports in the quinquennium 1909-10 to 1913-14 were 212,000 tons. The War of 1914 then brought about a dislocation in the export trade and the exports during the period of War declined considerably. The lowest exports, however, amounting to only 17,000 tons were in 1918-19. They recovered next year and reached an average of 147,000 tons during the quinquennium ending 1922-23. The exports then rapidly increased to an average of 414,000 tons during the 5 years, 1923-24 to 1927-28, from which they rose further to an average of 642,000 tons between 1928-29 and 1932-33. The exports from 1932-33 to 1935-36 remained at a low level followed by a marked increase in 1936-37 so that the average for the period 1933-34 to 1937-38 amounted to 565,000 tons. 1938-39 witnessed a record of 823,000 tons groundnuts being exported from British India ports. A record somewhat near to this was reached earlier in 1928-29 when 787,000 tons were exported. It was expected that exports in 1939-40 would not be far short of 1938-39 export but the outbreak of hostilities in Europe in September 1939 considerably affected the off-take of European countries and the exports in 10 months of 1939-40 amounted to 427,000 tons only.

The exports from British India are shared between Madras and Bombay, the former's share being nearly four-fifths of the total.

(b) *Destinations*.—The main destinations for groundnuts exported from British India ports are the United Kingdom and several other countries in Europe. The quantities taken by different countries during the last 17 years are tabulated in Appendix XI and summarised below. The share of different countries in the exports is illustrated on the diagram facing page 26.

Exports of groundnuts (mostly kernels) to different countries from British India ports.†

(Thousand tons.)

	Average 1909-10 to 1913-14.	Average 1923-24 to 1927-28.	Average 1928-29 to 1932-33.	Average 1933-34 to 1937-38.	1938-39.	1939-40* (10 months).
United Kingdom ..	2	21	52	96	96	79
France	169	174	208	136	150	123
Germany	7	89	148	90	116	44
Netherlands	(a)	64	138	126	232	73
Italy	1	40	72	67	3	11
Belgium	15	11	7	24	66	28
Spain	1	13	(b)	(b)	..	..
Others	17	2	17	27	129	69
Total	212	414	642	565	823	427

* Provisional. Includes "for order" cargoes.

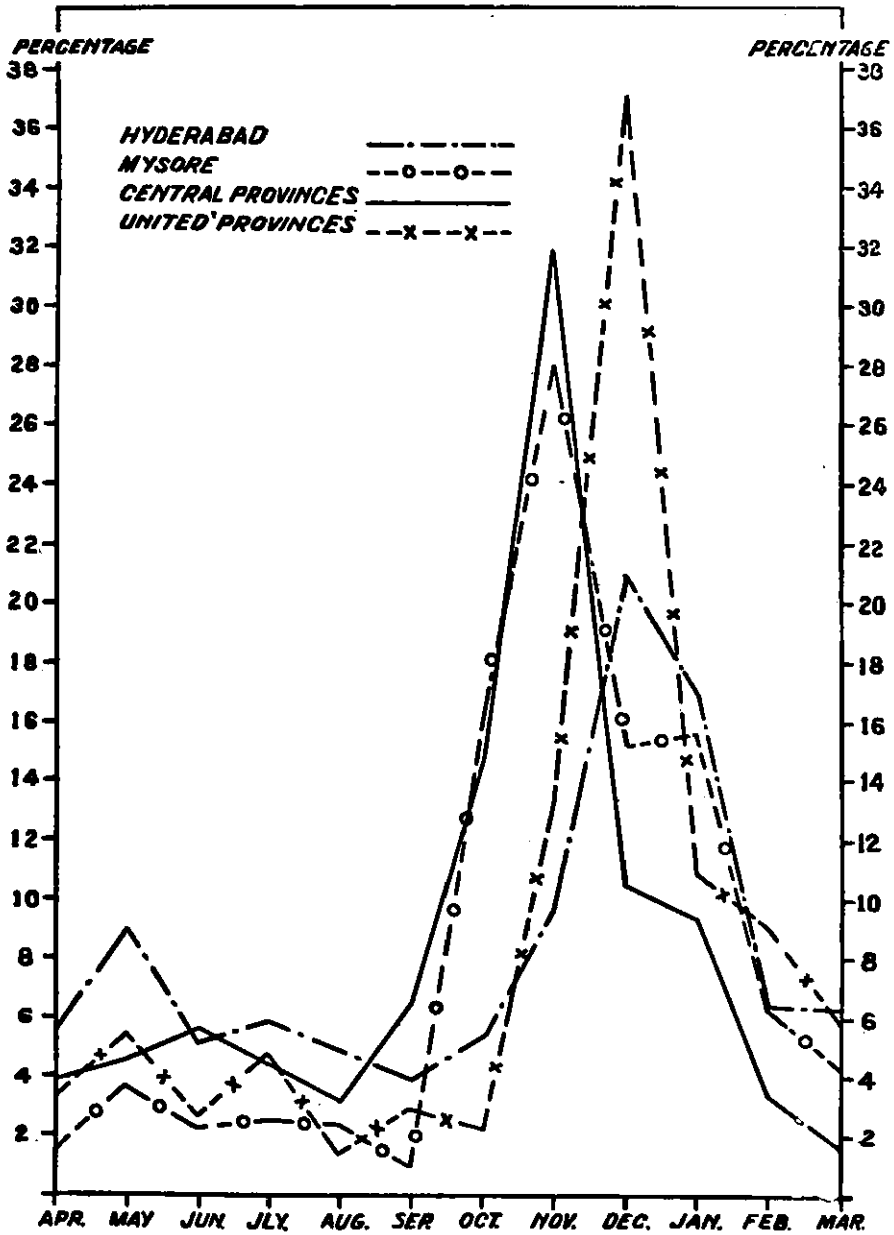
† Excluding exports to Burma.

(a) Less than 100 tons.

(b) 400 tons.

PERIODICITY OF DESPATCHES OF GROUNDNUTS BY RAIL.

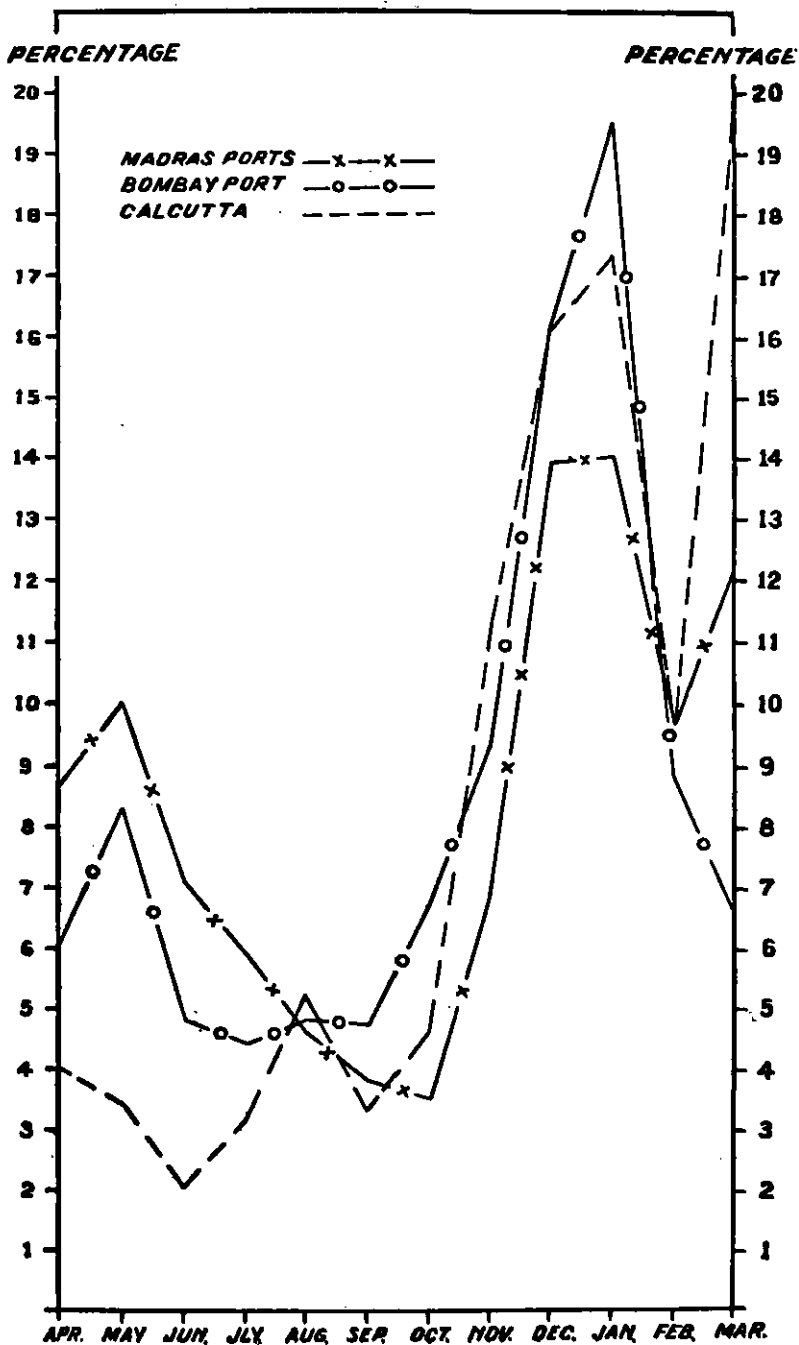
(Monthly despatches expressed as percentages of total annual despatches.)



Facing page 25.]

PERIODICITY OF ARRIVALS OF GROUNDNUTS BY RAIL AT PORTS.

(Monthly arrivals expressed as percentages of total annual arrivals.)



It will be observed that France has been, by far, India's biggest customer for groundnuts, the average annual off-take in the quinquennium 1909-10 to 1913-14 amounting to 169,000 tons or over 80 per cent of British India's total exports. Her share in the total exports has tended to fall off in recent years although the quantities taken are not much short of the pre-War average. In the quinquennium 1923-24 to 1927-28, she took on an average 174,000 tons annually but her share in the total exports was only 42 per cent as other European countries, chiefly Germany, Netherlands, Italy, Belgium and Spain took larger quantities from India. In the following quinquennium 1928-29 to 1932-33, France's off-take increased to 208,000 tons but her share declined further to 32 per cent. In 1933-34 to 1937-38 the average exports to France dropped to 135,000 tons and her share in total exports was only about 24 per cent. This fall in the trade with France can largely be attributed to the increase in the production of groundnuts in French Colonies and import duties and licensing regulations introduced by France, which put the produce of French Colonies and Protectorates in a position of advantage as compared with Indian groundnuts. France now obtains bulk of her supplies from Senegal, a major proportion of which is in the form of undecorticated nuts. It will be interesting to compare the share of India in the total imports of groundnuts into France.

Imports of groundnuts into France from India and other countries.

(Thousand tons.)

	Average 1924—28.	Average 1929—33.	Average 1934—38.
<i>Decorticated—</i>			
From British India	199	270	167
From Senegal	4	4	107
From other countries	50	114	94
	253	388	368
<i>Undecorticated—</i>			
From British India	8	3	1
From Senegal	263	274	412
From other countries	47	39	7
	318	316	420

Source.—Adapted from Review of the Oilseed, Oil and Oilcake Markets—Frank Fehr & Co.

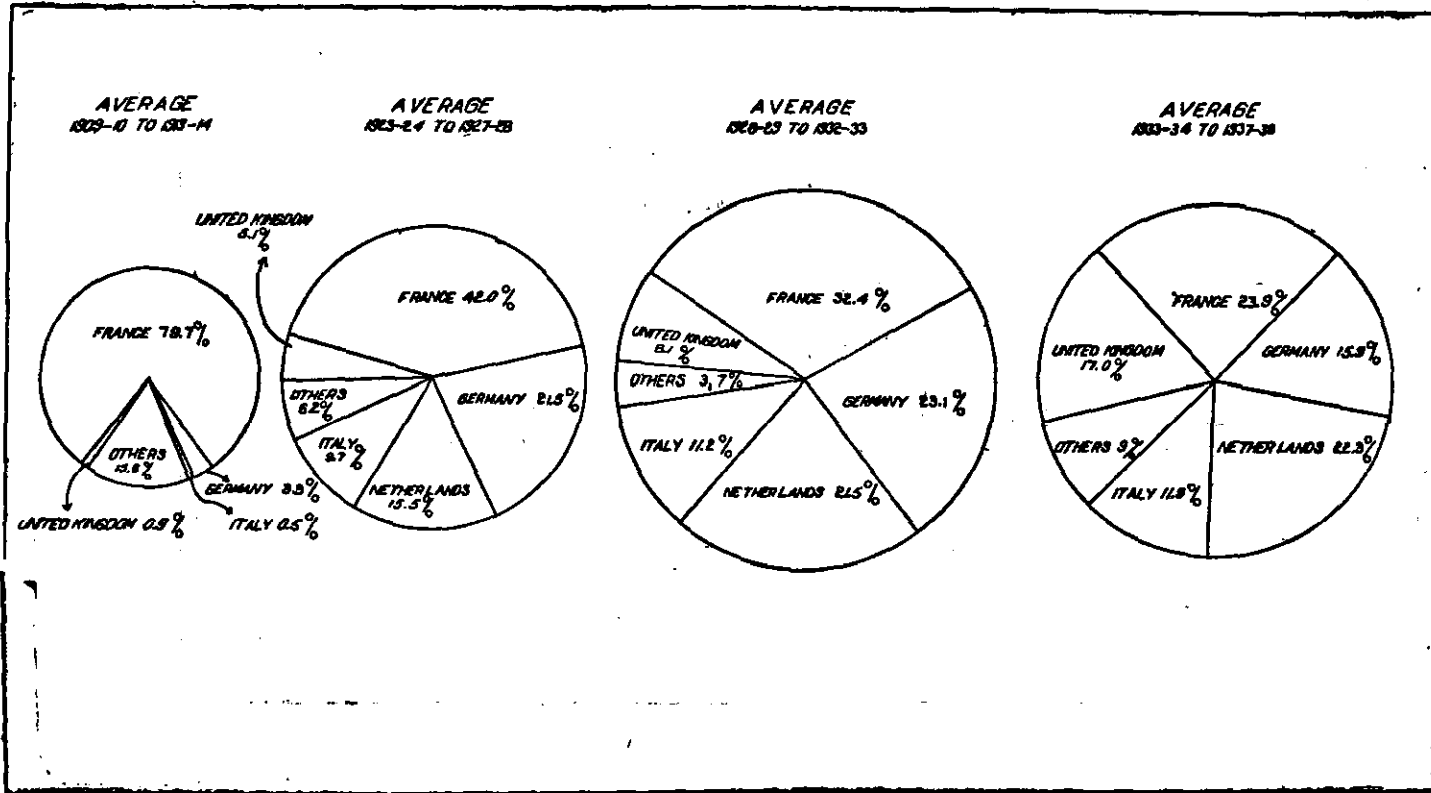
It will be observed that although India's share in the trade in undecorticated nuts has been negligible, she has been France's principal supplier of kernels. During the period 1924—28, 78 per cent of the supplies of kernels were drawn from India. In the next quinquennium 1929—33 only 70 per cent of her supplies were from India although France actually took from India 71,000 tons more than the previous quinquennium. India's share declined further to 45 per cent during the years 1934 to 1938, during which she contributed on an average only 167,000 tons annually to France's supplies. The fall in the trade with India was accompanied by a rapid increase in the imports from Senegal, from which source France used to import insignificant quantities of decorticated groundnuts. In 1934, 38,000 tons kernels were received from this country which rose to 58,000 tons in 1935, 104,000 tons in 1936, 170,000 tons in 1937 and 169,000 tons in 1938.

Among India's other Continental customers Germany, Netherlands, Italy and Belgium deserve special mention. Germany's average off-take before the War of 1914 amounted to only 7,000 tons but she began to take larger quantities since 1925-26 and took as much as 218,000 tons in 1927-28. The average during the quinquennium 1923-24 to 1927-28 amounted to 89,000 tons or nearly 22 per cent of the total exports from British India ports. In the following quinquennium her average off-take increased to 148,000 tons or nearly 23 per cent of the total, on account of the large exports of 241,000 tons and 210,000 tons in 1928-29 and 1929-30 respectively. The quantities taken from 1930-31 to 1932-33 showed a drop so much so that only 48,000 tons were taken in 1932-33. The next quinquennium (1933-34 to 1937-38) witnessed a decline in Germany's off-take from India, the average falling to 90,000 tons or about 16 per cent of the total exports. This decline in the trade with Germany can be attributed mainly to restrictions on imports of oilseeds from foreign countries into Germany, as is evident from the fact that she imported on an average, 534,000 tons groundnuts annually between 1928 to 1932 and only 296,000 tons annually between 1933 to 1937.

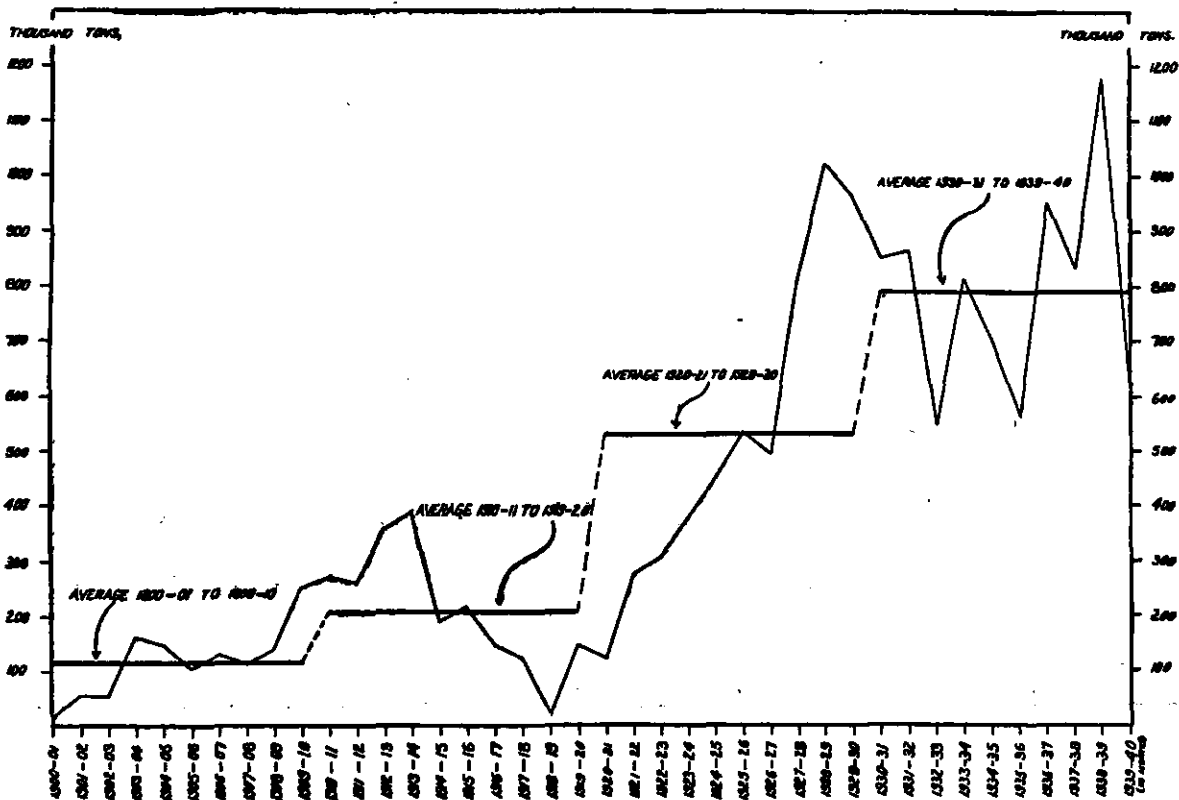
Netherlands and Italy did not take more than a few hundred tons annually before the War of 1914, but with the development of the oil crushing, margarine and hydrogenated oils industry in the former and the industrial development of the latter, they have taken larger shares in recent years. It may be noted that whilst the shares of France and Germany showed a decline in the quinquennium 1933-34 to 1937-38, those of Netherlands and Italy showed a steady increase.

Belgium took, on an average, 15,000 tons annually before 1914 but consequent to the dislocation of her trade due to the 1914-18 War, her off-take declined and it was only in the quinquennium 1933-34 to 1937-38 that her off-take was higher than the pre-War average. Besides the five countries mentioned above, groundnuts are exported to a number of other countries on the Continent, *viz.*, Spain, Norway, Sweden, Austria, Denmark and to Natal, Straits Settlements, Egypt, Hongkong and the United States of America, etc. The trade with these countries is either of small magnitude or only in certain years.

SHARE OF DIFFERENT COUNTRIES IN THE EXPORTS OF GROUNDNUTS FROM BRITISH INDIA PORTS.



TOTAL EXPORTS OF GROUNDNUTS FROM INDIA.



Spain, for example, took as much as 23,000 tons in certain years but the quantities taken in recent years are insignificant. Apart from Continental countries another important buyer of Indian groundnuts is the United Kingdom, with which the trade has increased in importance lately. United Kingdom took less than 1 per cent of British India's groundnut exports before 1914 but her share rose to over 5 per cent in the quinquennium 1923-24 to 1927-28 and to over 8 per cent in the quinquennium 1928-29 to 1932-33. The Ottawa Agreement which granted 10 per cent preference to imports of groundnuts from Empire countries and became operative in 1933, was followed by an increase in quantities exported to the United Kingdom from India, with the result that on an average no less than 96,000 tons representing 17 per cent of the total exports were shipped annually to the United Kingdom during the quinquennium 1933-34 to 1937-38.

An analysis of the sources of imports of groundnuts into the United Kingdom shows that over 60 per cent of her supplies were drawn from British India during the quinquennium 1934-38, the balance being obtained from Nigeria, Gambia and other Empire countries. It is significant to note from the table given below that foreign countries which contributed about 20 per cent of the United Kingdom's requirements during the quinquennium 1929-1933, supplied negligible quantities after the Ottawa Agreement became operative.

Imports of groundnuts into the United Kingdom from India and other countries.

(Thousand tons.)

Sources.	Average 1929-33.	Average 1934-38.
India	66	133
Nigeria, Gambia and other Empire countries ..	32	76
Foreign countries	25	..
Total ..	123	209

(2) EXPORTS FROM KATHIAWAR STATES PORTS.

(a) *Quantities.*—Statistics regarding exports from Kathiawar States ports are available only since 1931-32, in which year 22,000 tons were exported to the United Kingdom and the Continent. In the following year the quantities dropped to less than 10,000 tons, but in 1933-34 they not only recovered but rose to as much as nearly

30,000 tons. A steadily upward trend has been maintained since then except for a small drop in 1936-37 as the following figures will show :—

Exports of groundnuts (kernels and nuts in shell) from Kathiawar States ports.

(Thousand tons.)

		1933-34	..	30	1938-39	..	162
		1934-35	..	37	1939-40	..	85
		1935-36	..	61	(10 months).		
1931-32	..	22		52			
1932-33	..	10		91			
Average	..	16		54			

The average exports in the quinquennium ending 1937-38 amounted to more than three times the average of the preceding two years and in 1938-39 the exports reached a record figure of 162,000 tons. This increase in exports is due to the increase in production in Kathiawar States and to the development in this area of several ports where cheaper terms and greater facilities are available as compared with Bombay. The disturbed conditions in China further helped the exports in 1937-38 and 1938-39 as undecorticated nuts of the quality usually drawn from China were supplied to Europe from the production of Kathiawar States.

(b) *Destinations.*—The quantities exported from Kathiawar States to various countries in different years from 1931-32 to 1938-39 are given in Appendix XII. The exports from Kathiawar States, like those from British India ports, are also to several European countries and the United Kingdom but the biggest customer in this case is the United Kingdom and not France. In the two years 1931-32 and 1932-33 before the operation of the Ottawa Agreement, 28 per cent of the exports from Kathiawar States ports went to the United Kingdom, but after the agreement the share of the United Kingdom in the average annual exports went up to 39 per cent during the quinquennium 1933-34 to 1937-38 and to 65 per cent in 1938-39.

Exports of groundnuts (kernels and nuts in shell) to different countries from Kathiawar States ports.

(Thousand tons.)

Countries.	Average 1931-32 and 1932-33.	Average 1933-34 to 1937-38.	1938-39.	1939-40. (10 months).
United Kingdom	4.5	20.9	105.8	51.2
France	2.1	4.9	5.9	2.2
Germany	1.6	5.2	3.9	0.2
Netherlands	3.9	8.6	5.1	2.3
Italy	1.6	2.4	..	..
Belgium	2.1	1.0	4.7	4.1
Egypt .. .. .	..	10.0	33.1	24.0
Others	0.1	1.2	3.5	0.8
Total ..	15.9	54.2	162.0	84.8

The quantities exported to France, Germany and Netherlands, also show an increase. It may be noted that the quantities shown as exported to Egypt include such shipments as are made to Port Said without destinations being declared.

(3) EXPORTS FROM FRENCH PORTS IN INDIA.

(a) *Quantities*.—The exports from French ports in India (Pondicherry), which, between 1903-04 and 1938-39 (*vide* Appendix X), have varied from nil to 112,000 tons, do not show a consistent trend up or down. The average exports during the last three quinquennia are, however, only about two-thirds of the exports prior to 1914.

Exports of groundnuts (mostly kernels) from French ports in India.

			Thousand tons.
Average 1909-10 to 1913-14	..	..	92
Average 1923-24 to 1927-28	..	..	63
Average 1928-29 to 1932-33	..	..	62
Average 1933-34 to 1937-38	..	..	59

The exports were highest in the two years immediately preceding the 1914-18 War, *viz.*, 1912-13 and 1913-14 and lowest during the period of the War.

It will be interesting to compare the quantities exported from French ports in India with those exported from British India ports during the same period. In the quinquennium before 1914, the exports from French ports in India amounted to nearly 43 per cent of the exports from British India but in the quinquennium 1923-24 to 1927-28, the exports from French ports in India were only 15 per cent of those from British India. There was a further decline in the next two quinquennia when the French ports in India exported only nearly 10 per cent of the quantities exported from British India ports.

(b) *Destinations*.—The quantities exported from French ports in India to different countries from 1933-34 are given in Appendix XIII. The bulk of exports from French ports in India are to France, the main port of destination being Marseilles. Taking an average of the quinquennium 1933-34 to 1937-38 nearly 43 per cent of the exports from French ports in India went to France, 7 per cent to Germany, 11 per cent to Italy and 5 per cent to Belgium. It is significant to note that there were no exports from French ports in India to the United Kingdom from 1933-34 to 1936-37; about 200 tons were, however, exported to the United Kingdom in 1937-38 and 600 tons in 1938-39.

(4) EXPORTS FROM PORTUGUESE PORTS IN INDIA.

(a) *Quantities*.—The exports from Portuguese ports since 1920-21 are given in Appendix X. During the first three years, for which figures are available the exports were about 1,000 tons annually. In 1923-24, however, the exports amounted to 58,000

tons. There was a marked increase for several years after 1927-28 and an appreciable fall after 1933-34 as will appear from the figures below :—

Exports of groundnuts (mostly kernels) from Portuguese ports in India.

(Thousand tons.)

			1928-29	..	154	1933-34	..	196
			1929-30	..	153	1934-35	..	99
			1930-31	..	180	1935-36	..	48
1926-27	..	59	1931-32	..	132	1936-37	..	86
1927-28	..	117	1932-33	..	78	1937-38	..	53
Average	..	88	Average	..	139	Average	..	96

The average exports during the quinquennium 1933-34 to 1937-38, amounted to 96,000 tons as compared with 139,000 tons in the previous 5-year period.

The fall in the quantities exported after 1933-34 is due, to some extent, to the fact that groundnuts exported from Portuguese ports in India do not get in the United Kingdom the 10 per cent preference in duty allowed by the Ottawa Agreement on imports into the United Kingdom from British India ports. The question of securing this preference in the United Kingdom for groundnuts which are the produce of British India but are exported from Portuguese ports in India (Goa), has been receiving the attention of the Government of India and others for a number of years.

(b) *Destinations.*—The quantities exported to different countries from Portuguese ports in India are given in Appendix XIII. The exports from Portuguese ports are mainly to Germany, Netherlands, France and Italy. Taking an average of the exports during the quinquennium 1933-34 to 1937-38 nearly 17 per cent of the exports went to the United Kingdom, about 10 per cent to France, 26 per cent to Germany, 14 per cent to Netherlands, over 15 per cent to Italy and 6 per cent to Belgium. The share of the United Kingdom in the exports from Portuguese ports in India was larger up to 1932-33, but the quantities sent to this destination have appreciably fallen after 1933.

(5) TOTAL EXPORTS FROM INDIA.

(a) *Trend.*—The trend of total exports from India will be clearly seen from the diagram facing page 27, which shows the total exports from all ports in India, *viz.*, British India ports, French ports in India, Portuguese ports in India and Kathiawar States ports taken together. Although the figures for Portuguese ports in India and Kathiawar States ports are available for a limited period only, it is quite clear that there has been a steady upward trend in the exports of groundnuts from India except for a short

decline for a few years from 1914-15 as a result of War conditions. From 1900-01 to 1909-10, India exported, on an average, 116,000 tons annually, which in spite of the decline referred to above, rose to 204,000 tons between the period 1910-11 and 1919-20. With the greatly increased demand for oilseeds following the scarcity of fats during the War, India's groundnut exports more than doubled during the twenties, the average annual exports from 1920-21 to 1929-30 amounting to 534,000 tons. After several years of increase, an appreciable sudden decrease occurred in 1932-33 mainly due to the world markets for fats showing symptoms of saturation, and the production from 1931-32 crop being short. There was a decrease once again in 1935-36 largely on account of very short production from 1934-35 crop as a result of unfavourable weather. Since 1935-36 the exports have been maintained at a high level and a record was reached in 1938-39 when over one million tons of groundnut kernels were exported from India. The outbreak of hostilities in Europe in September, 1939, considerably affected the exports in the later part of 1939-40 and the exports in the ten months of 1939-40 totalled 623,000 tons only, although the average for the period 1920-31 to 1939-40 worked out at 793,000 tons.

The total annual exports since 1928-29 are summarised below :—

*Total exports of groundnuts (mostly kernels) from India.**

(Thousand tons.)

Year.	Through British India ports.	Through Kathiawar States ports.	Through French ports in India.	Through Portuguese ports in India.	Total.
1928-29	787	..	80	154	1,021
1929-30	714	..	97	153	964
1930-31	601	..	70	180	851
1931-32	672	22	37	132	863
1932-33	433	10	25	78	546
Average	642	6	62	139	849
1933-34	546	30	42	196	814
1934-35	511	37	56	99	703
1935-36	413	61	45	48	567
1936-37	739	52	76	86	953
1937-38	614	91	76	53	834
Average	565	54	59	96	774
1938-39	823	162	51	141	1,177
1939-40	427 ⁽¹⁾	85 ⁽¹⁾	75 ⁽²⁾	36 ⁽³⁾	623

*Excluding exports to Burma.

(1) Upto 31st January, 1940.

(2) Upto 14th February, 1940.

(3) Upto 7th January, 1940.

(b) *Share of different countries.*—The destinations of exports from British India, French India, Portuguese India and Kathiawar States ports separately have been discussed in earlier sections, from which the share of different countries in the total exports from India, may be summarised as below for the quinquennium 1933-34 to 1937-38.

Share of different countries in the total exports of groundnuts (mostly kernels) from India.*

(Average 1933-34 to 1937-38.)

(Thousand tons.)

Destinations.	Exported from					Percentage share of each country to total.
	British India ports.	Kathiawar States ports.	French ports in India.	Portuguese ports in India.	Total.	
United Kingdom ..	96	20.9	..	16.1	133.0	17.2
France.. ..	135	4.9	25.1	10.1	175.1	22.6
Germany	90	5.2	4.0	25.1	124.3	16.1
Netherlands	126	8.6	7.0	13.6	155.2	20.1
Italy	67	2.4	6.4	14.8	90.6	11.7
Belgium	24	1.0	3.1	5.8	33.9	4.4
Egypt .. .. .	..	10.0	8.8	8.3	27.1	3.5
Others	27	1.2	4.5	2.6	35.3	4.4
Total	565	54.2	58.9	96.4	774.5	100.0

France retained the first position among India's customers for groundnuts, accounting for more than 22 per cent of total exports. Netherlands and United Kingdom contributed 20 per cent and 17 per cent respectively, while Germany's share during the period was about 16 per cent. These four countries together accounted for more than three-fourths of India's export trade in groundnuts.

(6) EXPORTS FROM BURMA.

Burma used to export a few thousand tons annually but after 1913-14, her exports have been negligible, the annual exports in most of the years being less than 100 tons (*vide* Appendix X). Her exports reached 1,000 tons only in 1919-20 and 1928-29 and 5,000 tons in 1920-21.

*Excluding exports to Burma.

(7) PERIODICITY.

The average monthly exports of groundnuts during the period 1933-34 to 1937-38 from Madras ports, Bombay ports, Kathiawar ports and Portuguese and French ports are given in the table below and illustrated on diagram facing page 34.

*Monthly exports of groundnuts (mostly kernels) from India.**

(Average 1933-34 to 1937-38.)

(Thousand tons.)

Monthy.	Exported from						Percentage of average monthly exports to average annual exports.
	Madras ports.	Bombay ports.	Kathiawar States ports.	Portuguese ports in India.	French ports in India.	Total.	
April	43.6	3.1	3.5	8.5	2.5	61.2	7.9
May	32.6	3.0	5.8	10.3	5.7	57.4	7.4
June	41.6	6.4	2.5	7.2	4.1	61.8	8.0
July	33.5	6.4	1.9	5.9	5.4	53.1	6.9
August	32.3	10.8	3.4	4.4	6.6	57.5	7.4
September	29.0	10.2	6.8	2.5	6.1	54.6	7.0
October	30.5	12.0	7.9	3.0	3.6	57.0	7.3
November	25.6	10.5	6.6	7.7	2.0	52.4	6.8
December	36.6	4.9	2.0	11.8	1.0	56.3	7.3
January	42.1	4.8	4.7	15.4	3.2	70.2	9.1
February	62.2	5.1	4.1	9.5	12.5	93.4	12.1
March	74.8	2.9	5.0	10.2	6.2	99.1	12.8
Total	484.4	80.1	54.2	96.4	58.9	774.0	100.0

It will be seen that the exports continue throughout the year, although different ports show somewhat different periodicity.

The East Coast ports of Madras Presidency show the greatest activity from February to April, when they despatch over 37 per cent of their annual exports. The other months share the exports fairly equally.

Bombay exports more than 54 per cent. of her total annual exports in 4 months, August to November, while the 3 months, March to May, show comparatively little activity.

*Excluding exports to Burma.

Taking Madras and Bombay ports together about one-fourth of the total exports are in two months, February and March, and the balance is spread over the remaining months.

Kathiawar States ports send nearly 39 per cent of their annual exports in the 3 months, September to November. The exports are low in June and July.

The Portuguese port of Goa has the biggest trade in the four months, December to March, during which period over 48 per cent of her exports are sent out. Exports are low in September and October.

The French port of Pondicherry shows the greatest activity in February, sending a little less than a third of her total exports in February and March. Exports are also brisk from July to September when she sends another 30 per cent of her exports.

Allowing for these differences, it will be observed that based on an average of the exports in the period 1933-34 to 1937-38, India exports the largest quantities in the three months, January to March, during which period more than one-third of India's annual exports leave her coasts.

(8) PORTS OF SHIPMENT.

The different ports concerned in the groundnut export trade and their respective hinterland are shown on the map facing page 35. The quantities exported annually from each of the ports from 1930-31 to 1939-40 from the various ports are tabulated in Appendix XIV.

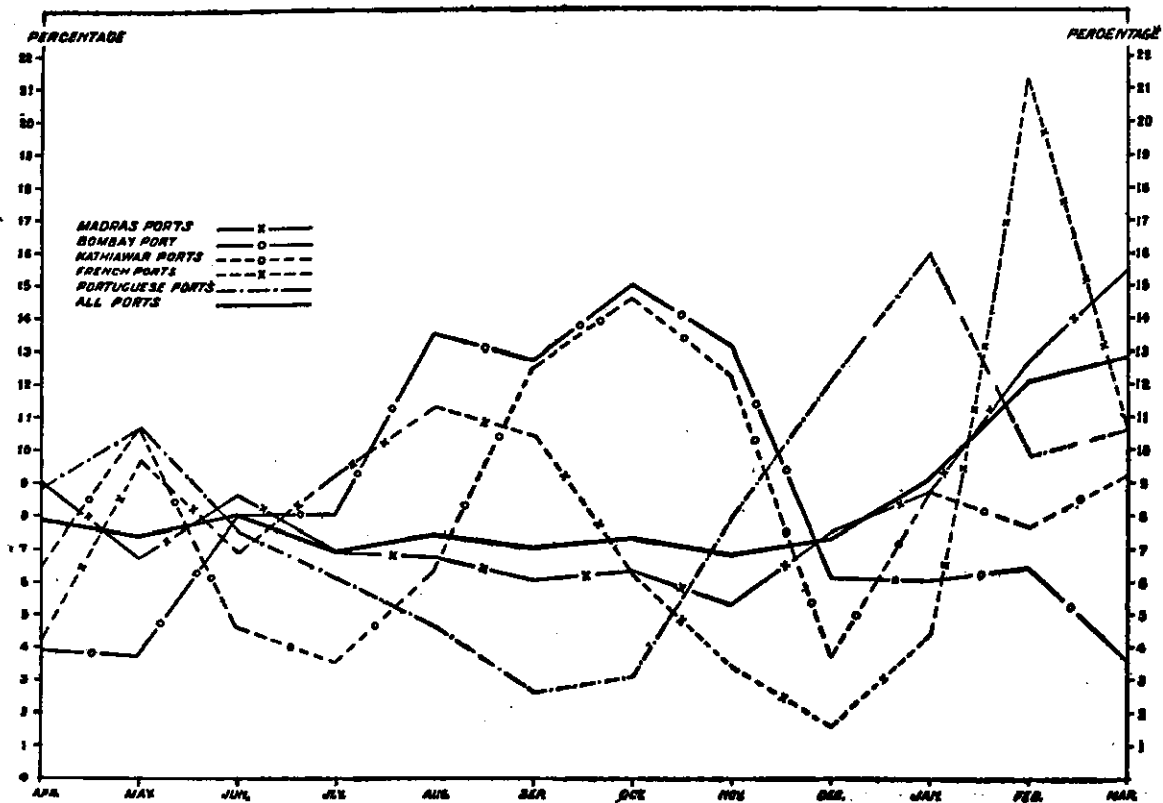
The most important ports on the east coast for the export of groundnuts are Madras, Coconada and Cuddalore, which are natural outlets for the produce of the biggest groundnut growing districts. Masulipatam which was responsible for the export of about a thousand tons only in 1930-31 has rapidly grown in importance and now exports considerable quantities ; as a matter of fact, it headed the list in 1936-37 with an export of 157,000 tons. Negapatam, Calicut, Bimlipatam and Vizagapatam also contribute a fair share to the exports. The new port of Calingapatam appeared in the picture of groundnut exports in 1933-34 and is slowly gaining importance. On the other hand, Porto Novo, which exported a few thousand tons annually till 1933-34 has now ceased to figure in the export of groundnuts.

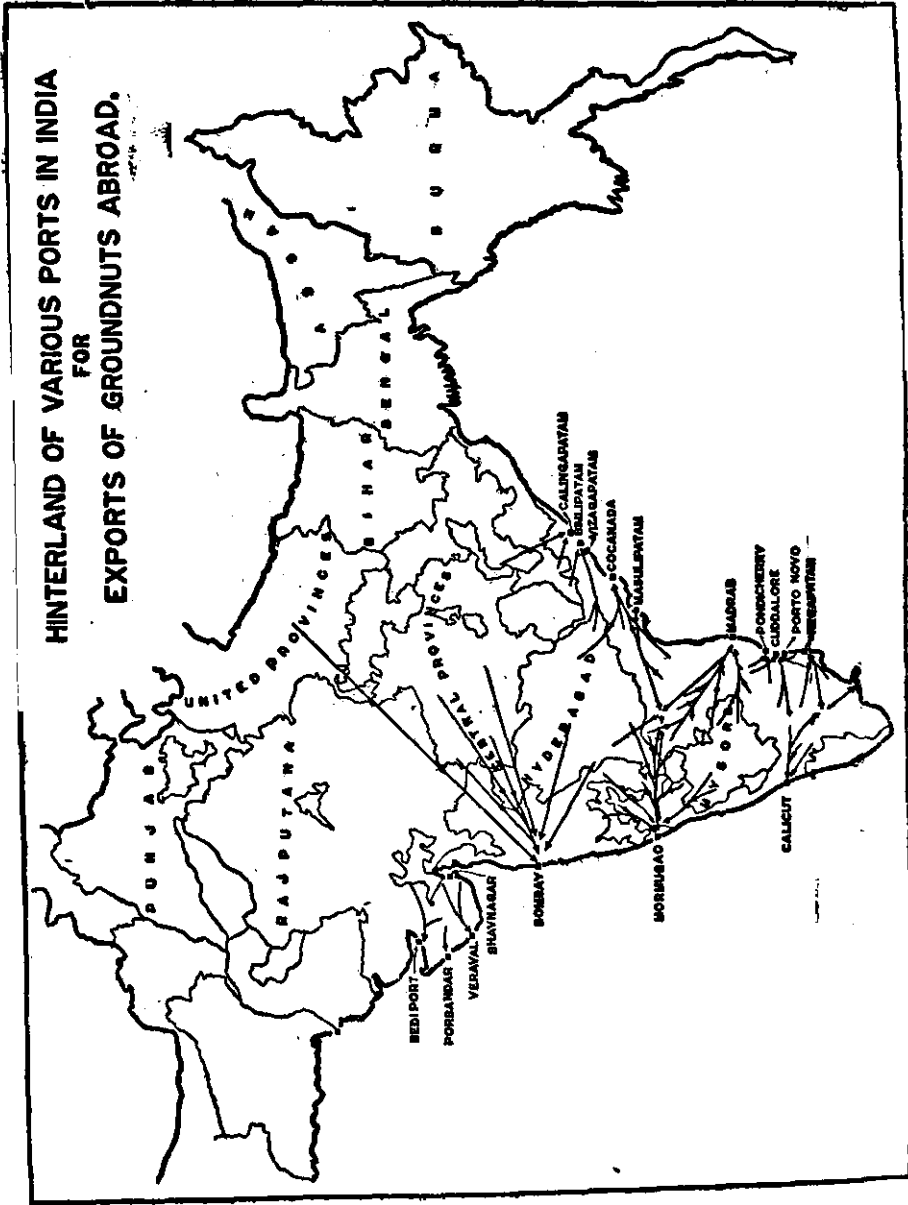
On the west coast, the most important port is Bombay. The only other British India port on the west coast, which contributes to exports of groundnuts is Calicut. The Kathiawar States ports, mainly Veerawal (Junagadh), Nawanagar, Bhavnagar and Porbandar, taken together, are as important in groundnut trade as Bombay.

The only foreign ports, through which Indian groundnuts are exported are the Portuguese port of Goa on the west coast and the French port of Pondicherry on the east coast.

PERIODICITY OF EXPORTS OF GROUNDNUTS FROM INDIA.

(Average monthly exports expressed as percentages of average annual exports—1933/34 to 1937/38.)





(9) VARIETIES EXPORTED.

The published statistics of exports of groundnuts include exports both as nuts in shell and as kernels, and make no distinction between the two. The quantities exported as nuts in shell and as kernels are simply added together, without calculating the equivalent of nuts in shell in the form of kernels or vice versa. The bulk of exports from India are, however, in the form of kernels. Madras ports send almost their entire exports as kernels while Bombay sends only about 300 tons as nuts in shell and the balance as kernels. The exports from Kathiawar States ports are both in the form of kernels and nuts in shell, the proportion of the latter in the total exports from Kathiawar States in recent years being estimated roughly as 30 per cent. The trade from Portuguese and French ports is also almost all as kernels.

The bulk of kernels exported from Madras ports and the French port of Pondicherry are of Coromandel type, Peanuts amounting to about 6 per cent of the exports from Madras ports. Bombay sends Khandesh, Bold and Red Natal types while Kathiawar States ship Superior Bold kernels and nuts as well as some Peanuts. The nuts from Kathiawar States, besides being specially bold in size have got a specially clean and attractive shell and fetch a premium for edible use. The thick shell also helps to preserve the quality of the kernels. The shipping of nuts in shell entails extra freight on the weight of shell but the premium obtainable for Kathiawar nuts permits their being exported in this form.

G.—Imports of groundnut oil.

The imports of groundnut oil into India, which are mainly into Bengal, are of very small magnitude. Before the 1914-18 War, they varied from 10 to 15 tons but the quantities declined from 1915-16 to less than 9 tons, exceeding this figure only thrice in 1925-26, 1933-34 and 1937-38 (*vide* Appendix XV). On the first occasion, Bombay imported 25 tons, while in each of the other two instances, Bengal accounted for the bulk of imports, taking 41 tons in 1933-34 and 26 tons in 1937-38. The quantities imported from 1933-34 to 1937-38 averaged less than 15 tons.

Straits Settlements has been the chief source for groundnut oil, but Ceylon and the United Kingdom account for the bulk of imports in certain stray years. For instance, 25 tons imported into Bombay in 1925-26 were drawn from the United Kingdom, while 41 tons imported into Bengal in 1933-34 and 26 tons imported into the same province in 1937-38 were mainly from Ceylon.

Burma.—The imports into Burma, which are drawn almost entirely from Straits Settlements, are somewhat more than the imports into India. They varied from 14 to 40 tons till the end of the 1914 War but declined in subsequent years, the annual imports since 1932-33 being less than 6 tons.

H.—Exports of groundnut oil.

(1) EXPORTS FROM BRITISH INDIA PORTS.

(a) *Quantities.*—The annual exports of groundnut oil from British India and Burma since 1900-01 are given in Appendix XVI. It will be observed that the exports from British India have fluctuated within very wide limits being as low as 32 tons in 1905-06 and as high as 4,691 tons during the first 10 months of 1939-40.

The average annual exports in the decade 1900-01 to 1909-10 amounted to 225 tons which rose to an average of 1,340 tons between 1910-11 to 1919-20, the increase being due to exceptionally large exports during the period of the War of 1914 and the years immediately following. This high level of exports was not maintained after 1919-20 and the average between 1920-21 and 1929-30 fell to 444 tons. The exports, however, again began to increase from 1930-31, the average exports during the period 1930-31 to 1938-39 rising to 2,230 tons (excluding exports from India to Burma in 1937-38 and subsequent years).

It is significant to note that Bengal, which is not a groundnut producing province, crushed groundnuts as far back as 1890 and contributed the major portion of groundnut oil exports from India up to 1906-07, after which Madras took the lead and gradually increased her exports. The bulk of oil required to meet the increased demand during the period of the 1914 War and the years immediately following was exported from Madras ports.

Bombay began to take a more prominent share from 1928-29 and has consistently held the leading position in groundnut oil exports since then. The record exports from Bombay were in 1932-33 when she exported 3,735 tons or nearly 99 per cent of India's total exports.

(b) *Destinations.*—The published figures for exports of groundnut oil given in Appendix XVI, give the destinations for exports from India and Burma together.

In the early years of the present century the customers for groundnut oil were mainly Mauritius, Natal and Straits Settlements. The exports to Mauritius have been maintained, the quantities taken having varied from a few tons to nearly 600 tons, without any definite trend up or down. Natal took nearly 100 tons in 1901-02 and 1902-03 but the quantities taken rapidly declined and there have been practically no exports after 1924-25. Straits Settlement's off-take reached 100 tons in 1904-05, but the quantities declined in subsequent years and did not exceed 100 tons. She continued to take quantities varying from 200 to 400 tons between 1917-18 to 1920-21 after which the exports became negligible once again. There was a marked increase in 1928-29 when Straits Settlements took more than 1,300 tons. Since then the quantities have again fluctuated widely. Ceylon took a few hundred tons annually between 1909-10 and 1917-18, but her off-take rapidly fell after the 1914-18 War and exceeded 100 tons only from 1927-28 to 1929-30 and again in 1937-38.

United Kingdom became the biggest buyer of groundnut oil during the years 1916-17 to 1919-20, but the trade could not be main-

tained. The following figures will show this rapid rise and fall :—

Exports of groundnut oil from India (British India ports) to the United Kingdom.

(Tons.)

April 1914 to March 1916.	April 1916 to March 1918.	April 1918 to March 1920.	April 1920 to March 1922.
387	5,747	2,815	109

United Kingdom's off-take again showed an increase in 1931-32 and reached 2,732 tons in 1932-33. The next year showed a small drop followed by more marked and steady drop in later years.

Several European countries also have taken groundnut oil from India in stray years notable among them being Germany, Netherlands and Belgium. Other countries that have taken groundnut oil from India in recent years are Muscat Territory, native States of Arabia, Iraq and French Somaliland.

(2) EXPORTS FROM KATHIAWAR STATES PORTS.

(a) *Quantities.*—The exports of groundnut oil from Kathiawar States ports were of very small magnitude till 1934-35 and the annual exports did not exceed 100 tons. There was a big increase in 1935-36 and the exports exceeded 2,500 tons. This increase was largely due to the diversion of trade from Bombay to Kathiawar States ports brought about by increase in consumption of groundnut oil in Bombay and development of groundnut crushing in Kathiawar. There was a further increase to nearly 3,300 tons in 1936-37 but this level could not be maintained and the exports declined to nearly 2,700 tons in 1937-38 and 2,200 tons in 1938-39, as will be seen from the following figures :—

Exports of groundnut oil from Kathiawar States ports.

Year.	Tons.
1931-32	64
1932-33	70
1933-34	78
1934-35	71
1935-36	2,553
1936-37	3,295
1937-38	2,670
1938-39	2,152
1939-40 (10 months)	224

(b) *Destinations.*—The destinations of exports are not recorded in Kathiawar Trade Statistics but enquiries made during the survey indicate that the exports are to the United Kingdom, Germany, Iraq, Arabia, Kenya Colony, Maldiv Islands and Muscat Territory.

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(3) TOTAL EXPORTS FROM INDIA.

The total exports of groundnut oil from India may be summarised as below :—

Total exports of groundnut oil from India.*

(Tons.)

Year.	British India ports.	Kathiawar States ports.	Total.
1928-29	1,689	..	1,689
1929-30	723	..	723
1930-31	682	..	682
1931-32	1,870	64	1,934
1932-33	3,771	70	3,841
Average	1,747	27	1,774
1933-34	2,784	78	2,862
1934-35	1,104	71	1,175
1935-36	1,196	2,553	3,749
1936-37	1,760	3,295	5,055
1937-38	3,215	2,670	5,885
Average	2,012	1,733	3,745
1938-39	3,686	2,152	5,838
1939-40 (10 months)	4,691	224	4,915

It is evident from the above figures that the exports of groundnut oil have been increasing steadily though slowly. Only in 1934-35, the exports registered a big decline as a result of a very short crop. The total exports of groundnut oil from India during the quinquennium 1933-34 to 1937-38 averaged 3,745 tons, which increased to 5,838 tons in 1938-39. It may be noted that the figures given above do not include exports from India to Burma, which are of much bigger dimensions. India exported 6,320 tons to Burma in 1937-38 and 12,313 tons in 1938-39. These will be discussed in a subsequent section.

(4) EXPORTS FROM BURMA.

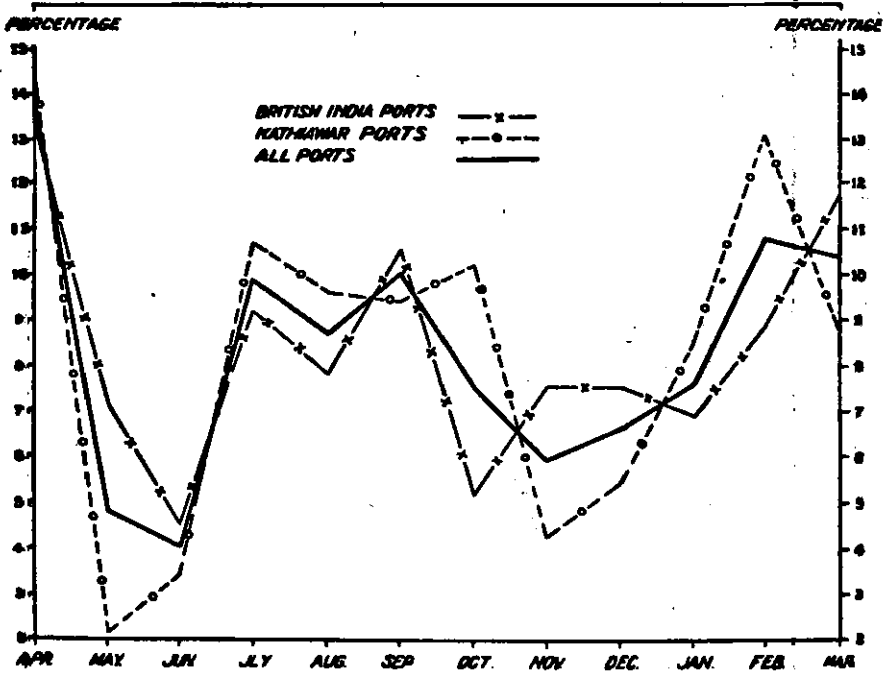
Burma did not export any appreciable quantities before the War of 1914 but her exports were more than 2,000 tons in 1916-17 and a little less than 3,000 tons in 1919-20. After 1919-20, she

*Excluding exports to Burma.

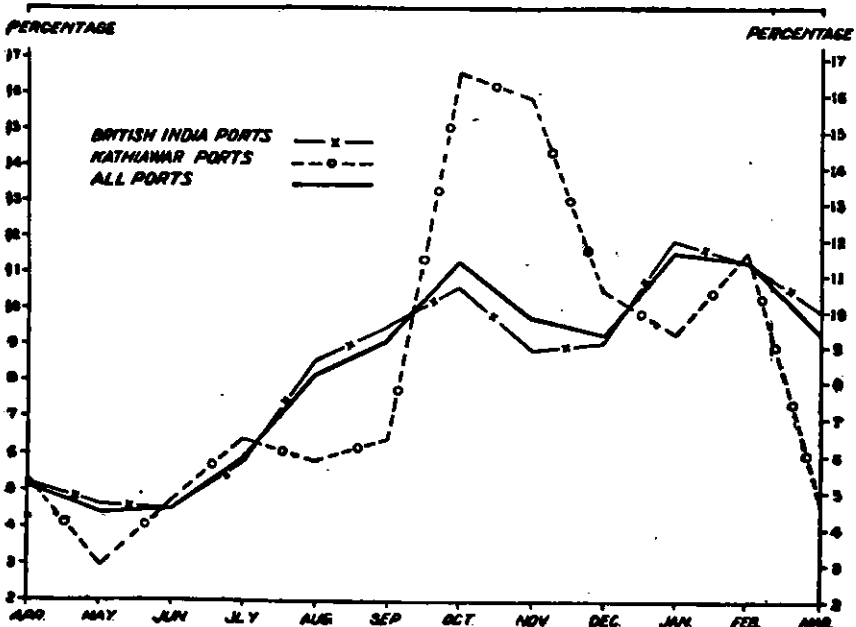
PERIODICITY OF EXPORTS OF GROUNDNUT OIL AND CAKE.

(Average monthly exports expressed as percentages of average annual exports—1933/34 to 1937/38.)

Groundnut oil.

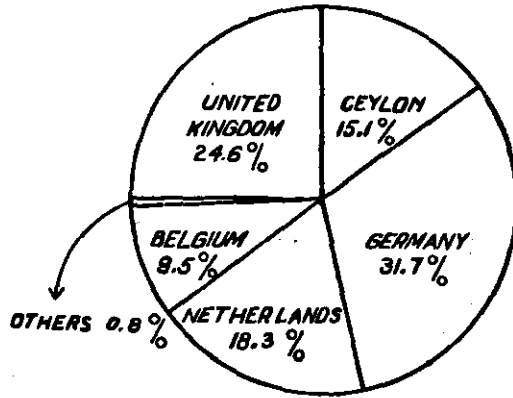


Groundnut cake.

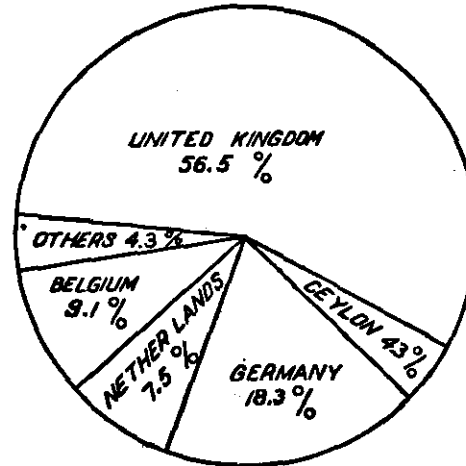


SHARE OF DIFFERENT COUNTRIES IN EXPORTS OF GROUNDNUT CAKE FROM BRITISH INDIA PORTS.
(Thousand tons.)

AVERAGE 1928-29 TO 1932-33.



AVERAGE 1933-34 TO 1937-38.



exported a few hundred tons only in some stray years. The exports during the quinquennium 1933-34 to 1937-38 averaged only 44 tons, which were shared equally between Federated Malaya States and Straits Settlements. These two countries have been practically her only customers in recent years.

(5) PERIODICITY.

The exports of oil both from British India ports and Kathiawar States ports are generally spread out throughout the year, as may be seen from the diagram facing page 38 and the following table giving the average monthly exports during the quinquennium 1933-34 to 1937-38 from British India ports and Kathiawar States ports :—

Monthly exports of groundnut oil from India and Burma.

(Average 1933-34 to 1937-38.)

(Tons.)

Months.	Exported from British India ports (including Burma).	Exported from Kathiawar States ports.	Total.	Percentage of average monthly exports to average annual exports.
April	271	253	524	13·8
May	146	36	182	4·8
June	94	59	153	4·0
July	190	186	376	9·9
August	161	166	327	8·7
September	216	163	379	10·0
October	106	177	283	7·5
November.. .. .	153	72	225	5·9
December	154	94	248	6·6
January	141	147	288	7·6
February	182	228	410	10·8
March	242	152	394	10·4
Total	2,056	1,733	3,789	100·0

In the case of British India ports, April, March and September stand out as the months of heaviest exports while the lowest exports were recorded in June.

In the case of Kathiawar States ports, there used to be no exports of oil in the months of June, July and August up to 1934-35 but with the improvement in conditions at Kathiawar States ports, exports now continue throughout the year. Taking an average of the monthly exports between 1933-34 and 1937-38, April and February appear as the months of heavy exports.

Taking British India and Kathiawar States ports together 35 per cent of the oil exports are in 3 months, February to April.

I.—Imports of groundnut cake.

The imports of groundnut cake both in India and Burma are negligible.

J.—Exports of groundnut cake.

(1) EXPORTS FROM BRITISH INDIA PORTS.

(a) *Quantities.*—Statistics for exports of groundnut cake are available only from 1912-13. The quantities have varied from a minimum of 17,000 tons in 1920-21 to a maximum of 365,000 tons in 1938-39. The exports were less than one hundred thousand tons upto 1926-27, after which there was a steady expansion with the exception of the year 1932-33, when a temporary fall was recorded. The exports during the period 1923-24 to 1927-28 averaged 53,000 tons, which rose to an average of 126,000 tons in the following quinquennium. The next quinquennium from 1933-34 to 1937-38 registered a further increase to an average of 185,000 tons mainly due to the increased off-take of the United Kingdom after the grant of Ottawa Preference.

The major portion of the exports of groundnut cake from British India is from Bombay ports, their share in the total being nearly 80 per cent between 1928-29 and 1932-33, and 68 per cent from 1933-34 to 1937-38. Madras and Bengal ports share the remaining quantities (*vide* Appendix VIII).

(b) *Destinations.*—The quantities exported to different countries from British India ports (excluding Burma) since 1928-29 may be seen in Appendix XVIII and the shares of different countries during the periods 1928-29 to 1932-33 and 1933-34 to 1937-38 are shown in the diagram facing page 39. It will be noticed that the United Kingdom is easily India's biggest customer for groundnut cake. This country accounted for nearly a fourth of the total exports between 1928-29 and 1932-33 and more than 56 per cent of the exports between 1933-34 and 1937-38, her off-take during the two periods being 31,000 and 105,000 tons respectively. France, which is India's biggest customer for groundnuts does not figure in the exports of groundnut cake. Germany accounted for a little less than a third of the exports between 1928-29 and 1932-33 but her share declined to nearly 18 per cent in the following quinquennium. Netherlands and Belgium are also important buyers, while Denmark, Sweden and the United States of America also buy occasionally.

The average quantities taken by different countries in the two quinquennia referred to above are summarised below :—

Exports of groundnut cake from British India ports.

(Thousand tons.)

Countries.	Average 1928-29 to 1932-33.	Average 1933-34 to 1937-38.	1938-39.	1939-40. (10 months).
United Kingdom	31	105	183	111
Ceylon	19	8	6	15
Germany	40	34	80	17
Netherlands	23	14	29	4
Belgium	12	17	22	12
Others	1	7	45	31*
Total	126	185	365	190

(2) EXPORTS FROM KATHIAWAR STATES PORTS.

(a) *Quantities.*—The quantities exported from Kathiawar States ports, which may be seen in Appendix XIX averaged 21,000 tons in 1931-32 and 1932-33 and rose to an average of 34,000 tons during the quinquennium 1933-34 to 1937-38. The exports in 1938-39 further increased to 54,000 tons.

(b) *Destinations.*—United Kingdom, Germany, Netherlands and Belgium are the main customers of groundnut cake exported from Kathiawar States ports. The quantities taken by different countries are summarised below :—

Exports of groundnut cake from Kathiawar States ports.

(Thousand tons.)

Countries.	Average 1931-32 and 1932-33.	Average 1933-34 to 1937-38.	1938-39.	1939-40. (10 months).
United Kingdom	2.5	25.0	46	33
Germany	12.5	3.4	1	2
Netherlands	2.5	0.2	..	..
Belgium	3.5	1.4	..	..
Others .. .. .	..	4.4	7	8*
Total	21.0	34.4	54	43

* Including "for orders" cargoes.

In the two years preceding Ottawa Agreement, nearly 60 per cent of the exports were to Germany while in the 5 years after the grant of Preference nearly 73 per cent of the exports were to the United Kingdom.

(3) TOTAL EXPORTS FROM INDIA.

(a) *Trend.*—The total exports from India may be summarised as under :—

Total exports of groundnut cake from India.

(Thousand tons.)

Year.	British India ports.	Kathiawar States ports.	Total.
1928-29	112	..	112
1929-30	119	..	119
1930-31	133	..	133
1931-32	145	24	169
1932-33	120	18	138
Average	126	8	134
1933-34	146	29	175
1934-35	207	43	250
1935-36	140	27	167
1936-37	183	31	214
1937-38	251	42	293
Average	185	34	219
1938-39	365	54	419
1939-40 (10 months)	190	43	233

The figures indicate a general upward trend, although in certain years the exports were less than that in the year immediately preceding. A comparison with the figures of production of groundnuts shows that the exports tend to be low in a year following a year of short production. For instance, the production in 1931-32 declined to 2·1 millions from 2·5 millions in the previous year. The exports of cake in 1932-33 fell to 138,000 tons from 169,000 tons in 1931-32. Again, the production in 1934-35 fell to 1·7 million tons from 3·2 million tons in the year previous to it. The exports of cake in 1935-36 dropped to 167,000 tons from 250,000 tons in 1934-35.

(b) *Share of different countries.*—The share of different countries in the total exports during the period 1933-34 to 1937-38 may be summarised as below :—

Total exports of groundnut cake from India.

(Average 1933-34 to 1937-38.)

(Thousand tons.)

Countries.	Exports from British India ports.	Exports from Kathiawar States ports.	Total.	Percentage share of each country to total.
United Kingdom	105	25.0	130.0	59.3
Ceylon	8	..	8.0	3.6
Germany	34	3.4	37.4	17.0
Netherlands	14	0.2	14.2	6.5
Belgium	17	1.4	18.4	8.4
Others	7	4.4	11.4	5.2
Total	185	34.4	219.4	100

United Kingdom accounted for 59 per cent of the total exports and Germany for nearly 17 per cent, the two countries together thus taking more than three-fourths of groundnut cake exported from India.

(4) EXPORTS FROM BURMA.

The exports from Burma have generally varied between 25,000 tons and 65,000 tons although in 1917-18 and 1918-19 the exports were as low as 2,000 tons and 6,000 tons respectively. The highest exports were in 1938-39 when 72,000 tons were exported from Burma.

Burma's biggest customer for groundnut cake is also the United Kingdom (*vide* Appendix XX). She took nearly 39,000 tons annually during the period 1928-29 to 1931-32 and 52,000 tons annually during the period 1933-34 to 1937-38. Her share in the total exports in the two quinquennia mentioned above amounted to 83 per cent and 96 per cent respectively. The quantities taken by other countries and their shares are summarised below :—

Exports of groundnut cake from Burma.

(Thousand tons.)

Countries.	Average 1928-29 to 1932-33.		Average 1933-34 to 1937-38.	
	Quantities.	Percentage share of each country to total.	Quantities	Percentage share of each country to total.
United Kingdom	38.6	83	51.8	96
Ceylon	1.6	4	..	..
Germany	4.0	9	0.2	..
Netherlands	0.2	..	0.6	1
Other countries	2.0	4	1.6	3
Total	46.4	100	54.2	100

(5) PERIODICITY.

The exports of cake both from British India ports (including Burma) and Kathiawar States ports are, as will be seen from the diagram facing page 38, spread all over the year, the six months, October to March generally showing more activity than the remaining six months. The average quantities exported monthly between 1933-34 and 1937-38 are given below :—

Monthly exports of groundnut cake from India and Burma.
(Average 1933-34 to 1937-38.)

	British India ports. (Including Burma.)	Kathiawar States ports.	Total.	Percentage of average monthly exports to average annual exports.
	(Thousand tons).	(Thousand tons).	(Thousand tons).	
April	12.1	1.8	13.9	5.1
May	11.0	1.0	12.0	4.4
June	10.9	1.6	12.5	4.5
July	13.9	2.2	16.1	5.9
August	20.6	2.0	22.6	8.2
September	22.8	2.2	25.0	9.1
October	25.3	5.7	31.0	11.3
November.. .. .	21.3	5.5	26.8	9.8
December	21.9	3.6	25.5	9.3
January	28.5	3.2	31.7	11.6
February	27.2	4.0	31.2	11.4
March	24.1	1.6	25.7	9.4
Total	239.6	34.4	274	100

In the case of British India ports the exports are generally highest in January and February and lowest in May and June. About a third of the total quantities are exported in three months, January to March. On the other hand, the exports from Kathiawar States ports are highest in October and November and lowest in May and June. The exports during 3 months, October to December amount to 43 per cent of the total annual exports.

Taking British India and Kathiawar States ports together, 23 per cent of the average annual exports take place in two months, January and February and nearly 63 per cent during six months, October to March.

K.—Net available supplies of groundnuts in India.

The total and net available supplies of groundnuts during the five years 1933-34 to 1937-38 may be summarised as under :—

Net available supplies of groundnuts in India.

(Thousand tons.)

—	1933-34.	1934-35.	1935-36.	1936-37.	1937-38.	Average.
Production (nuts in shell)	3,379	1,890	2,315	2,850	3,676	2,822
Imports from Burma and other foreign countries	(a)	(a)	(a)	(a)	(b)	..
Total supplies ..	3,379	1,890	2,315	2,850	3,676	2,822
Exports to Burma (in terms of nuts in shell).	1	17	6	1	7	6
Exports to other foreign countries (in terms of nuts in shell).	1,163	1,004	910	1,361	1,101	1,106
Total exports ..	1,164	1,021	816	1,362	1,108	1,112
Retention in India ..	2,215	869	1,499	1,488	2,478	1,710
Seed required for sowing calculated from acreage @ 72 lb. kernels per acre (in terms of nuts in shell) ..	357	245	251	327	428	322
Net available supplies (nuts in shell) for consumption and crushing in India.	1,858	624	1,248	1,161	2,050	1,388
Equivalent in terms of kernels ..	1,301	437	874	813	1,435	972
Percentage of net available supplies to production ..	55%	33%	54%	41%	56%	49%

(a) Less than 100 tons.

(b) Less than 200 tons.

The quantities of groundnuts available for consumption and crushing in India in the quinquennium 1933-34 to 1937-38, thus varied between a minimum of 624 thousand tons in 1934-35 and a maximum of nearly 2 million tons of nuts in shell in 1937-38, the average for the period being 1,388 thousand tons nuts in shell or 972,000 tons kernels, representing 49 per cent of the total production. In other words, during the five years 1933-34 to 1937-38, nearly half of India's total groundnut production was utilised for crushing and consumption in the country. ✓

The position during the quinquennium preceding the War of 1914, *i.e.*, from 1909-10 to 1913-14 and for the period 1928-29 to 1932-33, is summarised in the table below :—

Net available supplies of groundnuts in India in 1909-10 to 1913-14 and 1928-29 to 1932-33.

(Thousand tons.)

	Average 1909-10 to 1913-14.	Average 1928-29 to 1932-33.
Production* (nuts in shell)	531	2,477
Imports (in terms of nuts in shell) ..	Less than 300 tons.	Less than 100 tons.
Total supplies	531	2,477
Exports (in terms of nuts in shell)	419†	1,217
Retention (including seed)	112	1,260
Seed required for sowing calculated from acreage @ 72 lb. kernels per acre (in terms of nuts in shell)	54	280
Net available supplies (nuts in shell) for consumption and crushing in India ..	58	980
Equivalent in terms of kernels	41	686
Percentage of net available supplies to production	11%	40%

*In the main producing areas only.

†Excluding exports from India to Burma.

It may be noted that before the 1914-18 War, India consumed very little of her groundnut production, the average quantity utilised for consumption and crushing during the period 1909-10 to 1913-14 being only 58,000 tons amounting to a little over 11 per cent. of the total production.

The consumption gradually increased with the increase in production so that by the quinquennium 1928-29 to 1932-33 a little less than a million tons or nearly 40 per cent. of the total production was utilised in India for crushing and consumption. This further rose to 1.4 million tons during the period 1933-34 to 1937-38 as shown above.

The products obtained from crushing groundnuts, *viz.*, groundnut oil and groundnut cake, are not wholly consumed in India, a small portion of the former and a considerable portion of the latter being exported abroad. The quantities of oil and cake retained in India during the period 1933-34 to 1937-38 are detailed in the following section.

L.—Net available supplies of groundnut oil and cake in India.

The net available supplies of groundnut oil and cake in India, taking an average of the period 1933-34 to 1937-38, may be summarised as under :—

Net available supplies of groundnut oil and cake in India.

(Average 1933-34 to 1937-38.)

(Tons.)

	Groundnut oil.	Groundnut cake.
Estimated production* derived from 840,000 tons kernels	336,000	504,000
Imports from foreign countries	15	..
Imports from Burma	114†	..
Total supplies ..	336,129	504,000
Exports to foreign countries	3,745	219,000
Exports to Burma	4,719‡	..
Total exports ..	8,464	219,000
Net available supplies for consumption in India ..	327,665	285,000

*Vide pages 59 to 68 and 285.

†Exports to India from Burma.

‡Imports into Burma from India.

M.—Net available supplies of groundnuts in Burma.

The net available supplies in Burma may be summarised as below :—

Net available supplies of groundnuts in Burma.

(Thousand tons.)

	1933-34.	1934-35.	1935-36.	1936-37.	1937-38.	Average.
Production (nuts in shell) ..	144	144	144	142	200	155
Imports from India (in terms of nuts in shell) ..	1	17	6	1	7	6
Imports from foreign countries	Less than 5 tons.	Less than 5 tons.	Less than 5 tons.	Less than 5 tons.	Less than 5 tons.	Less than 5 tons.
Total supplies ..	145	161	150	143	207	161

Net available supplies of groundnuts in Burma—contd.
(Thousand tons.)

	1933-34.	1934-35.	1935-36.	1936-37.	1937-38.	Average.
Exports to India (in terms of nuts in shell) ..	Less than 100 tons.	Less than 100 tons.	Less than 100 tons.	Less than 100 tons.	Less than 100 tons.	Less than 100 tons.
Exports to foreign countries (in terms of nuts in shell)	Less than 100 tons.	Less than 100 tons.	Less than 100 tons.	Less than 100 tons.	Less than 100 tons.	Less than 100 tons.
Total exports ..	Less than 200 tons.	Less than 200 tons.	Less than 200 tons.	Less than 200 tons.	Less than 200 tons.	Less than 200 tons.
Retention in Burma ..	145	161	150	143	207	161
Seed required for sowing calculated from acreage @ 65 lb. kernels per acre (in terms of nuts in shell)	26	26	27	32	37	30
Net available supplies (nuts in shell) for consumption and crushing in Burma ..	119	135	123	111	170	131
Equivalent in terms of kernels ..	83	94	86	78	119	92
Percentage of net available supplies to production ..	82%	84%	82%	78%	82%	81%

Burma exports a negligible proportion of her production, so that after meeting the seed requirements, more than four-fifth of the total production is available for consumption and crushing in Burma. Out of quantities crushed, Burma annually exported, taking an average of the period 1933-34 to 1937-38, 158 tons oil and 54,000 tons cake and consumed the remaining oil and cake locally, supplementing the supplies of oil by imports mainly from India.

N.—Net available supplies of groundnut oil and cake in Burma.

The net available supplies of groundnut oil and cake may be summarised as under :—

Net available supplies of groundnut oil and cake in Burma.

(Average 1933-34 to 1937-38.)

(Tons.)

	Groundnut oil.	Groundnut cake.
Estimated production derived from 83,000 tons kernels	33,000	55,000*
Imports from India	4,719	..
Imports from foreign countries	5	..
Total supplies ..	37,724	55,000
Exports to India	114	..
Exports to foreign countries	44	54,000
Total exports ..	158	54,000
Net available supplies for consumption in Burma ..	37,566	1,000

*See page 307, Chap. X.

O.—Note on Burma's trade with India.

Burma imports groundnuts and groundnut oil from India, and exports negligible quantities of the same to India, as will be seen from the following table :—

Imports of groundnuts and groundnut oil into Burma from India and exports of groundnuts and groundnut oil from Burma to India.

(Tons.)

Year.	Imports into Burma from India.		Exports from Burma to India.	
	Groundnuts (kernels).	Groundnut oil.	Groundnuts (nuts in shell).	Groundnut oil.
1928-29	54	10,454	64	14
1929-30	19	6,087	80	1,039
1930-31	166	1,961	67	765
1931-32	13,044	9,692	35	524
1932-33	4,882	6,028	43	15
Average ..	3,633	6,844	58	471
1933-34	1,366	1,482	89	58
1934-35	12,028	1,826	91	467
1935-36	4,032	5,668	60	23
1936-37	814	6,860	92	15
1937-38	5,353	7,758	150	9
Average ..	4,719	4,719	96	114
1938-39	11,795*	12,860	235†	14†
1939-40‡ (8 months) ..	5,343*	9,431	201†	22†

* Including imports from other countries, which are very small in previous years.

† Including exports to other countries, which are very small in previous years.

‡ Total for 8 months, April 1939 to November 1939.

The imports of groundnuts into Burma were small till 1930-31 but in 1931-32, when Burma's own production was only 117,000 tons as compared with 174,000 tons in the previous year, she imported over 13,000 tons from India. Burma's production remained at a low level up to 1936-37 and she continued to supplement her production by imports from India, the imports in 1934-35 exceeding 12,000 tons. In 1936-37, the imports declined to 800 tons in spite of there being no increase in production and in 1937-38 the imports amounted to over 5,000 tons, notwithstanding an increased production of 200,000 tons. This shows that the imports into Burma, do not wholly depend on her production.

The imports of groundnut oil into Burma do not show any regular trend, up or down, and have varied in different years between a minimum of nearly 1,500 tons in 1933-34 and a maximum of over 10,000 tons in 1928-29. The imports during the period 1928-29 to 1932-33 averaged nearly 6,800 tons which declined to an average of about 4,700 tons between 1933-34 and 1937-38. The imports since 1935-36, however, show a steady though small increase.

INTER-CHAPTER ONE.

The important groundnut producing countries, apart from India, are China, Senegal, Nigeria, Gambia, the United States of America and Burma. All with the exception of the United States and Burma—which consume their entire production—are exporting countries, the main buyers being in Europe. India accounts for more than a third of the world total acreage and production of groundnuts, but ranks below China in respect of the yield per acre, the average yield in India being 900 lb. as compared with China's average of 1,600 lb. per acre.

Cultivation of this crop in India has expanded very rapidly during the last 40 years ; from less than 300,000 acres under groundnuts in the beginning of the century, the area reached a record of over 9 million acres in 1937-38, when the production exceeded 3·6 million tons nuts. The acreage and production during the quinquennium 1933-34 to 1937-38, however, averaged 7 million acres and 2·8 million tons respectively. In 1938-39 and 1939-40, the acreage and production showed a further increase and were well over 8 million acres and 3 million tons respectively.

The published official figures of acreage and production of groundnuts in India refer only to the main producing areas, *viz.*, Madras, Bombay, Hyderabad, Bombay States (which include Kathiawar States), the Central Provinces and Mysore. Groundnut cultivation has, however, spread to other provinces and States, of which the United Provinces, the Punjab and Baroda may be particularly mentioned as now having appreciable acreage. It is obviously desirable that these areas be included in the crop forecasts. The average acreage

and production of tracts not included in crop forecasts, are reckoned as 277,000 acres and 112,000 tons respectively.

The nuts grown in India, although marketed under various trade names, fall into four main groups, *viz.*, Coromandel, Bold, Peanuts (or Khandesh) and Red Natal; the first two are borne on the trailing type of plants and the other two on erect plants. Coromandel accounts for nearly 56 per cent of the total production, while Peanuts (including Khandesh) and Bold respectively contribute 22 per cent and 18 per cent of the total. The remaining 4 per cent is shared between Red Natal and others—including local and non-descript varieties. The percentage of kernels in nuts of different varieties averages from 68 per cent to 74 per cent. The nuts of Red Natal and Peanuts (Khandesh) yield a higher percentage of kernels than Coromandel and Bold. Khandesh ranks highest and Bold lowest in respect of the oil content of kernels, the former ranging from 50 per cent to 55 per cent and the latter from 49 per cent to 50 per cent.

The time of sowing and harvesting varies with different varieties and in different parts of the country but the bulk of the crop is sown in June-July and harvested in November-December. Producers do not retain more than 15 per cent of their production for seed, domestic use and oil extraction; 50 to 60 per cent of the remaining marketable surplus leaves their hands between November and January.

The exports abroad are highest from January to March, during which period more than one-third of the annual exports take place. The quantities exported, which show an almost steady upward trend averaged 774,000 tons kernels valued at over 11 crores of rupees during the quinquennium 1933-34 to 1937-38. This is

equivalent to 1,112,000 tons nuts in shell, *i.e.*, 39 per cent of the total production. The exports reached a record figure of 1,177,000 tons kernels equal to 1,681,000 tons nuts in shell in 1938-39. It is important to note that official figures as published state the production in terms of nuts but exports relate to kernels. No distinction is normally made in traffic statistics between nuts and kernels. For the purpose of calculation, 100 tons of nuts may be reckoned to yield 70 tons of kernels.

The ports concerned in the exports are Madras, Coconada, Cuddalore and several other minor ports on the East Coast together with Calicut, Bombay and Kathiawar States ports on the West Coast. The French port of Pondicherry on the East Coast and the Portuguese port of Marmugao on the West Coast also export large quantities of groundnuts grown in British India but are not included in the official Indian Export Statistics.

India's chief customers for groundnut kernels before the outbreak of hostilities in 1939 were France, Netherlands, the United Kingdom, Germany and Italy, which together provided a market for more than 87 per cent of India's exports during the five years 1933-34 to 1937-38. During this period France ranked first with a share of more than 22 per cent followed by Netherlands and the United Kingdom with 20 per cent and 17 per cent respectively. Germany and Italy's share were about 16 per cent and 12 per cent respectively. Although France ranked as India's biggest customer for groundnuts, only about one-fifth of France's groundnut requirements were drawn from India, the French Colonies being responsible for the rest.

Although India ranks first in the export of groundnut kernels, her share in the exports of oil is insignificant, the average exports during the quinquennium

1933-34 to 1937-38 being less than 4,000 tons to foreign countries and about 5,000 tons to Burma. The exports, in which Bombay takes the most prominent share, however, show signs of a steady increase from 1935-36. The chief customers for oil besides Burma are Mauritius, Straits Settlements, Ceylon and the United Kingdom ; the last named country bought over 2,000 tons in 1932-33 and 1933-34, but the trade has not been maintained.

The exports of groundnut cake are of greater magnitude, the average for the five years referred to being 219,000 tons. United Kingdom is easily India's biggest customer for groundnut cake, accounting for nearly three-fifths of the total exports. Germany, Netherlands and Belgium were other important buyers before the outbreak of hostilities in September 1939, while the trade with Ceylon is also of some importance.

The net available supplies of groundnuts in shell for consumption and crushing in India amount to nearly 1.4 million tons nuts, *i.e.*, somewhat less than one million tons of kernels. The available supplies of oil and cake for consumption in India are about 328,000 tons and 285,000 tons respectively.

Burma.—The acreage in Burma expanded from 137,000 acres in 1907-08 to 896,000 acres in 1937-38, the average for the period 1933-34 to 1937-38 being 717,000 acres. Similarly, the production which was in the neighbourhood of 100,000 tons upto 1923-24, increased to 200,000 tons in 1937-38, the average for the period 1933-34 to 1937-38 being 155,000 tons. The exports of kernels and oil from Burma are generally negligible, almost the entire production being consumed locally. She, however, exports almost all her cake production, the average for the quinquennium referred to above being 54,000 tons ; her biggest customer is the United Kingdom.

Burma supplements her supplies by importing both groundnut kernels and groundnut oil from India. The quantities imported are subject to considerable fluctuation from year to year, depending on her own crop. The average during 1933-34 to 1937-38, was less than 5,000 tons both in the case of kernels and oil. The imports reached a record of 12,000 tons kernels and 13,000 tons oil in 1938-39.

The average net available supplies of groundnuts for crushing and eating in Burma amount to 131,000 tons, of which about 118,000 tons are utilised for crushing. The quantities of oil and cake consumed amount, on an average, to about 38,000 tons and 1,000 tons respectively.

CHAPTER II.—UTILISATION AND DEMAND.

A.—Utilisation.

Groundnuts produced in India are either (1) exported abroad or (2) used within the country. Before the 1914-18 War, the quantities exported abroad accounted for a major portion of the production but along with the increase in production, the quantities retained in the country have (as will be seen from the table below) steadily increased, with the result that between 1923-24 and 1932-33, nearly half of the crop was retained in India, while, taking an average for the period 1933-34 to 1937-38, the retention amounted to more than three-fifths of the production.

Proportion of groundnuts retained in India to total production in India.

	Average 1909-10 to 1913-14.	Average 1923-24 to 1927-28.	Average 1928-29 to 1932-33.	Average 1933-34 to 1937-38.
Production (nuts in shell)—thousand tons. . .	531*	1,532*	2,477*	2,822
Exports to foreign countries and Burma (in terms of nuts in shell)—thousand tons.	419†	760†	1,218	1,112
Retained in India for seed, crushing and other uses (nuts in shell).—thousand tons.	112	772	1,259	1,710
Percentage of retention in India to total production.	21%	50%	51%	61%

The quantities retained in India are utilised for 3 purposes, viz., (i) seed for sowing, (ii) edible use and (iii) oil extraction.

(1) FOR EXPORT.

The total exports from India (including exports to Burma) during the quinquennium 1933-34 to 1937-38 averaged 779,000 tons kernels, equivalent to 1,112,000 tons nuts in shell, representing 39 per cent of the production.

(2) IN INDIA.

(a) *For seed.*—The requirements for seed vary in different areas according to the respective seed rates, but taking an average of 72 lb. of kernels per acre (see page 313), the average quantity annually required for seed during the period 1933-34 to 1937-38 amounted to 225,000 tons kernels, equivalent to 322,000 tons nuts in shell, representing nearly 12 per cent of the production.

*Production in main producing areas only.

†Excluding exports from India to Burma.

(b) *For edible use.*—Groundnuts are utilised for edible purposes in several ways. The habit of eating groundnut kernels has now spread to all parts of India. The kernels for eating are taken out from nuts as such or after roasting them, the latter practice being more common. The roasting is done by putting the nuts in a hot iron pan and agitating them with hot sand or by putting them in a pan over a fire. In North India, kernels for eating are invariably taken out from nuts by the consumers themselves, who buy raw or roasted nuts but in South India, where the trade is mostly in the form of kernels, consumers buy both nuts and kernels.

In Madras, raw kernels are used in the preparation of *chutney* by powdering the kernels with chillies, salt, cumin, etc., and water. A preparation called *chutni* used generally in Bombay, Baroda, Gwalior and the Central Provinces is made by mixing parched or beaten rice with roasted gram, groundnut kernels and other dried fruits. Kernels are eaten salted and fried and are also put like copra in small proportions into a number of dishes in Madras and Bombay. They are also used in the preparation of some sweets with sugar, jaggery or *gur*. In Bombay, groundnut kernels form an important item of food on days when religious fasting is observed. In North India, kernels are mixed with other dry fruits such as almonds, copra, walnuts, and eaten generally in the cold weather.

Bold nuts having kernels with a low oil content are preferred for eating but all varieties of nuts are used for edible purposes in different parts of India, the variety locally produced being commonly used in most places. Such provinces and States, which do not produce enough for their requirements, import from areas producing Bold nuts *e.g.*, the Punjab draws its supplies from the United Provinces, Rajputana and the Central Provinces.

The following rough estimates have been made for different provinces and States on the basis of extensive personal enquiries and available statistics about the imports by rail into different provinces and States and arrivals by rail at some important stations:—

Estimated utilisation of groundnuts (in shell) for edible purposes.

Provinces and States.	Quantity. (Tons).	<i>Per capita</i> yearly con- sumption based on 1931 popula- tion.
		(lb.)
Madras	70,000	3.36
Bombay	30,000	3.73
United Provinces	14,000	0.65
Bengal	12,000	0.54
Punjab	10,000	0.95

Estimated utilisation of groundnuts (in shell) for edible purposes—contd.

Provinces and States.	Quantity. (Tons).	<i>Per capita</i> yearly con- sumption based on 1931 popula- tion.
		(lb.)
Central Provinces	5,000	0.72
Bihar and Orissa	4,000	0.24
Assam	200	0.05
Sind	500	0.20
Hyderabad	15,000	2.33
Mysore	5,000	1.71
Bombay States	6,000	3.01
Madras States	7,000	2.32
Central India States	3,000	1.01
Baroda	1,500	1.38
Gwalior	1,500	0.95
Rajputana States	1,000	0.20
Kashmir	50	0.03
Others	2,250	0.07
Total	188,000	1.19

The estimated total utilisation for edible purposes thus amounts to 188 thousand tons, i.e., 6.7 per cent or nearly 7 per cent of the total production, of which, as has been mentioned in the previous chapter, nearly 2 per cent is consumed on producers' holdings.

The *per capita* consumption is higher in the main producing areas. Madras and Bombay consume 3.4 and 3.7 lb. per head respectively, the higher *per capita* consumption in Bombay being accounted for by the large consumption on fast days. The consumption in non-producing provinces is largely in urban areas only, the lowest *per capita* consumption being estimated in Kashmir and Assam.

The consumption of groundnuts for edible purposes in India, amounting to a little over 1 lb. per head per annum, appears to offer a field for expansion when one considers the wide use of groundnuts as edible nuts elsewhere, as for example, in the United States of America. The nuts are not only eaten there as such but are also utilised in a number of preparations in which

groundnuts form the main constituent such as peanut soup, peanut butter, peanut cake, peanut salad, etc.* Some of these preparations are likely to find favour in India.

(c) *For oil extraction.*—The crushing of groundnut kernels for the manufacture of groundnut oil (and groundnut cake) has rapidly developed in India and now accounts for the major portion of disappearance of groundnuts in the country. No statistics are available for the quantities crushed, which vary from year to year, but on the basis of enquiries made and information collected during the survey it is estimated that during the period 1933-34 to 1937-38 an average of about 840,000 tons kernels equivalent to nearly 1,200,000 tons nuts in shell or 42 per cent of the total production were utilised annually for expression of groundnut oil. The quantities estimated to be crushed in different provinces and States are summarised in the table below :—

Estimated utilisation of groundnuts (in terms of nuts in shell) for oil extraction.

Provinces and States.	Quantity. (Tons).
Madras	475,000
Bombay	350,000
Central Provinces	32,000
United Provinces	30,000
Bengal	8,000
Bihar and Orissa	2,000
Sind	2,000
Punjab	1,000
Assam .. .. .	....
Hyderabad	125,000
Bombay States	125,000
Mysore	20,000
Madras States	10,000
Baroda	10,000
Central India States	4,000
Gwalior	1,000
Others	5,000
Total	1,200,000

*For a description of the preparations "How to grow the peanut and 105 ways of preparing it for human consumption" by George W. Carner, published by Experimental Station, Tuskegee. Normal and Industrial Institute Alabama may be consulted.

The crushing is done mostly in the form of kernels but often a proportion of nuts in shell is mixed with kernels or a small percentage of shell is added to facilitate crushing. Sometimes nuts in shell are crushed without decortica-ting them.

(3) SUMMARY.

The estimated utilisation of groundnuts produced in India between 1933-34 and 1937-38 is summarised in the following table and illustrated in the diagram facing this page.

Summary of utilisation of groundnuts (in shell) in India.

(Average 1933-34 to 1937-38).

Supplies. (Nuts in shell).	Thousand tons.	Utilisation. (In terms of nuts in shell).	Thousand tons.
Production	2,822	Exports (in terms of nuts in shell)	1,112
Imports	Negligible.	Seed	322
		Edible use	188
		Oil extraction	1,200
Total supplies ..	2,822	Total utilisation ..	2,822

B.—Demand.

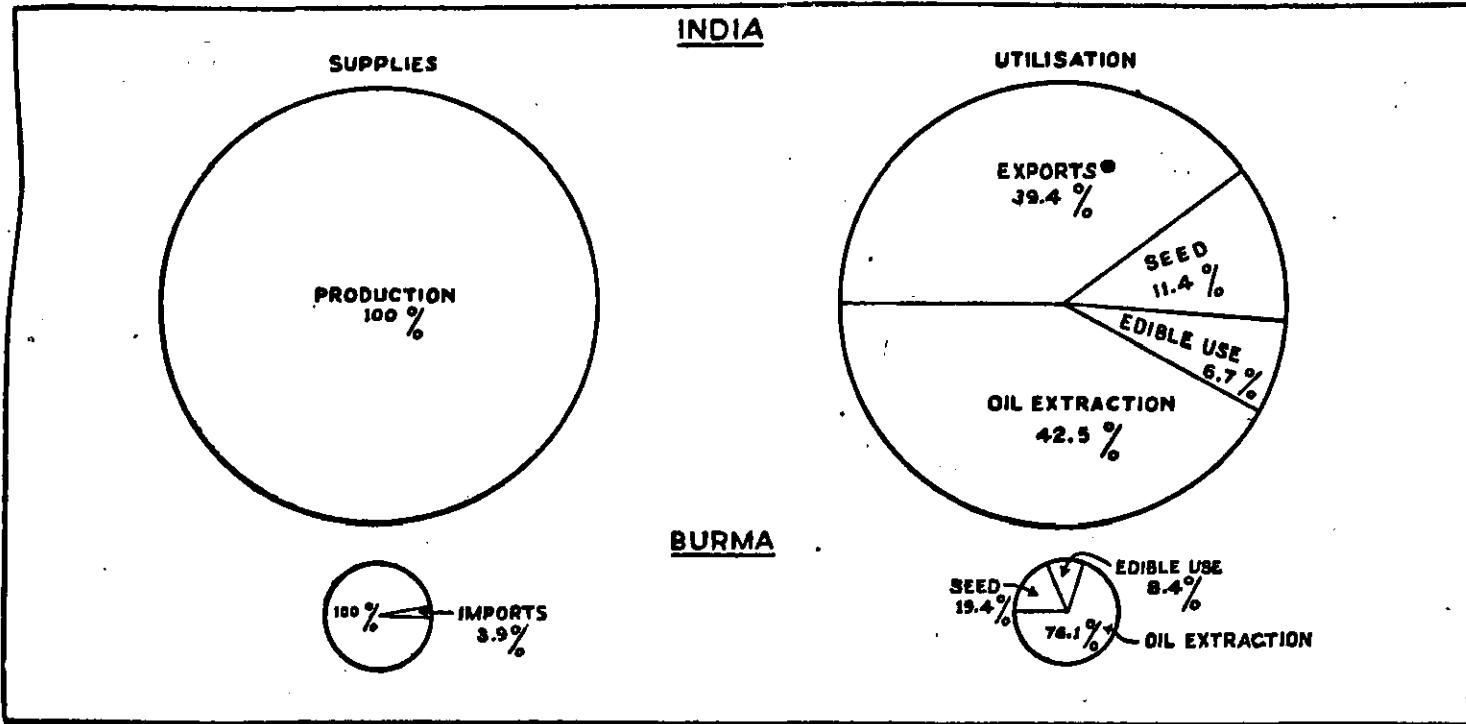
(1) QUANTITATIVE REQUIREMENTS.

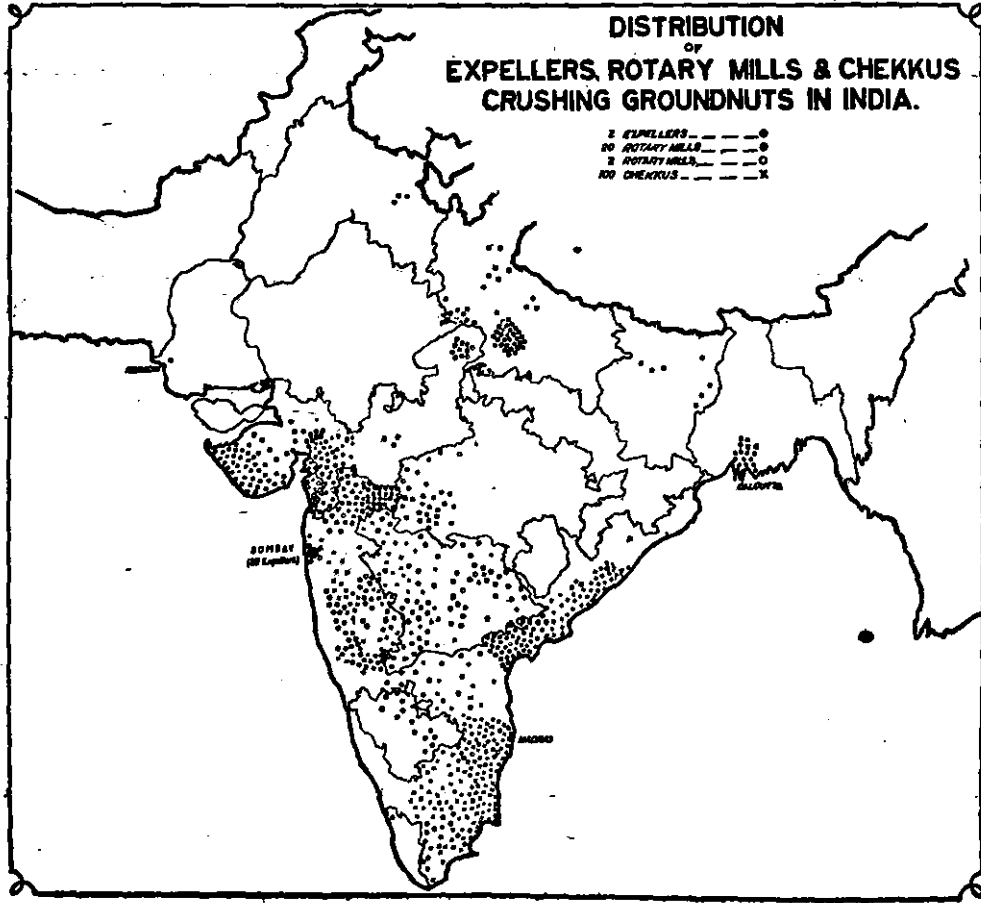
(a) *For export.*—The quantities required for export have already been discussed in the previous chapter.

(b) *For utilisation in India.*—Apart from the requirements for seed and edible purposes, referred to in the earlier section, the largest quantities are utilised in India for oil extraction. The factories crushing oilseeds in India, unlike several other countries, are not required to furnish particulars of quantities of different oilseeds crushed by them and, therefore, statistics about crushing of various oilseeds are completely lacking in India. Enquiries were made from a large number of mills and it was found that the crushing of groundnuts is done mainly in expellers* and rotary *ghanis**. Hydraulic presses and hand presses* are utilised only to a limited extent. Besides the machines driven by power operating in nearly 350 mills working in different parts of India, considerable quantities of groundnuts are crushed in village or country *chekkus* or *ghanis* worked by draught animals. The distribution of expellers, rotary mills and *chekkus*, handling groundnuts—exclusively or along with other oilseeds—is shown in map facing page 61.

* See pages 258 and 259 for description.

SUPPLIES AND UTILISATION OF GROUNDNUTS IN INDIA AND BURMA.





The quantities crushed vary from year to year, as will be seen from the following table giving the quantities crushed by 41 mills working in different parts of India.

Quantities of groundnut kernels crushed by a certain number of mills in India.

(Tons).

Provinces and States.	No. of mills.	No. of expellers.	No. of rotary mills.	1933-34	1934-35	1935-36	1936-37	1937-38	Average.
Madras ..	9	17	25	5,761	6,360	9,346	15,782	13,744	10,198
Bombay ..	10	27	24	15,590	15,640	12,530	14,341	28,046	17,229
Mysore ..	2	11	..	3,724	3,170	2,708	2,272	2,758	2,926
Central Provinces and Berar	5	..	..	4,155	4,129	3,178	3,272	4,334	3,814
United Provinces ..	2	5	..	..	..	42	10	722	155
Punjab ..	1	2	2	..	..	..	77	52	26
Bihar ..	4	10	..	..	..	..	..	1,550	310
Bengal ..	3	..	..	..	2,385	1,405	2,906	3,075	1,954
Cochin, Porbandar and Gwalior States ..	5	13	8	2,667	3,083	2,980	5,931	10,622	5,057
Total ..	41	85	59	31,897	34,767	32,189	44,591	64,903	41,669

The quantities crushed during the period 1933-34 to 1937-38 by 9 mills in Madras ranged between a minimum of less than 6,000 tons in 1933-34 and a maximum of nearly 16,000 tons in 1936-37. Ten mills in Bombay crushed about 12,500 tons in 1935-36 and as much as 28,000 tons in 1937-38.

The position about groundnut crushing in the various provinces and States is discussed below:—

Madras.—Enquiries made during the survey show that in 1935-36 there were 152 expellers, 169 rotary mills and 450 hand presses crushing oilseeds in the province, in addition to 25,128 country *chekkus* working in villages. The number of expellers has increased since then by about 15 to 25. The expellers and rotary mills (except in Malabar and South Kanara districts where there are about 6 expellers and 100 rotary mills working mainly on copra) mainly crush groundnuts, while hand presses work on groundnuts and castor seed. Country *chekkus* crush sesame, groundnut, copra and other oilseeds, the seeds handled by *chekkus* in a particular district depending on the oilseeds locally produced and the season. For example, *chekkus* do not crush groundnuts in Malabar, South Kanara, Nilgiris and East Godavari districts, crush little in Nellore and Tinnevely districts, but remain engaged mainly on groundnuts in North Arcot, South Arcot, Salem and Madura districts. It is reckoned that nearly 145 expellers, 70 rotary mills, 300 hand presses and 18,000 *chekkus* take part in crushing groundnuts.

The figures of annual crushings from 4 mills in Madras having 10 expellers show that these together crushed on an average 5,315 tons kernels annually between 1933-34 and 1937-38, giving an average of 531 tons kernels crushed per expeller per year. Two mills having 25 rotary mills together crushed 3,109 tons annually giving an average of nearly 125 tons per rotary mill per year. The quantity of groundnut kernels crushed by 145 expellers and 70 rotary mills on this basis works to 85,745 tons kernels equivalent to nearly 123,000 tons nuts in shell. Allowing 7,000 tons as crushed by hand presses, the crushing by expellers, rotary mills and hand presses together may be estimated as 130,000 tons in terms of nuts in shell. The annual crushings similar to those from mills are not available—they are as a matter of fact not maintained—for any country *chekkus* but enquiries in all parts of the province indicate that a *chekku* on an average crushes nearly 250 lb. kernels per day and works 120 days in a year on groundnuts. The total quantities crushed annually by 18,000 *chekkus* on this basis amount to 241,071 tons kernels equivalent to nearly 345,000 tons nuts in shell.

The total quantities utilised for crushing in the province are thus estimated as 475,000 tons.

Bombay.—The number of expellers in Bombay was reckoned in 1935-36 to be 223 besides 661 rotary mills and 14,351 *chekkus*. Expellers and rotary mills have now increased to 271 and 828 respectively. Of these, 220 expellers, 600 rotary mills and 7,000 *chekkus* may be estimated to have partaken in groundnut crushing on an average during 1933-34 to 1937-38. There are a number of hydraulic presses also in Bombay but they are now seldom used for pressing groundnuts. Three mills in the province having 6 expellers crushed, between 1933-34 and 1937-38, on an average 3,570 tons kernels annually, *i.e.*, 595 tons per expeller per year. One mill having 18 rotary mills annually crushed 2,186 tons kernels, *i.e.*, 121 tons per rotary mill per year. The quantities crushed by expellers and rotary mills in the province amount on the above basis to nearly 204,000 tons kernels or 291,000 tons in terms of nuts in shell. The crushing by *chekkus* is reported to be on the decrease and it is estimated that about 41,000 tons kernels or 59,000 tons nuts in shell are annually crushed by *chekkus*. The total quantities crushed in the presidency thus amount to 245,000 tons kernels equivalent to 350,000 tons nuts in shell. It may be mentioned that the *chekkus* generally crush kernels mixed with shell or kernels and nuts in shell mixed.

Central Provinces.—The province has 68 expellers and 93 rotary mills of which 23 expellers and 47 rotary mills located together in 22 mills crush groundnuts. Besides the expellers and rotary mills, there are 18,551 *chekkus*, which work mainly on linseed and sesame; only 125 *chekkus* are engaged in crushing groundnuts during some part of the year. The quantities crushed annually in the province are estimated as 32,000 tons nuts.

United Provinces.—There was no crushing of groundnuts in the United Provinces prior to 1932 and village *ghanis* even now do not handle groundnuts. The quantities crushed in mills with expellers and rotary mills have, however, rapidly increased and no less than 20 big oil mills having about 40 expellers

and 600 rotary mills take part in the crushing of this oilseed along with other oilseeds such as mustard, linseed, castor, etc. The average quantities annually involved are estimated as 30,000 tons nuts.

Punjab.—There was no crushing in the Punjab up to 1934-35, but since then 3 or 4 mills have started crushing locally produced groundnuts. Village *ghanis* do not take part in groundnut crushing, which now averages about 1,000 tons nuts annually.

Bengal.—The mills mainly crush mustard and linseed but in recent years several mills at Calcutta have begun crushing groundnuts in expellers, the quantities handled annually being estimated as 8,000 tons.

Bihar and Orissa.—Bihar formerly did not crush groundnuts but in recent years some mustard mills have taken to occasional crushing of groundnuts. Orissa crushes some groundnuts in Ganjam district, which before 1937 formed part of Madras. The annual crushings in Bihar and Orissa together are estimated not to exceed 2,000 tons.

Sind.—The crushing is done only at Karachi, where two mills with 28 rotary mills annually crush nearly 2,000 tons in terms of nuts in shell.

Hyderabad.—Hyderabad has 81 oil mills having 59 expellers, 248 rotary mills and 6,000 *chekkus*. Expellers and rotary mills are engaged mainly on groundnuts while *chekkus* crush safflower, *til* and other oilseeds besides groundnuts. It is reckoned that about 3,500 *chekkus* handle groundnuts. The annual crushings are estimated as 125,000 tons in terms of nuts in shell, of which only 25,000 tons are reckoned to be utilised by *chekkus*.

Mysore.—There are 12 mills having nearly 30 expellers engaged mainly on crushing groundnuts, annually using nearly 20,000 tons nuts in shell.

Bombay and Kathiawar States.—Extraction of oil from groundnuts is carried on in Kathiawar States—mainly in Bhavnagar, Porbandar, Nawanagar, Rajkot, Junagadh and Gondal—as also in Kolhapur and several other Deccan and Gujarat States. The crushing is done by expellers of which there are over 50 working in nearly 30 mills in Kathiawar and by rotary mills and village *chekkus*. Bhavnagar crushes annually about 30,000 tons nuts in expellers and nearly 5,000 tons by *chekkus*. Rajkot uses about 1,200 tons nuts for oil extraction and Nawanagar, Junagadh and Gondal about 3,000 tons each. Kolhapur has about 10 expellers crushing about 7,000 tons annually. Allowing for the quantities crushed in other States, the total quantities crushed in Bombay and Kathiawar States are estimated as 125,000 tons nuts in shell.

Madras States.—Travancore does not crush groundnuts while Cochin has one big mill and 29 *chekkus*. Pudukkottai crushes groundnuts only in *chekkus*. The total quantities of nuts crushed annually in Madras States are estimated as 10,000 tons.

Baroda.—Baroda has about 16 mills with 12 expellers and 100 rotary mills working on groundnuts besides 150 *chekkus*. The average annual crushing is estimated as 10,000 tons nuts.

Central India States.—In Central India groundnuts are crushed in Indore, Barwani, Jhabua and several other States. The total annual crushing is estimated as 4,000 tons.

Gwalior.—There are about 20 oil mills but only four crush groundnuts with expellers and rotary mills. Their annual requirements are estimated as equivalent to 1,500 tons nuts in shell.

(2) QUALITATIVE REQUIREMENTS.

(a) *For export.*—The export demand for different varieties may be judged from the following table which gives the annual totals of monthly shipments during the quinquennium 1933-34 to 1937-38 of different varieties from which samples were drawn for arriving at standards of fair average quality by the Incorporated Oil Seed Association, London, under whose contract the bulk of the export trade in groundnuts is carried.

Annual totals of shipments of different varieties of groundnuts sampled by the Incorporated Oil Seed Association, London.

(Thousand tons).

Year.	Coro- mandel*.	Khan- desh†.	Bold‡.	Red Natal.	Pollachi Red.	Total.
1933-34 ..	474	65	21	13	4	577
1934-35 ..	443	52	34	7	3	539
1935-36 ..	307	36	34	4	2	383
1936-37 ..	430	109	91	10	7	647
1937-38 ..	460	114	91	8	..	673
Average ..	422.8	75.2	54.2	8.4	3.2	563.8
Percentage of each variety to total	75%	13%	10%	1½%	½%	100
1938-39 ..	578	269	145	16	..	1,008
1939-40 ..	404	132	88	4	..	628

Source.—Compiled from figures received from the Incorporated Oil Seed Association, London.

Taking an average for the period 1933-34 to 1937-38 Coromandel accounted for 75 per cent of the total quantities while Khandesh and Bold accounted for 13 per cent and 10 per cent respectively. Red Natal and Pollachi Red together made up nearly 2 per cent of the total.

The export demand is thus mainly for Coromandel variety which also forms the bulk of production in Madras. It may be mentioned that the demand for Coromandel is for "machine decorticated" quality. There is another quality known as Coromandel "hand shelled" or "ordinary", which is, as will be seen in a subsequent chapter, obtained by shelling the nut by beating without the use of machinery.

*Includes Summer Crop 1,800 tons in 1933-34, 20,000 tons in 1936-37, 45,000 tons in 1937-38, 28,000 tons in 1938-39 and 5,000 tons in 1939-40.

†Includes Superior Khandesh 4,700 tons in 1937-38, 20,900 tons in 1938-39 and 10,800 tons in 1939-40.

‡Includes Superior Bold (Kathiawar) 42,000 tons in 1936-37, 69,000 tons in 1937-38, 120,000 tons in 1938-39 and 71,000 tons in 1939-40.

The other variety grown in Madras, namely, Peanuts, has a limited demand in export markets on account of its inferior keeping qualities. This is due to the comparatively thin seed coat which makes the variety more susceptible to damage during transit. The prices for Peanuts offered by the exporters in India are, therefore, lower than those for Coromandel.

Of the Bombay varieties, Khandesh and Bold have a fair demand in export markets. Khandesh variety contains more oil than Coromandel but on account of its high free fatty acid content it was sold at a discount of nearly 2s. 6d. per ton as compared with Coromandel. The shipments of Khandesh variety made after November 1936, however, showed free fatty acids appreciably lower than Coromandels and Khandesh variety, thereafter, could be sold in London market in 1937-38 and 1938-39 without the usual discount. The following two tables show the comparative percentages of free fatty acids and oil found by Incorporated Oil Seed Association, London, in shipments of different varieties from India since 1930-31.

Average percentage of free fatty acids in shipments of groundnut kernels from India.

Year.	Coro- mandel.	Coro- mandel Summer Crop.	Khan- desh.	Superior Khan- desh.	Bombay Bold.	Superior Bold (Kathia- war).	Red Natal.	Pollachi Red.
1930-31 ..	3.39	..	2.71	..	1.89	..	4.30	..
1931-32 ..	4.14	2.11	5.05	..	1.96	..	3.78	..
1932-33 ..	4.58	5.14	5.23	..	2.63	..	8.40	9.02
1933-34 ..	5.29	3.58	3.21	..	3.62	..	5.68	7.78
1934-35 ..	4.75	..	3.17	..	5.37	..	3.58	5.19
1935-36 ..	3.90	..	3.45	..	2.44	..	5.30	5.43
1936-37 ..	4.80	4.96	4.88	..	2.33	2.08	3.35	3.29
1937-38 ..	4.64	5.99	2.86	0.60	5.63	1.81	2.45	..
1938-39 ..	3.69	4.55	2.05	1.57	4.12	1.94	3.75	..
1939-40 ..	4.58	3.78	3.40	3.78	3.64	2.31	5.06	..

Average percentage of oil (on the basis of pure produce) in shipments of groundnut kernels from India.

Year.	Coro- mandel.	Coro- mandel Summer Crop.	Khan- desh.	Superior Khan- desh.	Bombay Bold.	Superior Bold (Kathia- war).	Red Natal.	Pollachi Red.
1930-31 ..	48.23	..	48.02	..	46.85	..	48.03	..
1931-32 ..	48.13	47.52	48.05	..	46.73	..	47.02	..
1932-33 ..	48.86	48.96	47.87	..	46.48	..	46.71	47.19
1933-34 ..	48.63	49.69	48.83	..	46.88	..	47.08	46.64
1934-35 ..	48.10	..	48.43	..	47.65	..	48.70	47.56
1935-36 ..	48.16	..	48.47	..	47.02	..	47.60	46.57
1936-37 ..	48.33	50.28	48.92	..	46.42	48.36	47.92	48.00
1937-38 ..	48.18	50.55	48.67	48.89	46.92	49.02	47.61	..
1938-39 ..	48.04	50.36	48.44	48.71	47.30	48.89	47.57	..
1939-40 ..	48.15	50.81	48.30	48.32	46.83	48.58	46.88	..

Source.—Compiled from figures received from the Incorporated Oil Seed Association, London.

It will be evident from the preceding tables that should the improvement in Khandesh variety referred to above be maintained*, there is likely to be a bigger export demand for this variety in future. The percentage of free fatty acids is important from the point of view of quality of oil obtained as high free fatty acid renders the kernels unfit for expression and use as edible oil.

Besides oil content and free fatty acids, another consideration for judging quality of shipments is admixture with impurities. Business done under the Incorporated Oil Seed Association contracts is on pure basis and allowance is made for all admixture. Shipments of Bombay Bold generally have more impurities as compared with Coromandel and Khandesh as will be seen from the table below :—

Average percentage of admixture in shipments of groundnut kernels from India.

Year.	Coro- mandel.	Coro- mandel Summer Crop.	Khan- desh.	Superior Khan- desh.	Bombay Bold.	Superior Bold (Kathia- war).	Red Natal.	Pollachi Red.
1930-31 ..	2.09	..	2.33	..	2.20	..	2.03	..
1931-32 ..	2.07	2.06	2.25	..	2.12	..	1.66	..
1932-33 ..	1.84	1.64	1.84	..	2.12	..	1.69	1.57
1933-34 ..	1.97	1.89	1.93	..	2.16	..	1.21	1.18
1934-35 ..	1.98	..	1.99	..	2.15	..	1.49	1.66
1935-36 ..	2.12	..	2.01	..	2.43	..	1.73	2.08
1936-37 ..	1.91	2.11	1.83	..	2.40	3.29	1.62	1.65
1937-38 ..	1.69	1.61	1.95	3.44	2.09	2.80	1.71	..
1938-39 ..	1.69	1.50	2.00	3.18	2.21	3.02	1.28	..
1939-40 ..	1.83	1.34	1.84	3.38	2.37	3.63	1.09	..

Source.—Compiled from the Incorporated Oil Seed Association, London.

The export demand from India is almost entirely for kernels for crushing. Small quantities of handpicked selected kernels of Bold variety have been exported for edible use from the produce of Kathiawar and Kolhapur State areas. The demand for these kernels has increased appreciably in more recent years owing to the interruption of supplies from China, the quantities exported from Bombay since October 1935 being as under :—

From October 1935 to September 1936 ..	..	3,500 tons.
From October 1936 to September 1937 ..	..	7,000 tons.
From October 1937 to September 1938 ..	..	11,000 tons.
From October 1938 to September 1939 ..	..	17,000 tons.
From October 1939 to June 1940 ..	..	13,000 tons.

(9 months only).

Besides the kernels, there is also a demand for nuts in shell for edible purposes, which is met from the produce of Kathiawar. Selected nuts, from which small, discoloured and damaged nuts are removed by handpicking are referred to as "Europe Quality". Export trade in these nuts also registered an appreciable increase but as a result of draught and famine conditions in Kathiawar, exports of these nuts declined in 1939-40.

*The improvement does not appear to have been maintained in 1939-40.

(b) *For utilisation in India.*—No special quality considerations generally govern the choice for seed for sowing except that the kernels are freshly shelled from nuts and damaged, shrivelled and discoloured kernels are picked out and removed as far as possible. A cultivator usually uses whatever seed he has in stock or what he can borrow or buy. This lack of selection in seed for sowing often results in a crop of mixed varieties. For instance, certain areas in Kolhapur State used to grow Bold variety but as a result of mixing with Karad, considerable quantities of produce containing a mixture of Bold and Karad are now received in Kolhapur market. Attempts are being made this year (1940), at the instance of Marketing Staff, to distribute pure Bold variety seed to keep up the purity of produce which meets the demand for edible nuts. The Agricultural Departments in the various provinces and States have also been distributing pure seed of improved varieties. (See Chapter XI).

For edible purposes, as has been said earlier, bold nuts with kernels having a low oil content and higher protein percentage are preferred so that considerable quantities of Bold, Virginia and local varieties go to meet the demand for edible purposes. Nuts of Coromandel variety, however, are also used for edible purposes, specially in South India. Khandesh and Peanuts varieties find little use as edible nuts.

Khandesh variety is, on the other hand, best suited for oil extraction. The kernels not only give the highest yield of oil but the oil is usually of lighter colour as compared with that from other varieties. Large quantities of Khandesh kernels are utilised by the milling industry in Khandesh districts of Bombay and in Hyderabad, Mysore and the Central Provinces. It is, however, reported from Madras that millers also, like exporters, prefer Coromandel as Peanuts give more sediment in the oil. Red Natal does not meet the millers' requirements as it gives a darker coloured oil.

The milling industry has, however, a limited choice in the selection of kernels. *Chekkus* have to use the local produce irrespective of variety or whether the kernels have a high or low oil content. Similarly, the mills have to draw their supplies from the nearest areas. As a result, large quantities of "Coromandels" which form the bulk of produce in Madras are used for crushing and considerable quantities of Bold variety, suited better for use as edible nuts, find use in milling industry.

(3) FACTORS AFFECTING DEMAND.

(a) *For export.*—The export demand for groundnuts depends on a number of complex factors. Groundnut kernels exported from India are almost all used for oil extraction, only a small proportion of Bold kernels exported from Bombay and nuts in shell exported from Kathiawar being used for edible purposes. The demand for groundnuts, therefore, is primarily dependent on the demand for groundnut oil in the consuming countries. As groundnut oil is used in Europe both for edible and industrial purposes, the demand for this oil and consequently for groundnuts is influenced not only by the prices of groundnuts in relation to other oilseeds but also by the available supplies and relative prices of a number of vegetable oils, animal fats and marine oils such

as olive oil, coconut oil, lard, butter and whale oil. The prices of butter largely influence the production of margarine, for the manufacture of which groundnut oil is often one of the oils.

Secondly, as the United Kingdom, France, Germany and Netherlands have accounted for the bulk of groundnut kernels exported from India, the buying policies of these countries have largely influenced the quantities exported in recent years.

Another factor, affecting the exports from India, is naturally the size of the Indian crop. As the crop begins to move from October, the exports from October to September provide an indication of the demand in relation to the production.

The effect of various factors on the export demand will be seen by an examination of the diagram facing this page, which shows the production in the main producing areas in India from 1929-30 to 1938-39, the exports from India during 10 seasons (October—September) 1929-30 to 1938-39, the exports from French West Africa during the same period and the differences between the average annual prices of Danish butter and groundnut oil. The data on which the diagram is based are given below :—

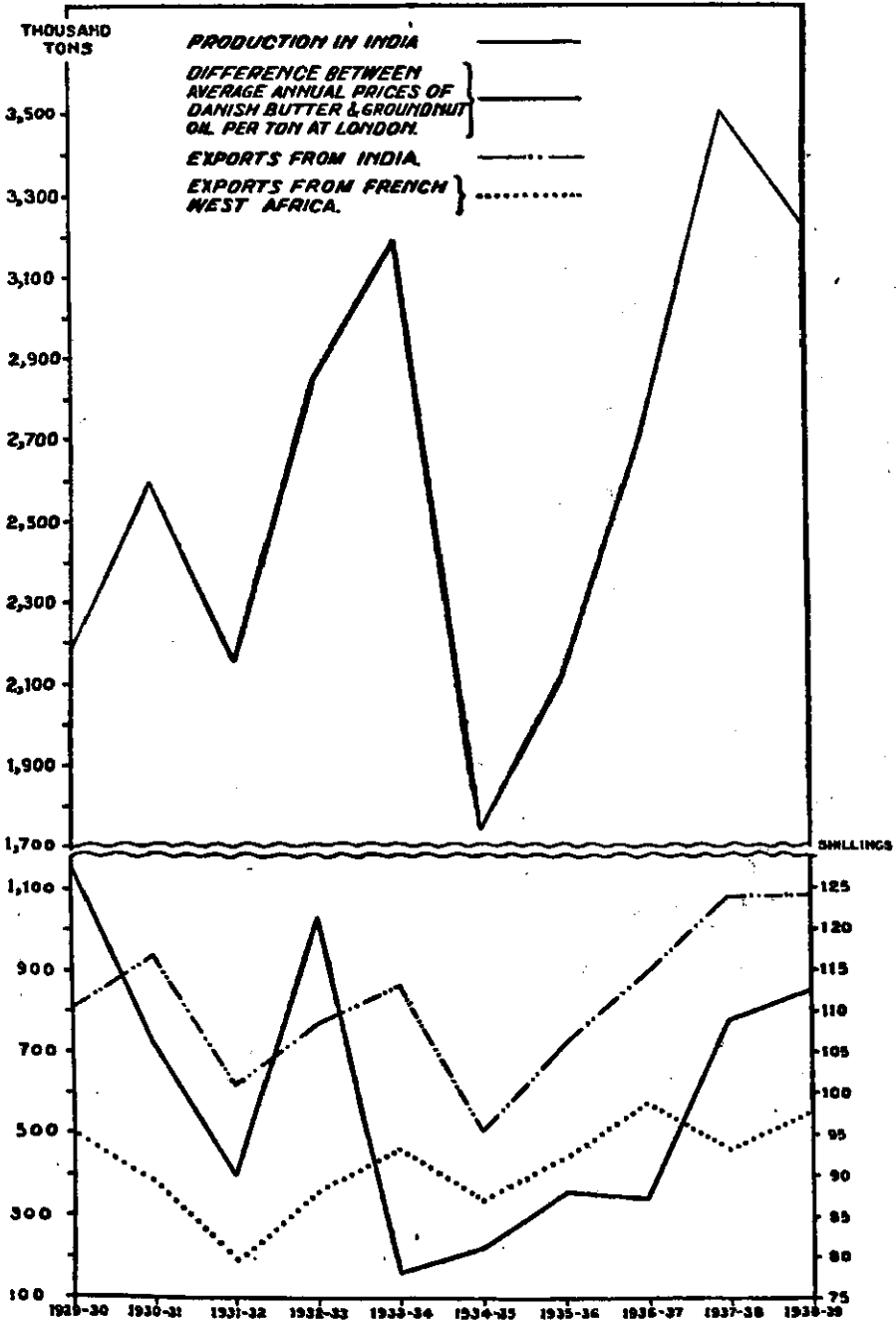
Production of groundnuts in the main producing areas of India, exports from India, exports from French West Africa and average annual prices of Danish butter and groundnut oil.

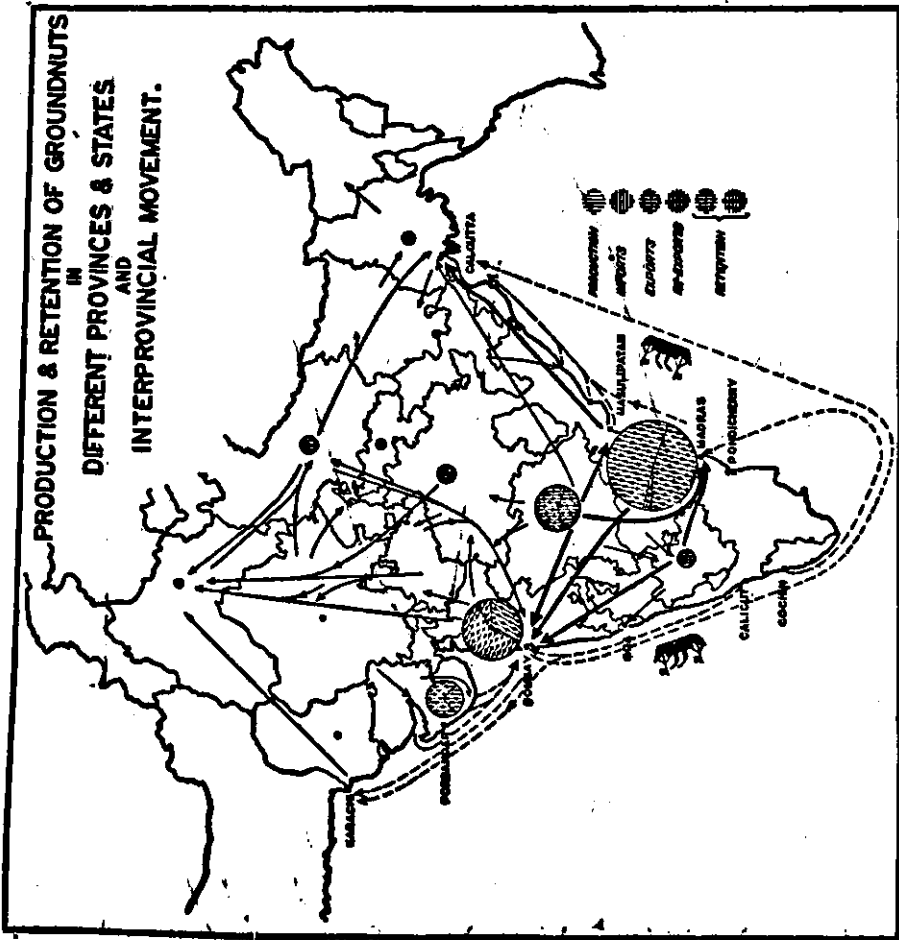
Year.	Production in India (nuts in shell), (Thousand tons).	Exports from India (mostly kernels), (Thousand tons).	Exports from French West Africa (nuts in shell and kernels), (Thousand tons).	Price of Danish butter at London per ton.	Price of groundnut oil at Hull per ton.	Difference between price of butter and groundnut oil per ton.
1929-30	2,180	813	504	£ s. d. 161 1 8	£ s. d. 33 4 0	£ s. d. 127 17 8
1930-31	2,592	942	393	131 5 0	25 4 2	106 0 10
1931-32	2,161	622	192	121 15 0	31 10 10	90 4 2
1932-33	2,846	773	355	147 0 0	26 3 9	120 16 3
1933-34	3,186	857	465	97 12 6	19 12 10	77 19 8
1934-35	1,740	514	342	110 12 11	29 17 1	80 15 10
1935-36	2,114	719	444	119 19 7	32 2 4	87 17 3
1936-37	2,714	886	584	120 0 10	32 14 0	87 6 10
1937-38	3,501	1,084	455	133 1 3	24 1 3	109 0 0
1938-39	3,219	1,083	549	134 1 3	21 8 4	112 12 11

The factors which mainly accounted for the variations in exports during the 10 seasons are briefly discussed in the following lines.

October 1930—September 1931.—A bigger crop of nearly 2.6 million tons was harvested in India, as compared with 2.2 million tons in the previous year and the quantities available from French West Africa were only 393 thousand tons as compared with 504 thousand tons in 1929-30. The exports from India therefore, rose from 813,000 tons to 942,000 tons.

RELATION BETWEEN PRODUCTION IN INDIA, EXPORTS FROM INDIA AND FRENCH WEST AFRICA AND THE DIFFERENCE BETWEEN AVERAGE ANNUAL PRICES OF DANISH BUTTER TO GROUNDNUT OIL PER TON AT LONDON.





October 1931—September 1932.—The production in India declined to 2·1 million tons and the quantities available from French West Africa experienced a sharp fall from 393,000 tons to 192,000 tons. In March 1932, the United Kingdom Government imposed a 10 per cent duty on groundnuts produced outside the Empire, which closed the United Kingdom market to nuts from French West Africa. The narrowing of the margin between the prices of butter and groundnut oil, however, helped to keep the demand for groundnut oil at a low level. The exports contracted to 622,000 tons.

October 1932—September 1933.—India harvested a bigger crop of 2·8 million tons and the margin between butter and groundnut oil prices widened. Both these factors would have resulted in heavier exports from India, but the supplies from French Africa were also larger and in July 1933 the French Government imposed an import duty of 11 francs per 100 kilos on groundnut kernels and 8 francs on nuts in shell shipped to France and not grown in French Colonies. Besides, regulations also came in force in Germany restricting the production of margarine. As a result of all these factors, the exports rose to 773,000 tons, but remained below the 1929-30 and 1930-31 level.

October 1933—September 1934.—A still bigger crop of nearly 3·2 million tons was harvested in India. The quantities available from French West Africa were also 110,000 tons in excess of the supplies in the previous year. The consuming countries could, therefore, obtain plentiful supplies of groundnuts but the cheapness of butter and narrowing down of the margin between butter and groundnut oil prices, kept the demand for groundnut oil at a comparatively low level. Moreover, the exports from India to France were subjected to fresh restrictions by way of fixation of quotas by the French Government for groundnuts in shell and kernels imported into France from the produce of French Colonies and foreign countries. In January 1934, the following quotas were fixed :—

99 per cent nuts in shell from French Colonies gave the right to import
1 per cent nuts in shell from foreign countries.

70 per cent nuts in shell from French Colonies gave the right to import
30 per cent kernels from foreign countries.

30 per cent kernels from French Colonies gave the right to import 70
per cent kernels from foreign countries.

The quotas were tightened in February 1934, so that 75 per cent nuts from French Colonies permitted 25 per cent foreign kernels and 45 per cent kernels from French Colonies permitted 55 per cent foreign kernels. In July 1934 these were further tightened to 50 per cent kernels from French Colonies and 50 per cent from foreign countries. As a result of the quotas, the imports of kernels into France from India went down in 1934 to 150 thousand tons as compared with 302,000 tons in 1933. The total exports from India were 857,000 tons, i.e., 84,000 tons higher than 1932-33 but still lower than the 1930-31 figures, when the Indian crop was only 2·6 million tons.

October 1934—September 1935.—After two big crops in succession, a short crop was harvested in India in 1934, so that the supplies available for export between October 1934—September 1935 were low. The quantities available

from French West Africa also declined by 123,000 tons. Prices of butter continued to be low though they recovered to some extent after July 1935 raising the margin between butter and groundnut oil prices over the season by nearly £3. The French Government on 28th May 1935 raised the import duty on foreign groundnuts to 16·30 francs per 100 kilos of nuts in shell and 22·40 francs per 100 kilos of kernels. All these factors together brought about a fall in the exports from India which dwindled to 514,000 tons.

October 1935—September 1936.—A crop of 2·1 million tons, *i.e.*, bigger than 1934-35 crop but below the normal crop was harvested in India. The supplies from French West Africa were normal. The prices of butter—considering the annual averages—recovered by nearly £9 per ton and stimulated the demand for margarine and consequently groundnut oil. But the quotas fixed by French Government were revised in December 1935 in favour of the produce of French Colonies, being fixed as under :—

99 per cent nuts from French Colonies permitted imports of 1 per cent nuts from foreign countries.

80 per cent nuts from French Colonies permitted imports of 20 per cent kernels from foreign countries.

70 per cent kernels from French Colonies permitted imports of 30 per cent kernels from foreign countries.

The exports from India increased to 719 thousand tons.

October 1936—September 1937.—The conditions in 1936-37 were more favourable. While the prices of butter and groundnut oil remained at nearly the same level as last year, the production in India rose to 2·7 million tons. The supplies from French West Africa were larger, being 584,000 tons as compared with 444,000 tons in the previous year. The French Government issued a decree at the end of November 1936 reducing the import duty on foreign groundnuts by 50 per cent. This reduction became operative on 1st December 1936 shortly after which the quotas were also somewhat relaxed in favour of foreign countries, being fixed as under :—

72½ per cent nuts from French Colonies permitted imports of 27½ per cent kernels from foreign countries.

67½ per cent kernels from French Colonies permitted imports of 32½ per cent kernels from foreign countries.

Another revision in February 1937 further improved the quotas for foreign kernels, being fixed at 37½ per cent kernels from foreign countries against 62½ per cent French nuts and 40 per cent foreign kernels against 60 per cent French kernels. The quotas were, however, tightened in favour of the produce from French Colonies in May 1937, being fixed this time at 10 per cent foreign kernels against 90 per cent French nuts and 12½ per cent foreign kernels against 87½ per cent French kernels. The import duty was also raised in July by 13 per cent. There was another revision of quotas from 9th September 1937, which permitted 2 per cent foreign kernels against 98 per cent French nuts and 5 per cent foreign kernels against 95 per cent French kernels. The quotas in force in June were, however, re-instated on 30th September. Quotas materially

affected the market for Indian groundnut kernels in France and the import into France from India in 1937 dropped to 114,000 tons as compared with 196,000 tons in 1936. The total exports from India, however, increased to 886,000 tons, being higher than the exports in any of the 5 preceding seasons.

October 1937—September 1938.—A record crop of 3·5 million tons was available from India and the quantities available from French West Africa declined by 129,000 tons, as compared to the previous year. Besides the large production, the improvement in the price of butter brought about an increased demand for groundnut oil. The French Government in December 1937 relaxed the quotas fixed earlier and allowed 20 per cent foreign kernels to be imported against 80 per cent French nuts and $22\frac{1}{2}$ per cent foreign kernels against $77\frac{1}{2}$ per cent French kernels. The import duty was, however, raised in February 1938 from 12·80 to 21·00 francs and the quotas in respect of exports of French nuts were modified in March 1938 to 25 per cent foreign kernels against 75 per cent French nuts. The quotas were revised again in May to 30 per cent foreign kernels against 70 per cent French nuts and 40 per cent foreign kernels against 60 per cent French kernels. In August, the export duty on groundnuts from Senegal was increased from 5 francs to 12 francs per 100 kilos. The quotas were altered again in September 1938 to 50 per cent foreign kernels against 50 per cent French nuts and kernels. The favourable quotas for foreign produce, during a greater part of the season, resulted in France importing 208,000 tons kernels from India in 1938 as compared with 114,000 tons in 1937. The total exports from India reached the record figure of 1,084,000 tons.

October 1938—September 1939.—The production in India was 3·2 million tons, *i.e.*, nearly 300,000 tons less than in 1937-38, but the margin between butter and groundnut oil prices further widened. The French Government permitted still bigger quotas for foreign kernels fixing 70 per cent foreign kernels against 30 per cent French nuts and kernels in October 1938. But in November 1938, the position was reversed and only 15 per cent foreign kernels were permitted against 85 per cent French nuts and kernels. The import duty was raised from 21 francs to 26 francs per 100 kilos from 4th December 1938. The imports into France from India tended to decline but the total exports from India were 1,083,000 tons.

(b) *For utilisation in India.*—Groundnuts are used in India, as has been said earlier, for seed, edible purposes and oil extraction. The demand for seed depends on the area sown and has been increasing with the expansion in area. The quantities required for seed during the last 10 years have, however, varied between a minimum of 245,000 tons in 1934-35 and a maximum of 428,000 tons nuts in 1937-38. The variations in the quantities involved for edible purposes are also not large. The third use, namely, oil extraction, accounts for the bulk of disappearance in India and the factors affecting this govern the demand for groundnuts in India.

Groundnut oil, which finds only limited use in India for industrial requirements, *e.g.*, soap, cosmetics, etc., is used as an edible oil for cooking and frying specially in South India, and forms the main constituent of Vanaspati (vegetable product). On the other hand, in areas where other vegetable oils are used

for edible purposes, the main use groundnut oil is put to, is for the adulteration of other higher priced edible oils. The demand for groundnut oil, therefore, is influenced by the relative prices of other oils.

In Bengal, Bihar and the United Provinces, mustard oil is the chief oil used for edible purposes and the difference between the prices of mustard oil and groundnut oil largely governs the demand for groundnut oil. The diagram facing this page shows the difference in the annual average prices of mustard oil and groundnut oil at Calcutta and the total available supplies of groundnut oil in Bengal as given in the table below :—

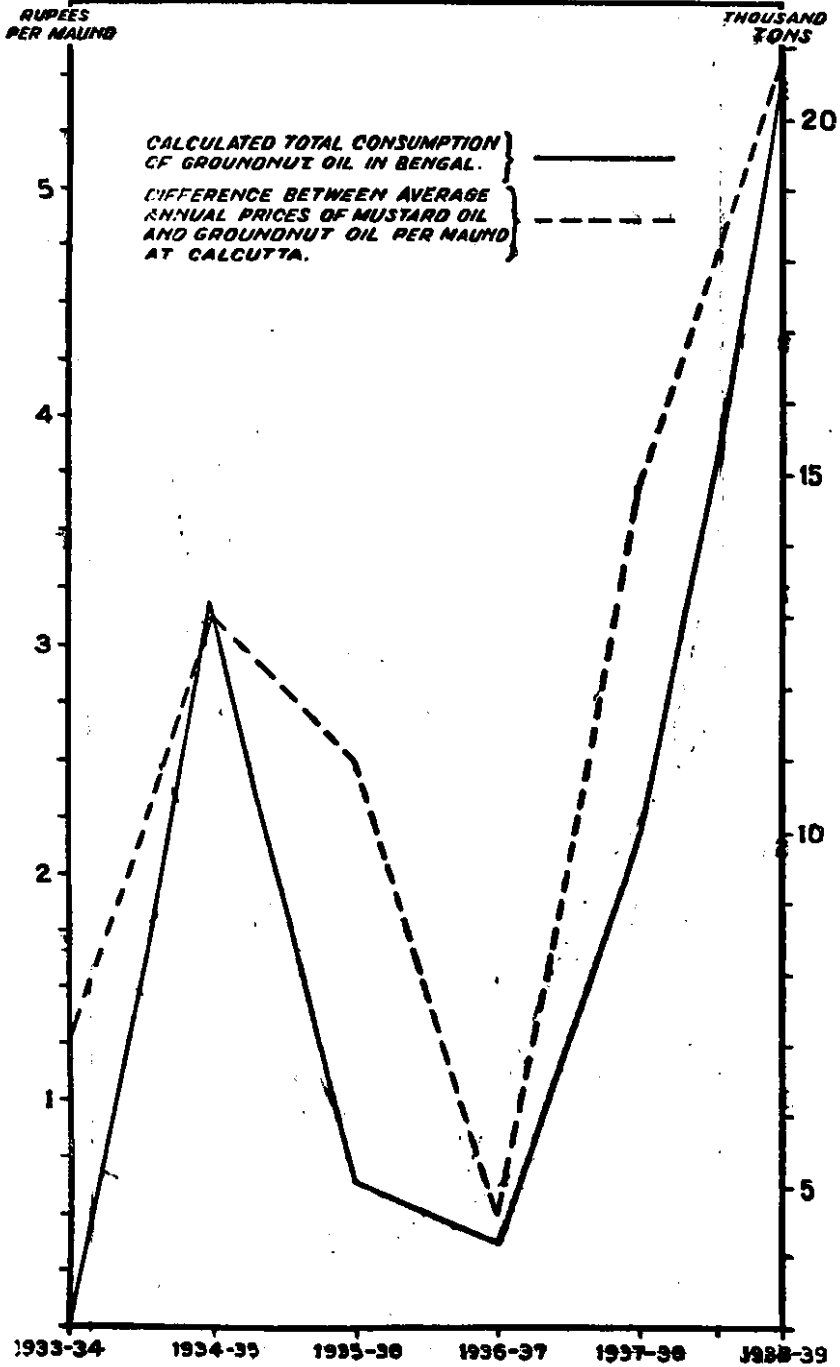
Average annual prices of mustard oil and groundnut oil at Calcutta and total available supplies of groundnut oil in Bengal.

Year.	Average annual price of mustard oil at Calcutta per maund.	Average annual price of groundnut oil at Calcutta per maund.	Difference.	Calculated total available supply of groundnut oil in thousand tons.
	Rs. A. P.	Rs. A. P.		
1933-34	11 0 2	9 11 0	1 5 2	3.6
1934-35	13 2 8	10 0 10	3 1 10	13.4
1935-36	16 0 2	13 7 10	2 8 4	5.1
1936-37	14 2 6	13 10 4	0 8 2	4.5
1937-38	16 15 8	13 4 8	3 11 0	10.0
1938-39	15 3 0	9 6 7	5 12 5	20.8
1939-40	14 4 4	10 8 3	3 12 1	..

The total available supplies have been calculated on the assumption that all the kernels retained are crushed for oil. The imports of groundnuts and groundnut oil by rail and coastal route have been added to the production in Bengal and the exports deducted after converting the items, where necessary, in terms of oil. It will be seen from the graph that the demand for groundnut oil increases or decreases as the margin between mustard oil and groundnut oil widens or narrows. The demand is, of course, also influenced by the relative prices of other oils, used for adulteration in the same way as groundnut oil. As linseed oil and groundnut oil are both substitutable for each other, in the adulteration of mustard oil, the choice of one oil or the other depends on their prices relative to mustard oil, the cheaper of the two oils finding greater use.

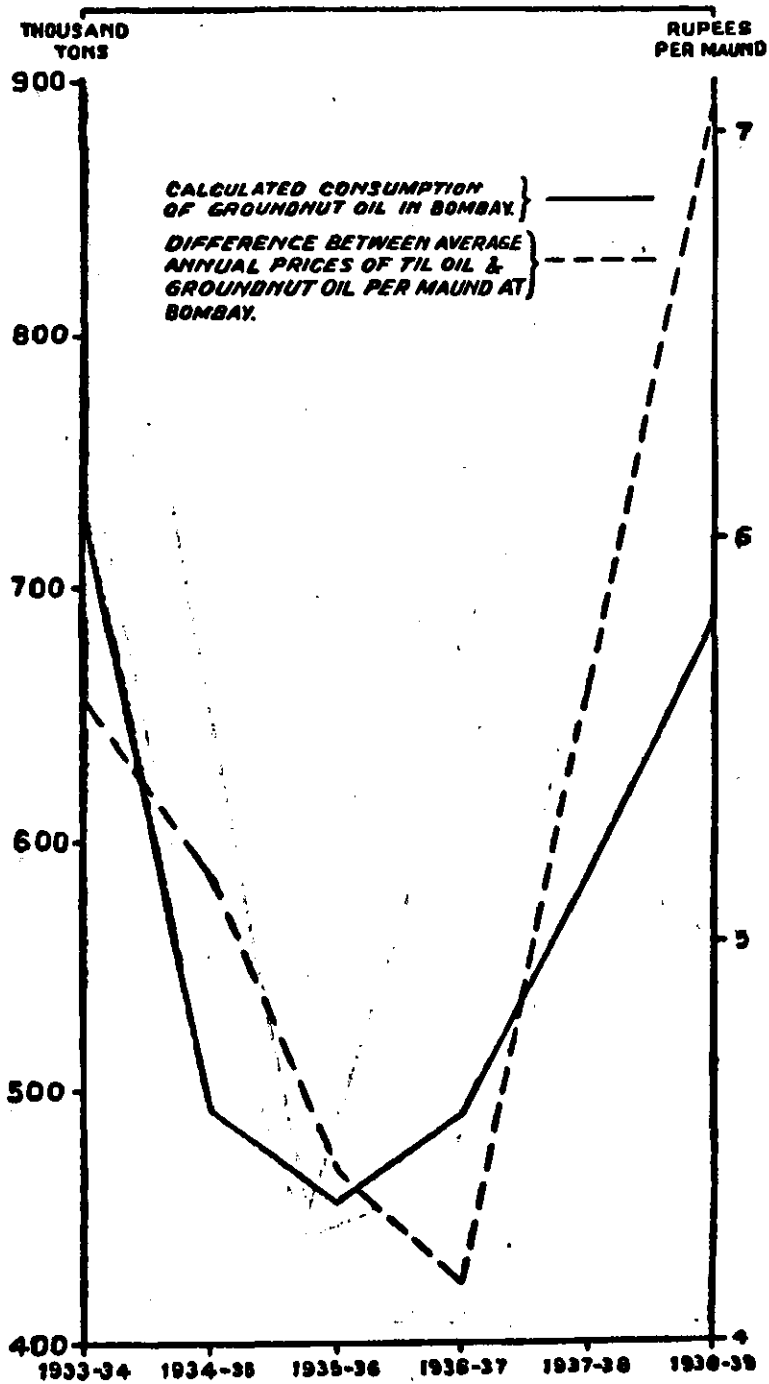
? In Bombay, sesame (*til*) oil is one of the main edible oils and it will be seen from the diagram facing page 73, which shows the difference in prices of *til* and groundnut oil at Bombay and the total available supplies of groundnut

RELATION BETWEEN CALCULATED TOTAL CONSUMPTION OF GROUNDNUT OIL IN BENGAL AND DIFFERENCE BETWEEN AVERAGE ANNUAL PRICES OF MUSTARD OIL AND GROUNDNUT OIL PER MAUND AT CALCUTTA.



Facing page 73.]

RELATION BETWEEN CALCULATED CONSUMPTION OF GROUNDNUT OIL IN BOMBAY AND DIFFERENCE BETWEEN AVERAGE ANNUAL PRICES OF TIL OIL AND GROUNDNUT OIL PER MAUND AT BOMBAY.



oil in the presidency (calculated as in the case of Bengal), given in the table below, that the demand for groundnut oil increases or decreases as the margin between *til* and groundnut oils widens or narrows.

Average annual prices of til oil and groundnut oil at Bombay and total available supplies of groundnut oil in Bombay province.

Year.	Average annual price of <i>til</i> oil at Bombay per maund.			Average annual price of groundnut oil at Bombay per maund.			Difference.	Calculated total available supply of groundnut oil. (Thousand tons).
	Rs.	A.	P.	Rs.	A.	P.		
1933-34	13	9	6	8	0	1	5 9 5	840.5
1934-35	14	0	10	8	14	1	5 2 9	485.9
1935-36	15	8	4	11	1	7	4 6 9	436.5
1936-37	16	8	6	12	6	2	4 2 4	480.7
1937-38	16	7	6	10	13	5	5 10 1	613.5
1938-39	14	8	2	7	7	6	7 0 8	766.6
1939-40	15	5	11	9	11	0	5 10 11	..

In the Vanaspati industry, groundnut oil forms the main constituent (except in some instances where the product is made from cotton seed oil) on account of its cheapness and ease in refining but there also, when relative prices of other oils warrant such action, other oils are used for blending with groundnut oil. The quantities of groundnut oil used in India and consequently the quantities of groundnuts utilised for oil extraction thus depend largely on the prices of groundnut oil relative to those of other vegetable oils.

(4) PERIODICITY.

The periodicity of demand for Indian groundnuts in consuming countries in Europe can be judged by the volume of shipments in different months. It will be observed from the following table, which gives the average monthly shipments during the period 1933-34 to 1937-38, registered by the Incorporated Oil Seed Association, London, that the largest shipments of Coronandel variety are in February and March while the bulk of Bombay Bold shipments are between the months of August to October during which period more than three-fifths of the annual shipments of this variety take place.

Periodicity of groundnut arrivals in Europe.

(Average 1933-34 to 1937-38.)

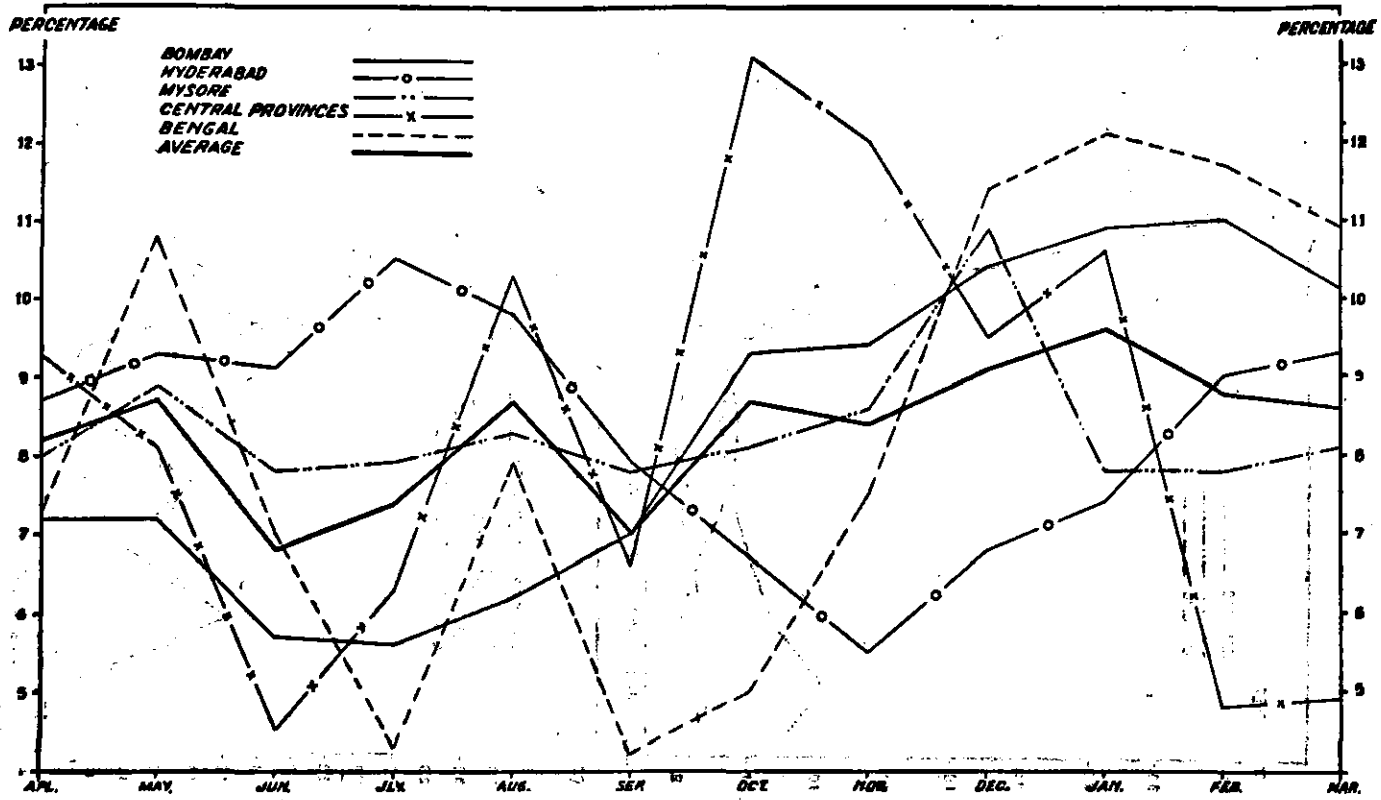
(Tons.)

Months.	Coromandel.	Khandesh.	Bold.	Red Natal.	Total.	Percentage of average monthly arrivals to average annual total.
April ..	29,230	3,577	425	..	33,232	6.3
May ..	37,448	2,645	855	..	40,948	7.8
June ..	41,202	4,705	2,485	..	48,392	9.3
July ..	39,028	2,965	2,300	..	44,293	8.5
August	33,543	2,532	8,505	..	44,580	8.5
September	27,944	2,270	5,605	1,170	36,989	7.1
October	20,827	2,245	5,377	4,756	33,205	6.3
November	20,219	7,483	1,135	2,070	30,907	5.9
December	29,775	16,763	1,074	..	47,612	9.1
January	30,181	5,936	945	225	37,287	7.1
February	55,585	10,484	1,000	..	67,069	12.8
March ..	44,500	12,595	1,870	120	59,085	11.3

The shipments of Khandesh variety are at a high level from November to March, being highest in December and March. Red Natal variety is shipped only between September and November. Taking shipments of the 4 varieties together, the shipments are heaviest in February and March. It will be recalled that while discussing the periodicity of exports from India, it was observed that the exports were heaviest from January to March.

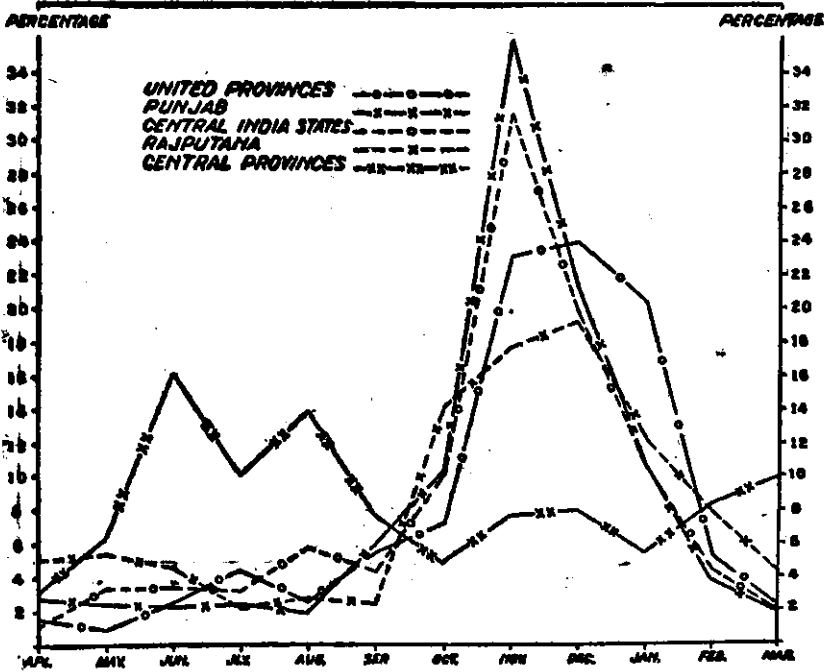
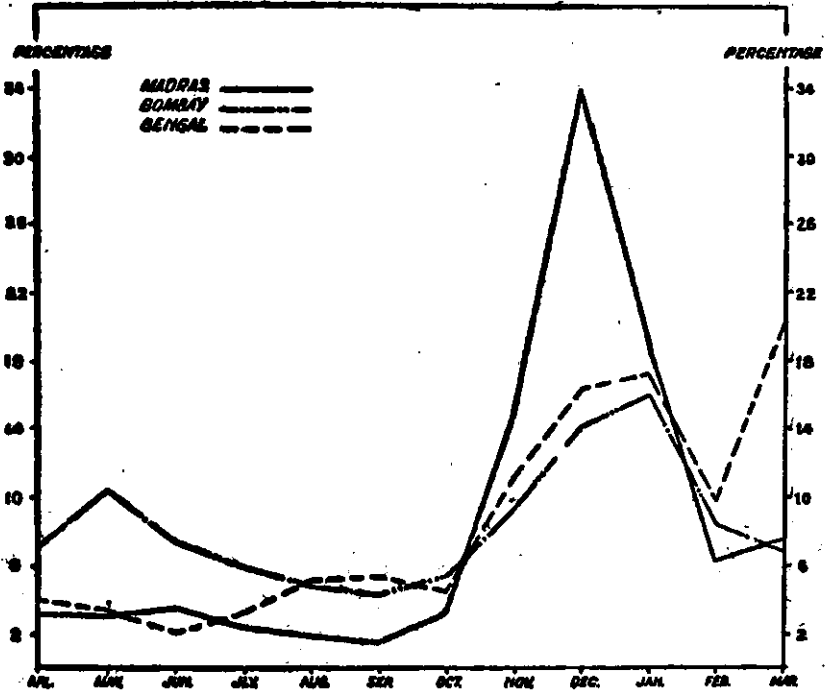
In India, the demand for seed is only at the sowing time, which is mainly between May and July. The major portion of seed requirements are met from producers' stocks and the balance is bought from markets during these months. The demand for edible purposes extends throughout the year in South India, but is confined mainly to winter months in North India. The periodicity of demand for crushing in different provinces and States will be seen from the graph facing this page and the following table which gives the quantities of groundnuts crushed monthly by a number of mills in different parts of India.

PERIODICITY OF DEMAND FOR CRUSHING IN DIFFERENT PROVINCES AND STATES.



Facing page 75.]

PERIODICITY OF ARRIVALS BY RAIL INTO DIFFERENT PROVINCES AND STATES.



Quantities of groundnut kernels crushed monthly by some mills in India.

(Tons.)

Months.	Bombay (3 mills).	Central Provinces (3 mills).	Bengal (2 mills).	Hyderabad (2 mills).	Mysore (1-mill).	Total.	Percent- age to annual total.
April ..	409	491	201	662	121	1,884	8.2
May ..	411	423	302	713	134	1,983	8.7
June ..	321	237	194	694	118	1,564	6.8
July ..	317	331	121	802	119	1,690	7.4
August ..	356	539	220	746	125	1,986	8.7
September	403	349	116	606	117	1,591	7.0
October ..	532	687	138	510	123	1,990	8.7
November	535	628	208	417	130	1,918	8.4
December	594	501	318	515	165	2,093	9.1
January ..	621	557	337	565	118	2,198	9.6
February	630	251	325	685	118	2,009	8.8
March ..	577	258	304	712	122	1,973	8.6
Total ..	5,706	5,252	2,784	7,627	1,510	22,879	100.0

The three mills in Bombay, for which monthly statistics of quantities crushed are available, crushed somewhat larger quantities between December and March, during which period they crushed more than 42 per cent of the quantities handled by them annually. The crushing remained at a low level between April and September during which period less than 40 per cent was crushed. The three mills in Central Provinces crushed larger quantities in October and November. The two mills in Bengal crushed more than 45 per cent of the annual quantities between December and March. The monthly crushings of the two mills in Hyderabad show that the quantities crushed are low from October to January. The mill in Mysore crushed almost equal quantities every month throughout the year, excepting that the crushings were somewhat higher in December. Taking the crushings of all the mills in different provinces and States together, the quantities crushed are spread throughout the year fairly evenly, December to February showing somewhat higher crushings.

(5) TREND.

The trend of exports from India has already been discussed in Chapter I. Regarding the trend of demand in India, the requirements for seed have tended to increase with the expansion in acreage. The quantities used for edible purposes also indicate an upward trend. The demand in India is, however, mainly dependent on the quantities utilised for crushing. These vary from year to year but a larger consumption of groundnut oil in India is indicated especially by the growth of Vanaspati (vegetable product) industry. Before 1931, large quantities of Vanaspati used to be imported into India from Europe, but since

then increasingly larger quantities are being made in India and the exports have dwindled, as the following figures will show :—

Imports of vegetable products into India.

		(Tons.)			
1928-29	.. .. .	22,909	1933-34	..	132
1929-30	.. .. .	16,056	1934-35	..	239
1930-31	.. .. .	14,801	1935-36	..	257
1931-32	.. .. .	5,842	1936-37	..	161
1932-33	.. .. .	1,833	1937-38	..	884
Average	.. .. .	12,288	Average	..	335
			1938-39	..	166
			1939-40 (10 months)		279

It is estimated that in 1938-39 about 50,000 tons of groundnut oil equivalent to 178 thousand tons of nuts in shell or the produce of 442 thousand acres were annually utilised in this industry which is steadily expanding.

(6) INTER-PROVINCIAL DEMAND.

(a) *Quantitative.*—Madras, Bombay, Hyderabad, Bombay States, Mysore, the Central Provinces and the United Provinces, as has been noticed earlier, account for nearly 98 per cent. of the total production in India. These tracts, as will be seen from the map facing page 69, retain a portion of their production for seed, edible use and oil extraction and despatch the surplus for consumption in other provinces and States or to ports for export abroad. A good indication of the demand in different provinces and States is provided by the movement of the commodity from one area to another, which takes place mostly by rail and also by coastal steamers in the case of Madras, Bombay, Bengal and Sind. The average quantities received by and despatched from different provinces and States by rail during the period 1933-34 to 1937-38 are given in Appendix XXI and the quantities handled by coastal steamers during the same period (as also 1938-39 and 1939-40 figures) are given in Appendix XXII. The movement by road is of some importance only in the case of Hyderabad from where about 40,000 tons are estimated to move by road annually to Madras, Bombay and Mysore.

Madras and Madras States, during the period 1933-34 to 1937-38, retained nearly half of their production and despatched, on an average, 11,500 tons by coastal steamers to Bengal, Bombay, Sind and Kathiawar, the despatches to the last named destination being only in 1934-35, when over 4,000 tons were sent. The despatches to Bengal are mainly from the ports of Coconada, Masulipatam and Vizagapatam, and those to Bombay and Sind mostly from Calicut. Nearly 46,000 tons were also despatched from the province by rail, chiefly to Bombay, Bengal and Mysore. The despatches to Bombay averaging 39,000 tons were mainly from the districts of Bellary, Kurnool and Anantapur for export abroad. The produce from these districts moves for export both to Madras ports and Bombay. The despatches to Bengal averaging nearly 5,000 tons were mainly for crushing. Madras annually received

by rail nearly 23,000 tons from Hyderabad and 7,000 tons from Mysore for export abroad from Madras ports. She also received nearly 300 tons annually at the West Coast ports of Cochin and Mangalore by coastal steamers from Bombay and Kathiawar.

Bombay, during the same period, retained nearly nine-tenths of her production and despatched about 2,000 tons by coastal steamers to Sind and Kathiawar and 2,500 tons by rail to several provinces and States, the chief among them being the Central Provinces, which took nearly 1,300 tons annually. Bombay received large quantities from other provinces mainly for export abroad. The annual arrivals averaged nearly 93,000 tons from Hyderabad and 13,000 tons from Mysore, besides 39,000 tons from Madras already referred to. The produce from the western districts of Hyderabad State, *viz.*, Aurangabad, Bhir, Bidar and Osmanabad moves mostly to Bombay, while that from the southern and eastern districts moves to Madras ports. Similarly in Mysore, the produce from Chitaldrug district moves westwards to Bombay and Goa and that from Tumkur, Kolar, etc., to the East Coast ports of Madras. Bombay also received 7,100 tons annually by coastal steamers from Madras and Kathiawar.

Kathiawar States retained nearly half of their production and disposed of the balance by exporting to foreign countries and despatching nearly 4,000 tons annually by coastal steamers mainly to Bombay.

Hyderabad retained nearly two-fifths of her production and sent on an average 117,000 tons by rail to other provinces. Of this, 93,000 tons was to Bombay and 23,000 tons to Madras, all intended mainly for export abroad. Mysore like Hyderabad retained about two-fifths of her production and despatched the surplus to Madras and Bombay for export. Mysore received, on an average, 2,000 tons annually from Madras for crushing in areas adjoining the groundnut producing districts of Madras.

The Central Provinces retained almost all her production despatching only about 1,700 tons to the United Provinces, Punjab, Bombay and Central India and receiving nearly 1,600 tons from Bombay and Hyderabad. The despatches are mostly of Bold quality nuts suitable for edible purposes, while the arrivals are of kernels for crushing.

The United Provinces, like the Central Provinces, retained the bulk of their production, despatching about 3,000 tons to Bengal, Bihar and the Punjab and receiving nearly 1,600 tons from the Central Provinces, Central India and Rajputana. The Punjab also retained all her production, supplementing her supplies by receipts from the United Provinces, Rajputana, Central Provinces, Central India and Bombay, the total annual arrivals by rail averaging nearly 3,000 tons.

Bengal draws her requirements mainly from Madras, the United Provinces and Hyderabad. She received, on an average, 7,500 tons by rail and an equal quantity by coastal steamers of which nearly 5,000 tons was from Madras. Sind imported about 2,400 tons annually by coastal steamers from Bombay, of which she despatched over 200 tons annually by rail to the Punjab. The position, therefore, in short, is that Madras, Bombay, Bombay States, Hyderabad and Mysore are surplus areas, which besides meeting the export demand

In Madras the arrivals from other provinces and States begin to increase from November and remain brisk till January, the arrivals during three months November to January being more than two-thirds of the annual total. In Bombay nearly two-fifths of the annual arrivals are between November and January. The demand from Bengal is mainly in the months of November to March during which period she receives nearly three-fourths of her supplies by rail. The United Provinces and Punjab where more groundnuts are consumed in winter months, obtain nearly two-thirds of their supplies between November and January. Central India and Rajputana States also take bigger quantities between November and January. The Central Provinces, on the other hand, gets bigger supplies from other provinces during the months, June to August, when stocks from her own production reach low levels.

The movement by coastal steamers is confined only to some provinces, Madras and Bombay send nearly half of their annual coastal despatches between October and January. Bengal receives more than half and Sind more than two-fifths of her supplies by coastal steamers during the same four months.

C.—Utilisation in Burma.

It has been observed in Chapter I that Burma retains the bulk of her production, so that after meeting the seed requirements, nearly four-fifths of the production is available for consumption and crushing in Burma.

The nuts are used for eating in a number of ways, the three main forms of consumption being as roasted nuts (*Mye-pe-hlaw*), boiled nuts (*Mye-pe-pyok*) and for preparation of a sweetmeat (*Mye-pe-yo*). The roasted nuts, which account for the major portion consumed for eating are prepared, as in India, by roasting with sand in an open pan and are sold both as kernels and nuts. The boiled nuts are prepared by boiling them in water to which little salt is added. (*Mye-pe-yo*) is prepared by breaking the kernels into halves and adding them to a previously prepared syrup made from the palmyra palm or from sugarcane. The kernels may or may not be roasted before mixing with the syrup. The mixture is poured into moulds and allowed to set. This preparation is manufactured at the chief jaggery boiling centres from where, packed in deal-wood boxes, it is distributed throughout the province. It is eaten as a sweetmeat alone or with tea. The total consumption in the province is estimated at 13,000 tons, i.e., about 2 lb. per head per year.

The extraction of groundnut oil is now mainly done by expellers in large mills erected at collecting centres in the main groundnut producing tracts such as Myingyan, Pakokku, Nyaungu and Singu. Rangoon is another centre for crushing. It is reckoned that 36 mills are now engaged in crushing groundnuts in different districts of Burma.

Prior to the erection of these mills, considerable quantities of groundnuts were crushed in *hse-zons* (*chekkus* or *ghanis*) worked by bullocks or by power, but the quantities handled by *hse-zons* have declined in recent years and are now comparatively small. The *hse-zon* crushing is confined to villages remote from rail and river where transport costs are prohibitive. The quantities estimated to be crushed annually by mills and *hse-zons* together on an average

during the period 1933-34 to 1937-38 amount to 106,000 tons. The quantities crushed vary from year to year as will be seen from the following table giving the quantities handled by 5 mills during this period.

Quantities of groundnuts (in shell) crushed by some mills in Burma.

		(Tons.)					
		1933-34.	1934-35.	1935-36.	1936-37.	1937-38.	Average.
Mill A	.. ..	3,545	3,085	3,465	3,231	3,782	3,432
" B	.. ..	4,955	6,917	8,604	9,234	9,341	7,810
" C	.. ..	1,550	6,789	8,973	10,528	11,000	7,768
" D	.. ..	16,650	17,275	15,850	17,300	18,900	17,175
" E	.. ..	12,725	17,975	14,200	11,550	14,700	14,230
Total	.. ..	39,425	52,041	51,092	51,893	57,623	50,415

The crushing is done throughout the year, being somewhat higher from July to September and low in November. The following table gives the average monthly quantities crushed together by three mills during the period 1933-34 to 1937-38.

Quantities of groundnuts (in shell) crushed monthly by 3 mills in Burma.

Months.	Average crushed monthly.		Percentage of annual total.
	(Tons.)		
April	3,578	8.9	
May	3,743	9.3	
June	3,748	9.3	
July	4,018	10.0	
August	4,268	10.6	
September	4,193	10.4	
October	3,178	7.9	
November	495	1.2	
December	2,680	6.6	
January	3,228	8.0	
February	3,343	8.3	
March	3,833	9.5	
Total	40,275	100.0	

The quantities utilised for seed, edible use and oil extraction in Burma may be summarised as under and are illustrated in diagram facing page 60.

Summary of utilisation of groundnuts (in shell) in Burma.

(Average 1933-34 to 1937-38.)

(Thousand tons.)			
Supplies (in terms of nuts in shell).	Utilisation (in terms of nuts in shell).		
Production	155	Seed	90
Imports	6	Edible use	13
		Oil extraction	118
Total supplies	161	Total utilisation	161

INTER-CHAPTER TWO.

Groundnuts developed in India primarily as an export commodity ; before the War of 1914-18, the major portion of the production was exported. The retention in the country has, however, steadily increased in the last two decades and (more than three-fifths of the crop are now utilised in India). Seed for sowing absorbs nearly one-eighth of the total production, and a little more than one-sixteenth is estimated to be consumed as edible nuts. The crushing of kernels for the manufacture of groundnut oil (and groundnut cake) is estimated to account for more than two-fifths of the production. The factories crushing groundnuts,—or any other oilseed—are not required to furnish returns of quantities crushed. Official statistics about crushing are, therefore, completely lacking. Such returns would be a valuable addition to India's statistical records. The average annual disappearance during the quinquennium 1933-34 to 1937-38, is reckoned at 840,000 tons kernels equivalent to 1·2 million tons in terms of nuts in shell.

Kernels of the Khandesh variety give the maximum yield of oil but all the varieties are used for crushing—even the Bold type which is relatively deficient in oil and more suitable for edible use. The average yield of oil and cake—considering all the different varieties—is reckoned as 40 per cent and 60 per cent respectively of the weight of kernels so that the average production of these commodities is estimated as 336,000 tons oil and 504,000 tons cake.

The demand for crushing naturally rests on the demand for groundnut oil, which on account of its being used for adulteration of other edible oils, is largely influenced by the relative prices of such oils. For ins-

tance at Calcutta, the demand for groundnut oil increases or decreases as the margin between mustard oil and groundnut oil widens or narrows. Similarly, the demand for groundnut oil at Bombay increases or decreases as the margin between *til* oil and groundnut oil widens or narrows.

Bold nuts with a low oil content are preferred for eating but the choice is not always confined to such nuts, since any of the locally grown varieties are consumed in the producing areas. In Bombay, groundnuts form an important item of food on fast days and the habit of eating groundnuts appears to have spread to all parts of India. The annual *per capita* consumption of nuts is, however, less than 1½ lb. This appears to be capable of considerable expansion.

The export demand which is primarily dependent on the demand for groundnut oil in consuming countries, is influenced by a number of complex factors such as available supplies and relative prices of a number of vegetable oils, animal fats and margarine and the buying policies of different countries such as France, Germany, the United Kingdom, etc., which are India's principal customers for groundnut kernels. The size of the Indian crop also affects the volume of exports.

Coromandels (machine decorticated) which form the bulk of production in Madras, account for nearly 75 per cent of the exports ; Khandesh (including Peanuts) contribute 13 per cent and Bold 10 per cent to the total. Khandesh in spite of its containing more oil than Coromandel, was previously sold in the United Kingdom at a discount of 2s. 6d. per ton as compared with Coromandel, but with the improvement in Khandesh variety in respect of the content of free fatty acids, Khandesh could be sold without the usual discount in 1937-38 and 1938-39.

Apart from the demand for kernels for crushing, there has been in recent years a growing export demand for kernels and nuts suitable for edible use. The interruption of supplies from China contributed to a rapid increase in this trade from 1936 and India has an opportunity of permanently retaining this trade, if she succeeds in establishing a name for her handpicked selected nuts and kernels before normal conditions return.

The inter-provincial trade in groundnuts, apart from the movement from producing areas to ports, is small involving less than $1\frac{1}{2}$ per cent. of the production.

Burma.—Burma unlike India has no export trade in groundnuts. More than three-fourths of her production is utilised for oil extraction and about one-twelfth as edible nuts. The *per capita* consumption is about 2 lb., or almost double of that in India.

CHAPTER III.—PRICES.

A.—World prices of groundnuts.

(1) TREND.

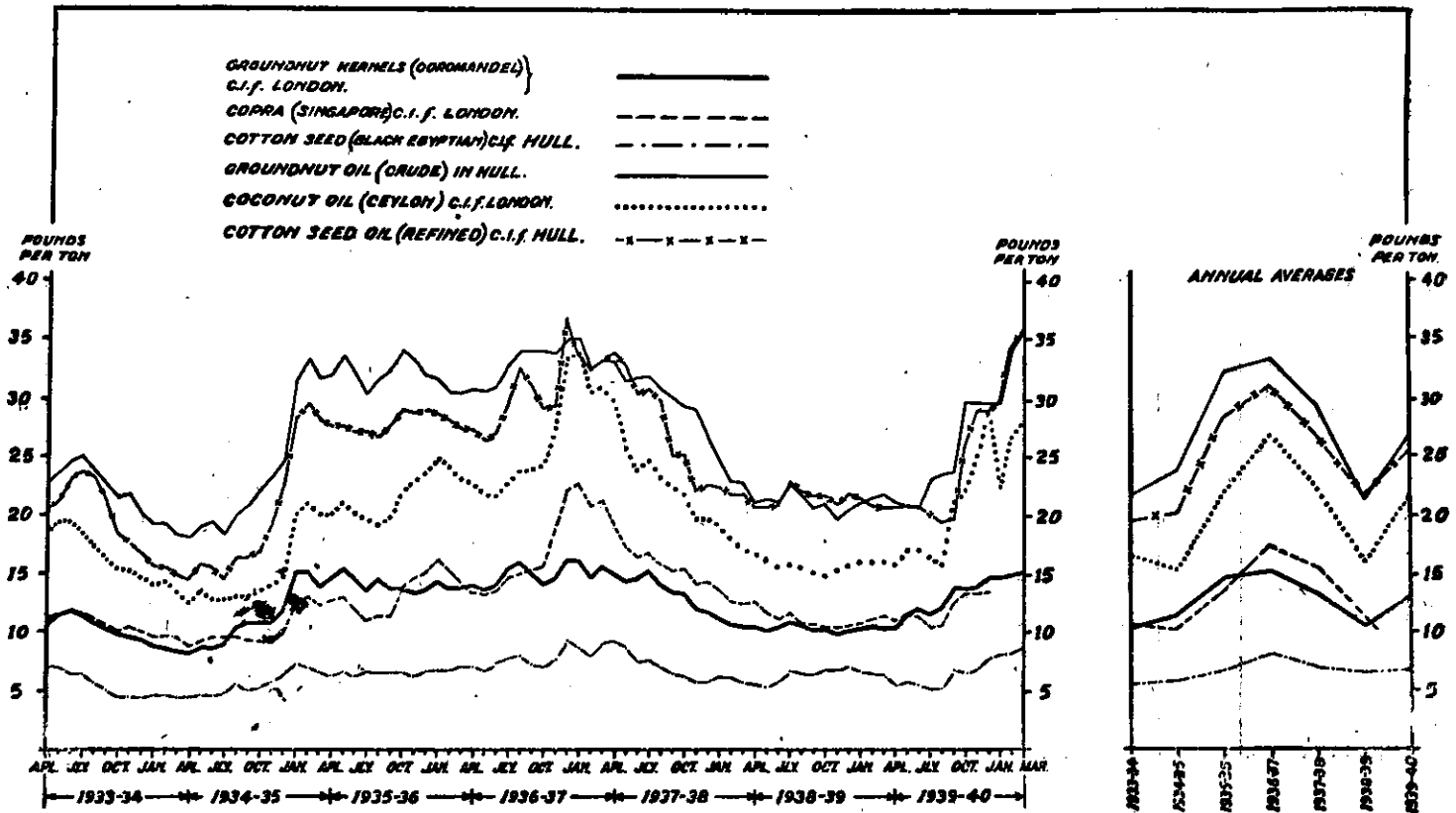
The prices at London provide a fair index of the world prices of groundnuts. Generally, the prices of groundnuts at London move more or less parallel with those of several other oils and oilseeds, as will be seen from the diagram facing this page which shows the movement of prices of groundnut kernels, copra and cotton seed as well as groundnut oil, coconut oil and cotton seed oil from 1933-34 to 1939-40.

There is, after allowing for the weight of shell in case of undecorticated nuts, comparatively little difference between the prices at London of groundnuts from different countries and the prices of Coromandel kernels may, therefore, be taken as representative. The price of Coromandel kernels (c. i. f.) London in 1912-13 and 1913-14, *i.e.*, immediately before the 1914-18 War, was in the neighbourhood of £16 per ton but during the period 1914-18 the maximum controlled price rose to as much as £32 per ton. After decontrol, the price rose to £50 per ton towards the end of 1919 but there was a drastic fall in 1921, when the price at one time touched £14 per ton. This was only for a short period and the year closed with prices over £19 per ton. The values then ranged roughly between £20 (1926) and £27 (1924) per ton during the period 1922 and 1928, after which there was a sharp decline. The low prices of butter and the heavy production and stocks of whale oil, apart from the general fall in the price level of all commodities brought about a reduction in prices of vegetable oils and oilseeds generally, as will be seen from the following tables giving the average annual prices of groundnut kernels, copra, cotton seed and their oils.

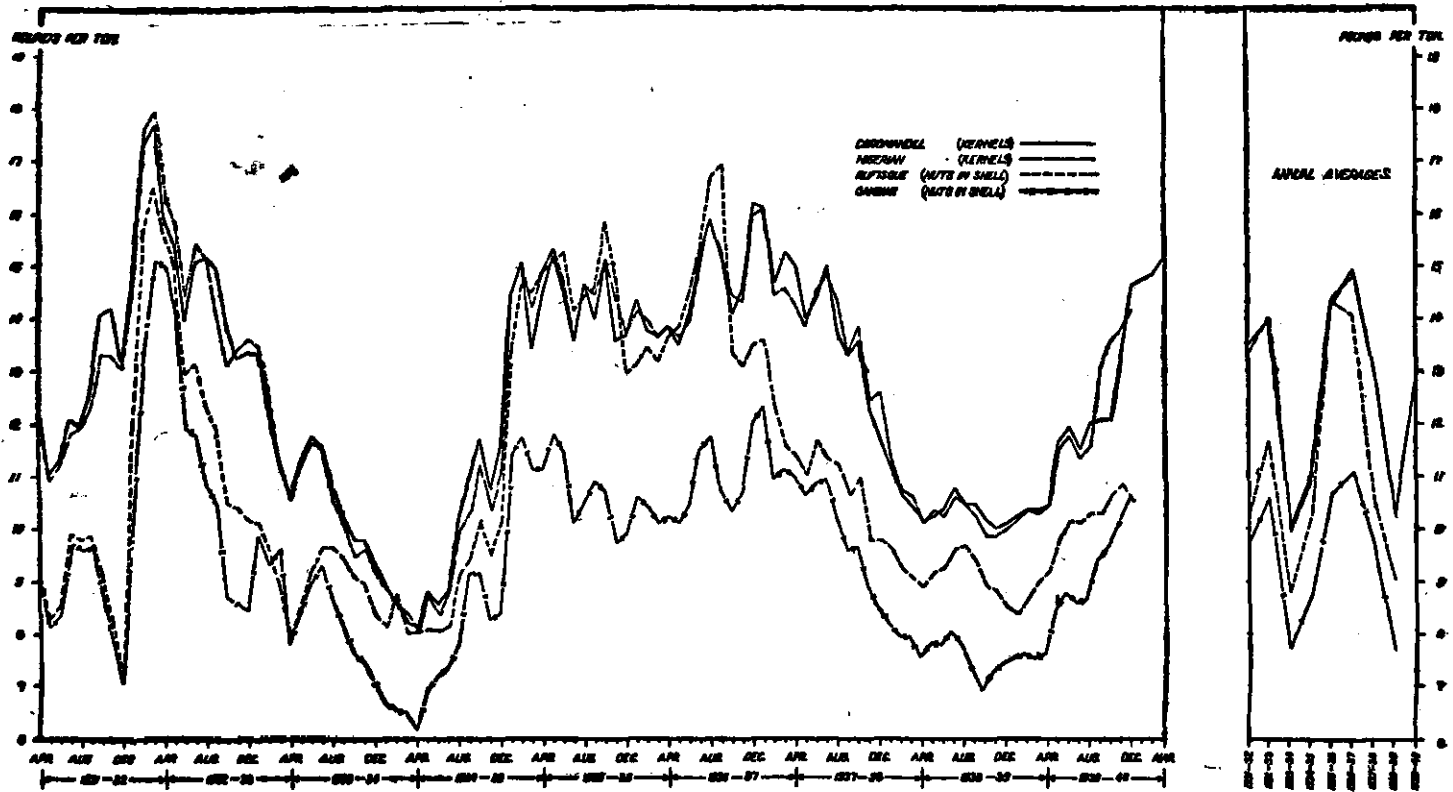
Average annual prices of groundnut kernels, copra and cotton seed.

Year.	Groundnut kernels. (Coromandel—c.i.f. London).		Copra. (F. M. S. Singa- pore—c.i.f. London).		Cotton seed. (Black Egyptian—c.i.f. Hull).	
	Price per ton.	Percentage taking 1928-29 price as 100.	Price per ton.	Percentage taking 1928-29 price as 100.	Price per ton.	Percentage taking 1928-29 price as 100.
1928-29 ..	£ s. d. 20 9 2	100·0	£ s. d. 25 15 11	100·0	£ s. d. 10 13 3	100·0
1929-30 ..	18 5 2	89·2	22 10 4	87·3	9 4 11	86·8
1930-31 ..	13 3 2	64·3	17 6 7	67·2	6 13 8	62·7
1931-32 ..	13 10 0	66·0	14 2 0	54·7	6 2 2	57·3
1932-33 ..	13 19 8	68·3	14 3 4	54·9	6 18 0	64·7
1933-34 ..	10 1 6	49·3	10 9 10	40·7	5 6 11	50·2
1934-35 ..	11 1 5	54·1	10 2 4	39·2	5 12 2	52·6
1935-36 ..	14 4 11	69·6	13 7 7	51·9	6 12 1	61·9
1936-37 ..	14 18 10	73·0	17 3 10	66·6	7 19 5	74·8
1937-38 ..	12 19 5	63·4	15 4 6	59·0	6 17 1	64·3
1938-39 ..	10 6 6	50·5	11 0 8	42·8	6 7 10	59·9
1939-40 ..	12 18 3	63·1	..	..	6 12 11	62·4

AVERAGE MONTHLY PRICES OF GROUNDNUT KERNELS, COPRA, COTTON SEED, GROUNDNUT OIL, COCONUT OIL AND COTTON SEED OIL AT LONDON.



AVERAGE MONTHLY PRICES OF GROUNDNUTS (NUTS IN SHELL AND KERNELS) AT LONDON.



Facing page 85.]

Average annual prices of groundnut oil, coconut oil and cotton seed oil.

Year.	Groundnut oil. (Crude—spot) in Hull.		Coconut oil. (White. Ceylon—c.i.f. London).		Cotton seed oil. (Refined ex-mill) in Hull.	
	Price per ton.	Percentage taking 1928-29 price as 100.	Price per ton.	Percentage taking 1928-29 price as 100.	Price per ton.	Percentage taking 1928-29 price as 100.
	£ s. d.		£ s. d.		£ s. d.	
1928-29 ..	37 17 9	100·0	38 18 4	100·0	34 8 4	100·0
1929-30 ..	34 16 1	91·8	33 6 8	85·6	33 1 8	96·1
1930-31 ..	28 15 0	75·9	27 5 0	70·0	27 3 4	78·9
1931-32 ..	27 16 1	73·4	22 10 0	57·8	22 11 8	65·6
1932-33 ..	30 3 9	79·7	22 11 8	58·0	23 15 0	69·0
1933-34 ..	21 8 5	56·5	16 5 0	41·8	19 6 8	56·2
1934-35 ..	23 9 10	62·0	15 1 8	38·7	19 15 0	57·4
1935-36 ..	32 0 0	84·5	21 11 8	55·4	27 18 4	81·1
1936-37 ..	33 0 8	87·2	26 6 8	67·7	30 13 4	89·0
1937-38 ..	29 1 3	76·7	22 0 0	56·5	26 10 0	77·0
1938-39 ..	21 1 3	55·6	15 15 0	40·5	21 5 0	61·7
1939-40 ..	26 11 6	70·2	21 6 8	54·8	25 6 8	73·6

Source.—Adapted from Review of the Oilseeds, Oil and Oil Cake Markets—Frank Fehr and Co.

The price of groundnut kernels declined from an average of £20-9-2 in 1928-29 to £18-5-2 in 1929-30, and £13-3-2 in 1930-31. The lowest level was reached as with other oilseeds in 1933-34 during which year the prices steadily declined after August. The cheap prices of butter, plentiful supplies of groundnuts from India and Africa, imposition of duty by the French Government on imports of groundnuts not grown in French Colonies, and restrictions on the production of margarine in Germany, all contributed to the downward trend of prices and the annual average price fell to £10-1-6 only, *i.e.*, less than half the average in 1928-29. The prices early in 1934 were as low as £8 and £9 per ton only, but improved in later months touching over £15 in February 1935, so that the average for 1934-35 rose to £11-1-5. It will be seen from the table that the rise in prices of groundnuts was not shared by copra and coconut oil which as a result of continual selling pressure declined further in 1934-35. The improvement in the prices of groundnut kernels, with the general rise in the prices of oilseeds, continued in 1935-36 and 1936-37, the

annual average for these two years being £14-4-11 and £14-18-10 respectively. The prices, however, declined with selling pressure from India in 1937-38 to an average of £12-19-5. The prices declined further with the weakness of other oilseeds in 1938-39 to an average of £10-6-6. The prices once more began to show signs of improvement early in 1939 and were over £12 per ton at the time of outbreak of hostilities in September, 1939. The annual average for 1939-40 is reckoned at £12-18-3.

(2) PRICE OF INDIAN KERNELS COMPARED WITH THOSE OF OTHER COUNTRIES.

Groundnuts are imported into Europe mainly from India, French West Africa, and the British Colonies of Nigeria and Gambia. The imports from India and Nigeria are mainly in the form of kernels while those from French West Africa and Gambia are as nuts in shell. The nuts from French West Africa are known in trade as Rufisque nuts while the kernels from India are mostly of Coromandel variety, although there is some trade in Khandesh, Bold and Red Natal varieties also.

The average monthly prices of Coromandel and Nigerian kernels c. i. f. London and Rufisque and Gambian nuts for near shipments to Europe are shown in the diagram facing page 85 and their annual averages are compared in the table below :—

Average annual prices of Coromandel and Nigerian kernels at London and Rufisque and Gambian nuts for shipment to Europe.

Year.	Coromandel kernels.	Nigerian kernels.	Rufisque nuts.*	Gambian nuts.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1931-32 ..	13 10 0	13 6 5	10 4 2	9 15 9
1932-33 ..	13 19 8	14 1 0	11 14 0	10 13 4
1933-34 ..	10 1 6	9 19 8	8 16 3	7 16 6
1934-35 ..	11 1 5	10 18 3	10 5 6	8 16 4
1935-36 ..	14 4 11	14 8 6	14 6 10	10 15 3
1936-37 ..	14 18 10	14 16 9	14 1 5	11 3 9
1937-38 ..	12 19 5	13 1 1	10 10 1	9 15 11
1938-39 ..	10 6 6	10 4 8	9 0 7	7 15 1

It will be seen from the diagram that Coromandel kernels and the competing Nigerian kernels move very close to each other, the margin being in favour of one or the other by a small amount at different

*Prices in French francs per 100 kilos have been converted to prices per ton in sterling at the rates of exchange ruling on the dates of quotations.

times and in different years. In 1931-32, Coromandel kernels were generally quoted higher than Nigerian up to January 1932, but were sold at a discount in February and March 1932; the difference over the year's average worked out to 3s. 7d. per ton in favour of Coromandels. The premium obtained by Nigerian kernels in February and March 1932, when exports from India were small, continued till July 1932. Coromandel kernels fetched a premium from August to October 1932, after which the position was reversed. The premium over the year's average in 1932-33 amounted to 1s. 4d. in favour of Nigerian. In 1933-34, when the supplies both from India and Nigeria increased as compared with those in the previous year, Coromandels again fetched a small premium, averaging 1s. 10d. per ton over the year. A position similar to that in 1933-34 continued in 1934-35, the average premium for the year being 3s. 2d. but in 1935-36 when exports from India declined due to a short crop harvested in 1934-35, Nigerian kernels continued to obtain a premium throughout the year. The average for the year worked to 3s. 7d. per ton in favour of Nigerian kernels.

Coromandels regained their position in 1936-37 fetching an average premium of 2s. 1d. per ton but in 1937-38 when quantities exported from India were again somewhat smaller than the previous year, Nigerian kernels once more secured a small premium, averaging 1s. 8d. per ton. The next year, 1938-39, when supplies from India were plentiful, Coromandels secured a premium of 1s. 10d. per ton.

The prices of Gambian nuts generally move in harmony with Coromandel and Nigerian kernels. Rufisque nuts generally fetch a higher price, when considered in terms of kernels, because they are used for the preparation of high class edible oils. The comparative prices of these nuts, however, in recent years, have been influenced more by import duty and restrictions and quotas fixed by the French Government rather than their intrinsic value as compared with kernels and nuts imported from other countries. For this reason there is little relation between the prices of Rufisque and Gambian nuts.

In July 1933, the French Government imposed an import duty on groundnuts of foreign origin and after this the margin between the prices of Coromandel kernels and Rufisque nuts tended to be narrow. In January 1934, quotas were fixed for groundnuts imported from foreign countries and French Colonies and as a result, the prices of Rufisque nuts shot above those of Coromandel kernels. This position was not maintained but after tightening of the quotas in February and July 1934 the margin remained narrow. In May 1935, when the import duty was raised to nearly double, Rufisque nuts went higher than Coromandel kernels and remained so for most of the time till November 1936, when the duty was reduced by 50 per cent. The margin then widened and remained so till an increase in import duty by 13 per cent became operative in July 1937. This somewhat narrowed the margin and further increase of duty in February 1938, helped to keep Rufisque prices higher till in November 1938, the quotas were revised in favour of foreign countries. The margin widened but with the rise in prices of Rufisque groundnuts in May and June 1939, the margin again narrowed down temporarily

B.—Prices in India in relation to prices in London.

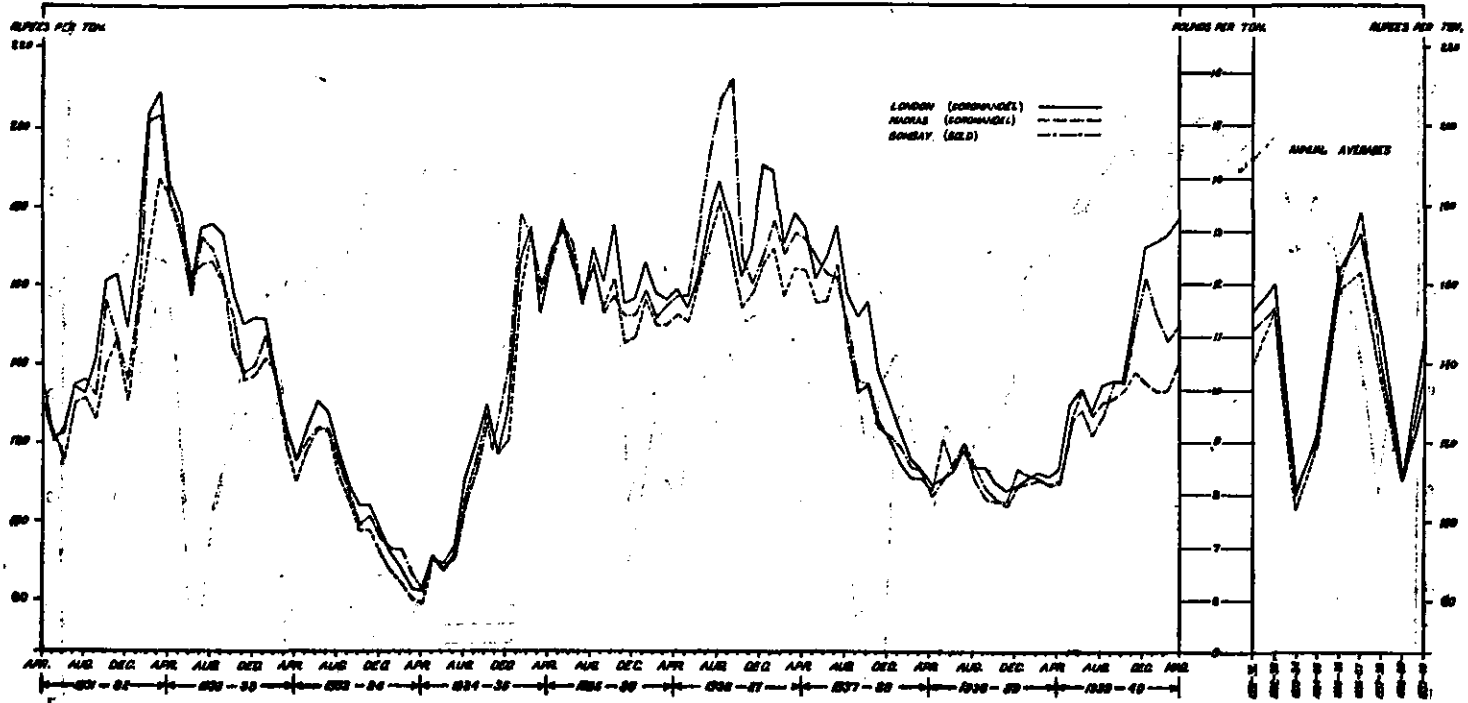
The prices at Madras and Bombay, which provide a fair index of Indian prices, are given in Appendices XXIV and XXV and illustrated on the diagram facing this page, along with the prices at London, tabulated in Appendix XXIII. It may be noted that the prices at London and Madras are for machine decorticated Coromandel kernels, the basis being "pure" at London and "2 per cent impurities and 2 per cent damaged" at Madras. The Bombay prices are for Bold kernels and the basis is 4 per cent refraction. Notwithstanding these differences, it will be clear from the graph that Indian prices generally follow the prices at London.

✧ In Madras, the prices are largely influenced by the buying limits of the chief exporting firms and as these are based on London prices, there is generally close sympathy between the movement of prices at Madras and London. There are a few occasions when Madras prices are temporarily out of parity with London prices but such a position does not continue for any considerable period.

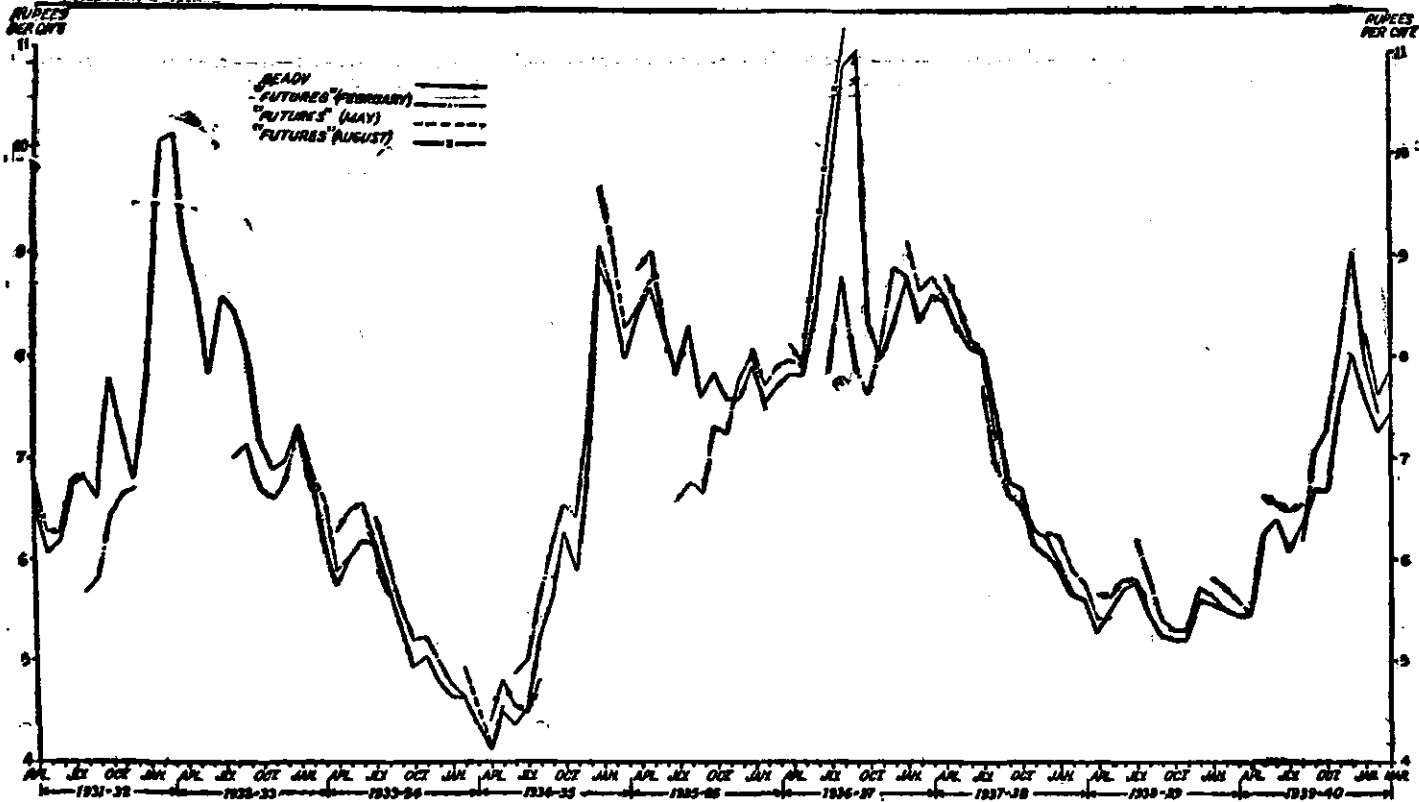
✓ The prices at Bombay, although they generally follow the London prices, are not entirely dependent on export buying limits. This, apart from the fact that there is organised "futures" trading, is due to a considerable demand for crushing by mills located at Bombay and a number of other centres. The prices at Bombay are, therefore, at times not only out of parity with London prices but higher than the current London prices, as is seen on the diagram, between November 1934 and January 1935 and between May and September 1936. On the first occasion, a short crop was harvested in India and Bombay mills paid better prices than were available in export trade. The exports from Bombay during this period (November 1934 to January 1935) amounted to 11,000 tons as compared to 30,000 tons and 32,000 tons in the corresponding periods of 1933-34 and 1932-33 respectively. In the other instance, the higher prices of groundnut kernels in the off-season at Bombay as compared to those at London were largely brought about by local weather conditions, affecting the prospects of *kharif* crops, specially sesamum, the oil of which is one of the chief edible oils in the province. Between May and July, the failure of *kharif* crops seemed imminent in several parts of the Presidency as a result of long period of dry climatic conditions. The area sown with sesamum declined from 170,000 acres to 132,000 acres and the yield from the crop was 13,000 tons as compared with 20,000 tons in the previous year. The position was alleviated by opportune rains in September, which gave hopes of good *rabi* season.

✓ Apart from special conditions such as mentioned above, the prices at Indian ports should differ from those at London, by an amount roughly representing the expenses incurred for transport of the produce, which include expenses at the port, shipping and port charges, brokerage, insurance, freight and other incidental charges. Some of the items, e.g., port charges remain constant for long periods while others, such as freight vary from time to time. Certain other items such as brokerage, which form a percentage of the value, naturally

AVERAGE MONTHLY PRICES OF GROUNDNUT KERNELS AT LONDON, MADRAS AND BOMBAY.



AVERAGE MONTHLY "READY" AND "FUTURES" PRICES OF GROUNDNUTS PER CWT. AT BOMBAY.



vary depending on the price. The margin between London and Indian prices cannot, therefore, be a fixed amount, but it is obvious that when this margin does not cover the expenses referred to above, export is impossible. The following table shows that the difference between the annual average prices at London and Madras varied between £1-12-5 and £3-0-4 in different years, although in individual months the margin was as narrow as 3s. 7d. (June 1930) and as high as £4-10-3 (February 1932). Similarly, the margin between average annual prices at London and Bombay varied between £1-12-6 and £2-19-3 in different years although in September 1936, Bombay prices were higher than London prices by £1-9-8, while in October 1937, London prices exceeded Bombay prices by £3-10-10. ✓

Differences between average annual c. i. f. prices of Coromandel kernels at London and average annual prices of Coromandel kernels at Madras and Bold kernels at Bombay.

(Per ton).

Year.	Difference between London and Madras prices.			Difference between London and Bombay prices.		
	£	s.	d.	£	s.	d.
1928-29	1	12	5	2	19	3
1929-30	2	7	3	2	13	11
1930-31	1	14	11	2	2	5
1931-32	3	0	4	2	8	1
1932-33	2	10	4	2	9	7
1933-34	2	7	11	2	2	7
1934-35	2	3	3	1	18	11
1935-36	2	8	0	2	6	2
1936-37	2	14	7	1	12	6
1937-38	2	16	3	2	10	11
1938-39	2	0	9	2	2	0
Average	2	6	11	2	6	0

The comparatively wide margin of £3-0-4 between London and Madras in 1931-32 is explained by the fact that in this year both India and French West Africa harvested comparatively short crops. It may be noted here that Rufisque nuts freely competed with Indian groundnut kernels up to 1931-32, after which the position was changed by the imposition of import duty in the United Kingdom on non-Empire groundnuts in March 1932 and in France on groundnuts of origin other than French Colonies in July 1933. The margin between London and Madras prices since 1933-34 have ranged between a comparatively narrow range of £2-0-9 and £2-14-7. The variation from year to year is largely accounted for by the changes in freight. The freight from Madras to London has varied in recent years—not taking into account the rise in freight after outbreak of hostilities in September 1939—from nearly 16 shillings to over 50 shillings per ton and from Bombay to London from 23 shillings to 56 shillings per ton, all calculated for comparison on the basis of a ton of 20 cwt.

It will be seen from the following table which summarises the average annual freights from Madras to London and Bombay to London for near shipments, that with the rise in freight rates, the difference between London and Indian prices rises and vice versa.

Average annual freights from Madras and Bombay to London.

(Per ton of 20 cwt.).

Year.	From Madras.		From Bombay.	
	£	s. d.	£	s. d.
1936-37	1	6 0	1	12 0
1937-38	1	11 6	2	3 1
1938-39	1	3 11	1	5 11

C.—Prices in India.

(1) TREND.

It has been pointed out in an earlier section that the prices in India generally follow the prices in London. The trend of prices in India over a long period is also seen to be similar to that at London.

The prices began to decline appreciably as at London after 1928-29, as will be seen from the following table which gives the annual average prices of groundnut kernels and nuts in shell in five markets, located in Madras, Bombay, Hyderabad and Mysore :—

Average annual prices of groundnut kernels and nuts in shell at five markets in India.

Year.	Madras (Coromandel kernels per candy of 500 lb.).	Bombay (Bold kernels per cwt.).	Dhulia (Khandesh nuts in shell per maund).	Raichur (Khandesh nuts in shell per maund).	Davangere (Khandesh nuts in shell per maund)
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
1928-29	56 1 0	11 10 8	.. .. .	.. .. .	5 14 9
1929-30	47 3 10	10 6 0	5 4 7	.. .. .	5 2 6
1930-31	33 15 5	7 5 9	3 14 0	.. .. .	3 12 3
1931-32	31 3 1	7 6 5	3 7 6	2 10 0	3 6 0
1932-33	34 2 1	7 10 8	4 3 0	3 2 6	3 12 2
1933-34	22 13 9	5 4 9	2 12 0	1 11 6	2 2 4
1934-35	26 8 2	6 1 4	3 4 6	2 8 10	2 12 1
1935-36	35 4 0	7 15 4	4 4 1	3 12 1	3 15 10
1936-37	36 5 8	8 14 1	4 10 5	4 0 6	4 1 7
1937-38	30 3 9	6 15 3	3 8 4	3 1 0	3 7 0
1938-39	24 10 8	5 7 9	.. .. .	.. .. .	2 8 9
1939-40	29 1 9	6 13 3	.. .. .	.. .. .	.. .. .

The prices at Madras declined almost continuously from an average of Rs. 56-1-0 per candy of 500 lb. in 1928-29 to Rs. 31-3-1 per candy in 1931-32. There was a slight recovery to Rs. 34-2-1 per candy in 1932-33 but this was followed by a sharp fall in the following

year, when the prices reached the lowest levels averaging Rs. 22-13-9 only per candy, *i.e.*, nearly 41 per cent of 1928-29 prices. The prices continued to improve slowly from 1934-35 to 1936-37 but had a set-back again in 1937-38 when they averaged Rs. 30-3-9. The fall which commenced in the later part of 1937-38 continued in 1938-39 and the average for the year fell to Rs. 24-10-8 per candy. The prices improved slightly in 1939-40. Similarly at Bombay, the prices declined from Rs. 11-10-8 per cwt. in 1928-29 to Rs. 7-6-5 in 1931-32 recovering to Rs. 7-10-8 in 1932-33. The prices in 1933-34 were, as at Madras, the lowest, averaging Rs. 5-4-9 per cwt., *i.e.*, nearly 45 per cent of 1928-29 average. The following three years saw improvement in prices, the average for 1936-37 rising to Rs. 8-14-1 per cwt. or 76 per cent of 1928-29 level. A decline in prices occurred again in 1937-38 and 1938-39 followed by a small improvement in 1939-40.

The prices of nuts in shell at Davangere show a similar trend, the fall being more pronounced. The annual average price in 1933-34 was only 36 per cent of 1928-29 average. Even after recovery during 1934-35 to 1936-37, the prices in 1936-37 averaged 69 per cent only of the 1928-29 average. Other markets also registered the lowest prices in 1933-34. At Raichur, prices for nuts in shell averaged as low as Rs. 1-11-6 per maund in 1933-34.

The general trend of groundnut prices may, therefore, be summarised as a continuous fall from 1928-29 to 1931-32, slight recovery in 1932-33, sharp drop in 1933-34, followed by an increase from 1934-35 to 1936-37, a drop again in 1937-38 and 1938-39 and subsequent recovery in 1939-40.

(2) DIFFERENCES IN RESPECT OF VARIETIES AND QUALITY.

Groundnut kernels of different varieties fetch somewhat different prices. In Madras, of the two main varieties—Coromandel and Peanuts, the latter is usually sold at a discount. The following prices paid by a buyer at Madras for Coromandels and Peanuts—both machine shelled—on certain dates show that the discount for Peanuts varies from 12 annas to Rs. 2-4-0 per candy of 531 lb.

Prices paid for Coromandels and Peanuts by a buyer at Madras on certain dates.

Date.	Coromandel (machine decorticated—per candy of 531 lb.).	Peanuts (machine decorticated—per candy of 531 lb.).	Discount for Peanuts (per candy of 531 lb.).
	Rs. A. P.	Rs. A. P.	Rs. A. P.
2nd January, 1930 ..	45 14 0	44 6 0	1 8 0
7th March, 1930 ..	40 3 0	37 15 0	2 4 0
1st September, 1932 ..	37 8 0	36 8 0	1 0 0
15th October, 1932 ..	33 12 0	33 0 0	0 12 0
28th September, 1933 ..	24 2 0	22 10 0	1 8 0
1st November, 1934 ..	24 1 0	23 1 0	1 0 0

Again two qualities of kernels are recognised in trade in Madras depending on the method adopted for removing the shells. These are known as machine decorticated and hand shelled or hand decorticated. In the former case, the shell is removed by machines called decorticators (see Chapter IV), and in the latter case without the use of machinery. Hand shelled kernels are also termed "ordinary". Hand shelled kernels fetch a lower price than machine decorticated kernels, the average amount of discount varying in different years, as will be seen from the table below, between Rs. 2-7-8 and Rs. 8-4-0 per candy of 531 lb. and from nearly 8 to 24 per cent of the price of machine decorticated kernels.

Average annual prices of machine decorticated and hand shelled kernels at Madras.*

(Per candy of 530 lb.).

Year.	Machine decorticated.	Hand shelled.	Difference.	Difference expressed as percentage of the price of machine decorticated kernels.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	
1931-32	34 2 0	31 8 0	2 10 0	7.7
1932-33	34 0 4	31 5 8	2 10 8	7.8
1933-34	28 15 8	21 8 0	2 7 8	10.3
1934-35	28 12 7	25 9 5	3 3 2	11.1
1935-36	36 11 8	32 3 4	4 8 4	12.3
1936-37	36 9 5	32 8 4	6 1 1	15.7
1937-38	35 5 2	27 1 2	8 4 0	23.7

The discount for hand shelled kernels was generally between Rs. 2 and Rs. 3 per candy up to 1933-34 but in 1934-35 the discount increased to as much as Rs. 4-8-0 per candy in later months, the annual average for the year being Rs. 3-3-2. In 1935-36 the discount increased to over Rs. 5 per candy towards December, 1935, and the average for the year increased to Rs. 4-8-4. The next year substantially higher discounts varying from Rs. 4-12-0 to Rs. 8 per candy were demanded and the average for the year rose to Rs. 6-1-1. During the 5 months of 1937-38, for which figures are available, the discount ranged from Rs. 8 to Rs. 9 per candy. It will be thus noticed that the discount, to which hand shelled kernels are subjected, has been steadily increasing year after year. The trade has been discouraging the practice of hand shelling and it is reported that the quantities of hand shelled kernels arriving in markets are steadily decreasing. 10 per cent of the trade in Madras, however, still consists of hand shelled so that considerable loss is experienced by sellers on that account.

* Average of prices at the end of each month.

In Bombay, 5 varieties of kernels are recognised in trade, viz., Khandesh, Khandesh quality, Madras (i.e., Coromandel), Karad and Bold, reference to which has already been made in Chapter I. The prices of different varieties generally vary according to their oil content but special demand for edible kernels often accounts for large kernels with low oil content—of which Bold is typical—fetching a comparatively higher price. The average annual prices fetched by the different varieties are summarised below :—

Average annual prices of different varieties of groundnut kernels at Bombay.

(Per maund.)

Year.	Khandesh.		Khandesh quality.		Madras.		Karad.		Bold.	
	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.
1932-33	6	1 8	..	..	5	15 4	..	..	5	12 0
1933-34	4	1 0	..	..	3	15 5	..	..	3	14 0
1934-35	4	7 5	..	..	4	5 3	..	..	4	4 0
1935-36	5	14 8	5	14 1	5	14 2	5	12 2	5	11 5
1936-37	6	5 4	6	4 5	6	4 1	6	5 9	6	5 8
1937-38	5	6 6	5	5 8	5	4 7	5	2 11	5	2 5
1938-39	4	1 10	..	..	4	1 6	4	1 4	4	0 2
1939-40	5	1 7	..	..	4	15 6	5	1 5	4	15 3
1940-41	4	5 9	..	..	4	5 5	4	6 3	4	5 5

Khandesh variety which has the highest oil content, almost invariably fetches the highest price. Khandesh quality is sold at a small discount varying from 6 pies to an anna under Khandesh. Madras (Coromandel) comes next followed by Karad and Bold. Considering the annual average prices of different varieties, the difference between Khandesh and Bold was as little as 4 pies per maund in 1940-41 and as much as Re. 0-5-8 in 1932-33. In 1936-37, however, the average price for Bold was slightly higher than that for Khandesh. This is accounted for by the fact that from July to September 1936, when a failure of *khari* crops was feared in the Presidency, the prices of Bold exceeded those of Khandesh, owing to delivery on the contract of the "futures" market being confined to this variety only.

The prices of nuts in shell of different varieties also differ in values, as will be seen from the following average annual prices of Khandesh and Coromandel varieties at Raichur.

Average annual prices of groundnuts in shell at Raichur.

(Per maund.)

Year.	Coromandel (nuts in shell).			Khandesh quality (nuts in shell).		
	Rs.	A.	P.	Rs.	A.	P.
1931-32	2	11	3	2	10	0
1932-33	3	3	0	3	2	6
1933-34	1	12	4	1	11	6
1934-35	2	9	6	2	8	10
1935-36	3	13	3	3	12	1
1936-37	4	2	9	4	0	6
1937-38	3	1	0	3	1	0

Coromandel nuts generally fetched slightly higher prices than Khandesh quality but some mills have now begun to realise that Khandesh quality gives more oil and the prices of both the varieties averaged Rs. 3-1-0 per maund in 1937-38. At Latur, where almost the whole of the supply is of Bold variety, Khandesh quality nuts, known locally as "Ghungru" are taken at a small discount. In the Central Provinces, the larger varieties of groundnuts are sold from 2 annas to 10 annas per maund less than the smaller varieties. Records of prices in a merchant's books at Khandwa showed that the Bold varieties fetched 2 annas to 9 annas lower in 1935-36, 2 annas to 8 annas in 1936-37 and 3 annas to 10 annas per maund in 1937-38. Red Natal or Small Japan are reported to fetch 2 annas to 4 annas per maund less than Peanuts.

On the other hand, in areas where nuts are used mainly for edible purposes, the prices paid for bigger nuts with a thick shell and white colour are higher. For example, in the United Provinces, the big nuts fetch 8 annas to Re. 1 per maund more. Similarly, in the Punjab, the Bold nuts imported from Central India and Rajputana fetch higher prices than local nuts. At Delhi, the Bold nuts are imported from Khandwa and the small variety from Gangapur in Jaipur State. The following prices of the two varieties on certain dates will show the amount of premium fetched by Bold nuts.

Prices fetched by Bold and Small nuts in shell at Delhi on certain dates.

Date.	Prices of Khandwa nuts per maund.			Prices of Gangapur nuts per maund.		
	Rs.	A.	P.	Rs.	A.	P.
20th January, 1939	4	2	0	3	2	0
30th March, 1939	4	2	0	3	8	0
22nd May, 1939	5	4	0	4	6	0
16th October, 1939	5	0	0	4	8	0
29th November, 1939	5	8	0	4	8	0
19th February, 1940	6	4	0	4	0	0

(3) COMPARISON BETWEEN DIFFERENT MARKETS.

It will be obvious from what has been said in the preceding section and the diagram facing page 88, that the prices at Madras and Bombay, which may be regarded as key markets for prices of groundnut kernels in India, generally move in sympathy with one another except when special conditions prevail at the latter market. The following table giving the end of the month prices at Madras and Bombay, calculated to a common unit and for the same variety (Coromandel), shows that during recent years the prices at the latter port have been generally somewhat higher than at Madras.

Prices of Coromandel groundnut kernels at the end of each month at Madras and Bombay.

(Per maund.)

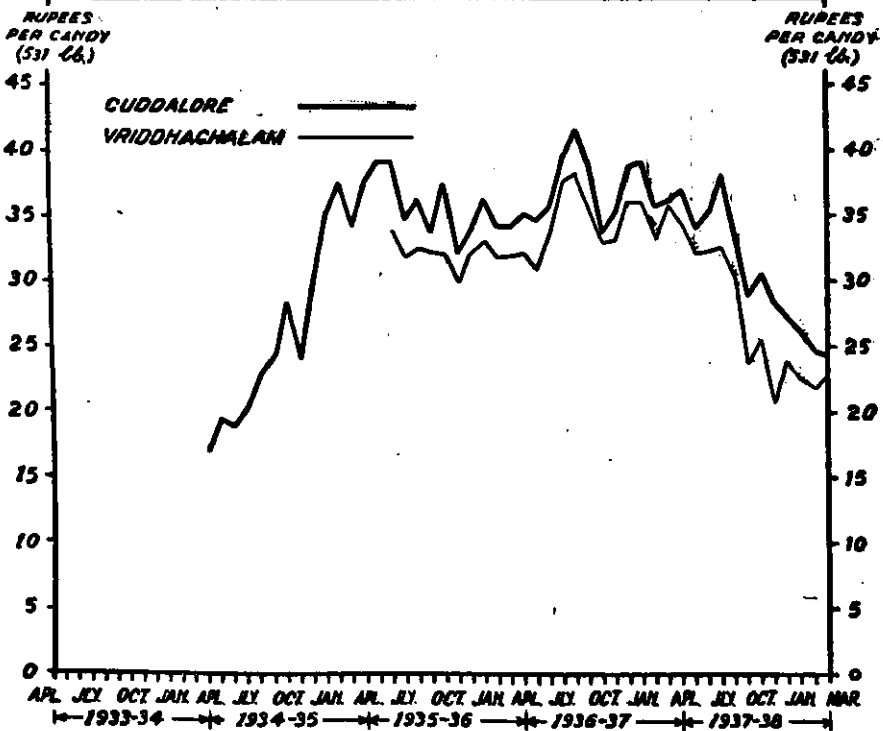
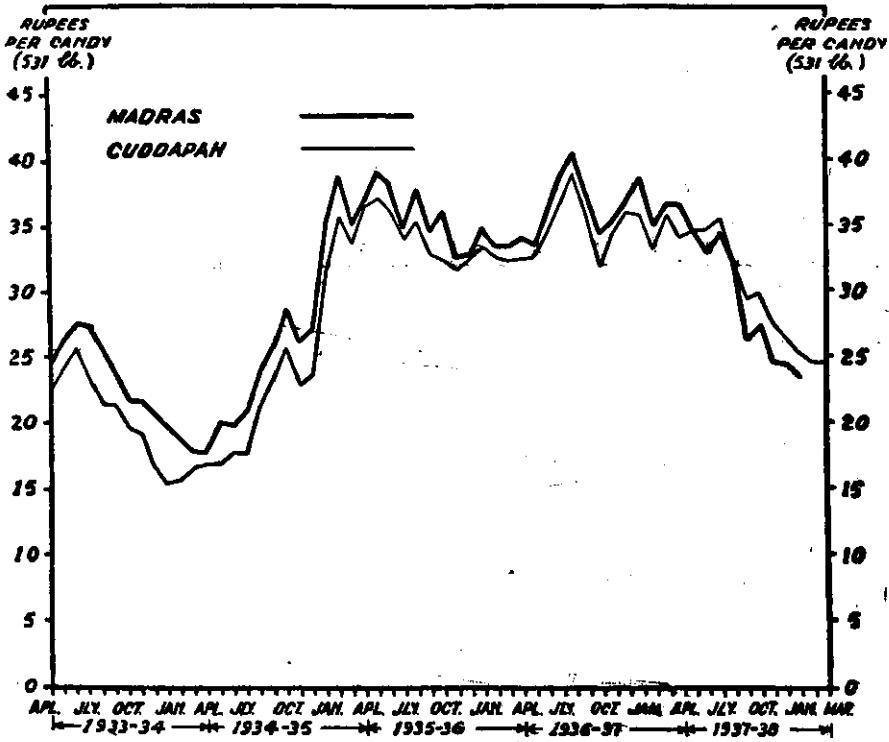
Year.	Madras.	Bombay.	Year.	Madras.	Bombay.
1933-34.			1934-35.		
	Rs. A. P.	Rs. A. P.		Rs. A. P.	Rs. A. P.
April	4 3 1	4 5 4	April	3 0 5	3 1 4
May	4 9 11	4 11 2	May	3 6 1	3 4 3
June	4 6 10	4 8 3	June	3 3 7	3 4 3
July	4 4 4	4 5 4	July	3 6 6	3 6 7
August	4 0 7	4 1 1	August	4 1 3	4 1 8
September	3 12 3	3 14 3	September	4 9 4	4 6 6
October	3 10 5	3 15 4	October	4 3 1	4 7 8
November	3 7 11	3 9 7	November	4 8 1	4 11 2
December	3 4 10	3 7 2	December	4 11 9	5 10 4
January	3 2 11	3 6 0	January	6 7 1	6 9 9
February	2 15 3	3 4 3	February	6 2 2	5 15 5
March	2 12 9	3 0 9	March	5 15 0	6 0 3
Average	3 11 7	3 14 0	Average	4 7 6	4 8 5

*Prices of Coromandel groundnut kernels at the end of each month at
Madras and Bombay—contd.*

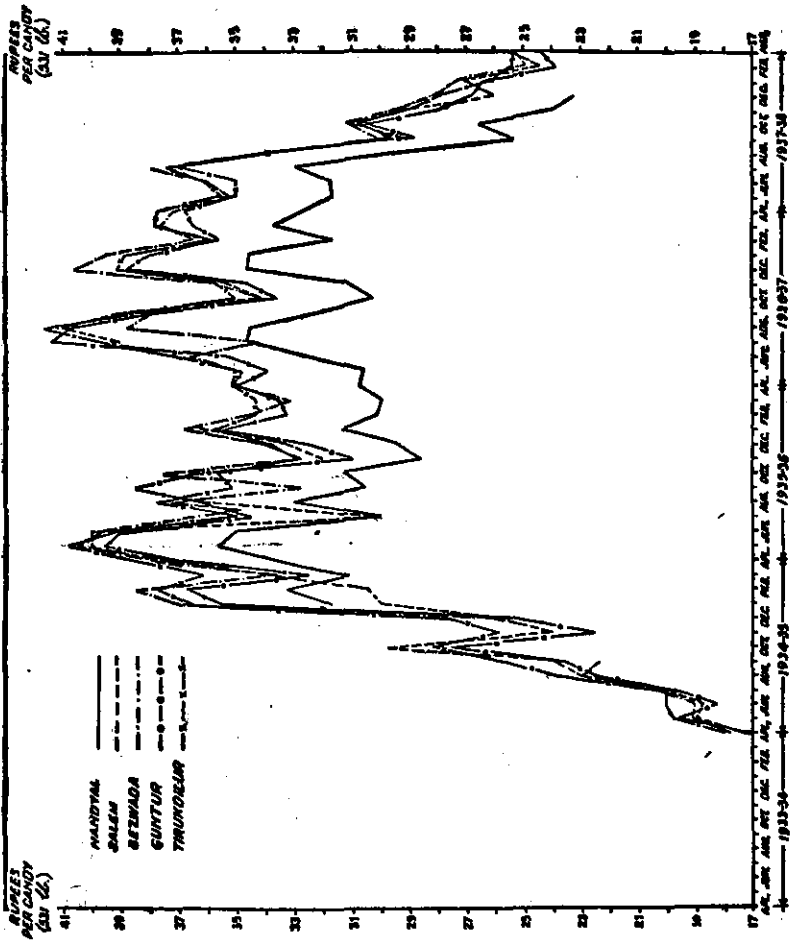
(Per maund.)

Year.	Madras.	Bombay.	Year.	Madras.	Bombay.
<i>1935-36.</i>			<i>1937-38.</i>		
	Rs. A. P.	Rs. A. P.		Rs. A. P.	Rs. A. P.
April	6 3 5	6 4 11	April	5 9 5	6 2 9
May	6 5 3	6 4 4	May	5 10 1	5 15 8
June	5 12 7	5 13 3	June	5 11 11	5 14 0
July	5 14 5	5 14 0	July	5 9 5	5 12 8
August	5 15 8	5 13 5	August	4 14 0	5 3 3
September	5 8 3	5 6 9	September	4 15 6	5 4 5
October	5 8 10	5 14 0	October	4 9 11	4 13 6
November	5 3 3	..	November	4 5 7	4 11 2
December	5 9 5	..	December	4 5 3	4 8 3
January	5 8 10	5 9 1	January	3 13 6	4 4 1
February	5 6 4	5 9 1	February	4 1 10	4 5 3
March	5 7 0	5 12 10	March	3 14 1	4 0 0
Average	5 11 3	5 13 3	Average	4 12 9	5 1 3
<i>1936-37.</i>			<i>1938-39.</i>		
April	5 7 0	5 12 10	April	3 15 4	4 2 1
May	5 8 10	5 12 10	May	3 13 6	4 0 4
June	5 14 5	6 6 2	June	4 3 7	4 6 6
July	6 6 6	7 3 2	July	4 4 11	4 5 10
August	6 9 0	7 0 10	August	4 0 0	3 15 11
September	6 8 5	6 0 3	September	3 13 6	3 14 5
October	5 7 7	5 6 9	October	3 12 5	3 13 11
November	5 15 8	6 0 10	November	3 14 1	3 15 11
December	6 2 2	6 6 2	December	3 15 0	4 2 10
January	5 15 0	6 3 9	January	3 15 4	3 15 11
February	5 13 2	6 4 11	February	3 15 10	4 1 5
March	6 2 11	6 7 11	March	3 15 0	3 15 2
Average	5 15 11	6 4 2	Average	3 15 6	4 1 2

AVERAGE MONTHLY PRICES OF GROUNDNUT KERNELS AT MADRAS, CUDDAPAH, CUDDALORE AND VRIDDHACHALAM.



AVERAGE MONTHLY PRICES OF GROUNDNUT KERNELS AT NANDYAL, SALEM, BEZWADA, GUNTUR AND TIRUCHOLEUR.



This is—apart from the difference in the basis of quotation and the method of calculating allowances for impurities, damaged seeds, etc., (see page 204)—accounted for by a bigger milling demand at Bombay as well as organised “ futures ” market.

The prices at other ports in Madras Presidency move in harmony with those at Madras, as the basis governing the prices at the different ports is the same, *viz.*, exporters' buying limits. Markets located in producing areas and connected directly with ports move in close sympathy with the respective ports, the prices being lower by approximately the cost of transport. The diagram facing page 96 shows that the prices at Cuddapah and Vriddhachalam follow those at Madras and Cuddalore ports respectively, the prices at the two ports also showing sympathetic movement between themselves.

The prices in the markets in different districts of Madras, however, do not always move together in relation to one another. The movement at Nandyal, Salem, Bezwada, Guntur, and Tirukoilur, illustrated in the diagram facing this page shows that the prices were highest in different markets at different times, *e.g.*, the prices in October 1934 were highest at Salem, in February 1935 at Bezwada, in September 1935 at Guntur and in August 1936 at Tirukoilur. The prices at Nandyal, which is situated at a greater distance from ports as compared to the other four markets, are generally the lowest among the 5 markets. But the difference in the prices at the two markets does not always rest on the difference in the cost of transportation to a port. For instance, the difference in the prices paid by the same buying agency at different times in two markets, *viz.*, Cuddapah and Nandyal ranged between 7 annas per candy and Rs. 5-1-0 per candy as is shown in the table below :—

Prices paid on the 15th of every month by a buying agency at two different markets (Cuddapah and Nandyal).

(Per candy of 531 lb.).

Months.	1935-36.		1936-37.		1937-38.	
	Cuddapah.	Nandyal.	Cuddapah.	Nandyal.	Cuddapah.	Nandyal.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
April ..	36 12 0	33 8 0	32 11 0	30 12 0	35 1 0	31 4 0
May ..	38 8 0	36 0 0	32 13 0	31 0 0	33 9 0	31 4 0
June' ..	36 15 0	36 8 0	34 0 0	32 8 0	32 5 0	31 12 0
July ..	33 7 0	30 12 0	37 1 0	34 12 0	34 12 0	33 4 0
August ..	34 3 0	33 2 0	38 11 0	35 12 0	31 0 0	29 14 0
September ..	31 2 0	29 0 0	36 6 0	32 8 0	26 2 0	24 10 0
October ..	34 0 0	33 0 0	31 12 0	29 14 0	28 4 0	26 10 0
November ..	29 14 0	28 0 0	36 5 0	31 4 0	25 0 0	24 6 0
December ..	31 11 0	29 8 0	36 11 0	35 2 0	25 0 0	23 6 0
January ..	34 0 0	32 4 0	36 13 0	35 0 0	23 8 0	22 12 0
February ..	31 13 0	30 8 0	33 2 0	31 14 0	..	..
March ..	32 1 0	30 4 0	35 6 0	32 12 0	..	..
Average	34 8 6	31 13 10	35 2 3	33 9 6	29 7 4	27 14 7

The prices paid by a buyer at a particular market are influenced besides local conditions of supply by his requirements from a particular port. For instance, if a buyer required goods at Cuddalore port he will pay higher prices at Vriddhachalam as compared with Tanjore. On the other hand, if his requirements were at Negapatam, reverse will be the case.

As is the case with markets connected with Madras ports, the prices in markets depending almost entirely on the trade with Bombay port, move with the prices at Bombay as will be seen from the diagram facing this page, which shows the movement of prices of groundnut kernels at Bombay and Gulbarga in Hyderabad and of groundnuts in shell at Davangere in Mysore. On the other hand, prices in markets, which besides export, have a demand from mills, are often influenced by local conditions. For instance, the prices at Sholapur shown on diagram facing page 99, at times move quite out of parity with Bombay prices. The following annual averages of prices at Bombay and Sholapur indicate that the margin between Bombay and Sholapur prices has moved between Re. 0-6-3 per maund and Rs. 1-0-5 per maund.

✓" *Average annual prices of Bold groundnut kernels at Bombay and Sholapur.*

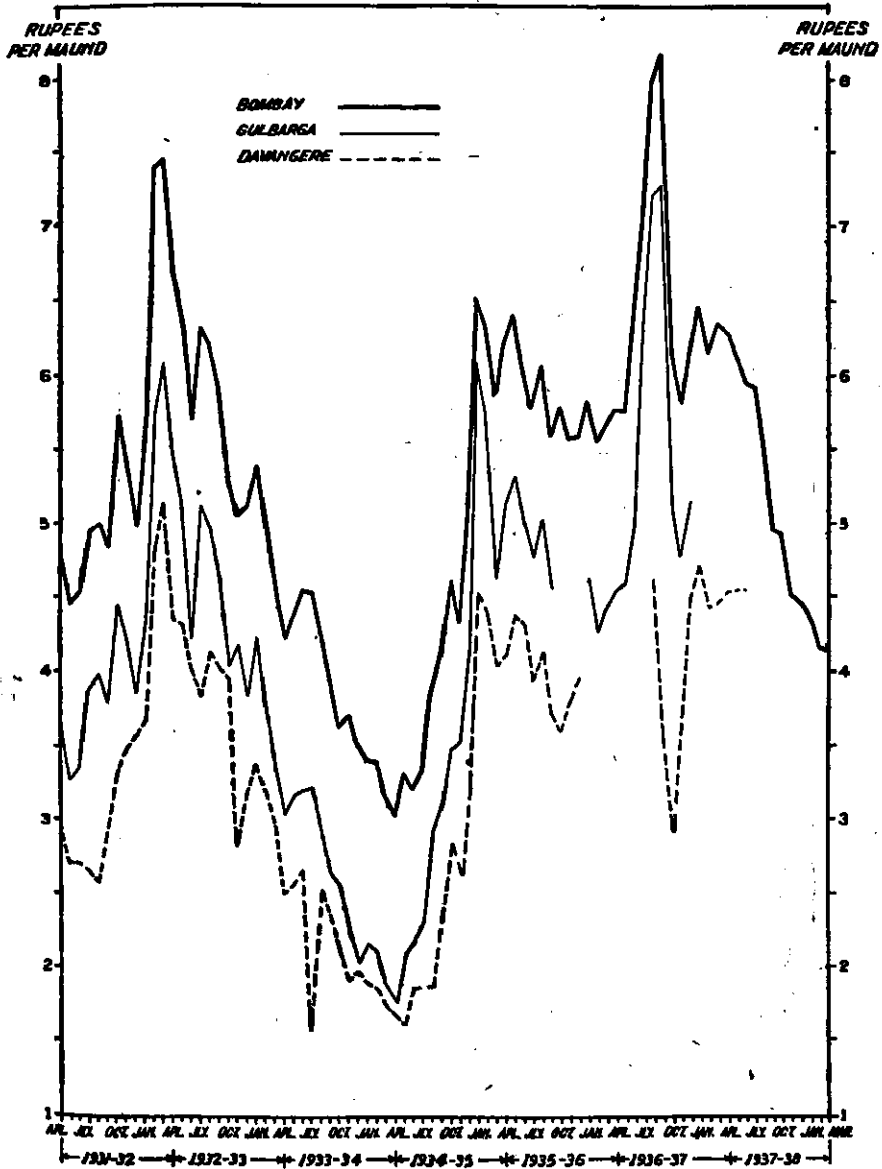
(Per maund).

Year.	Bombay.		Sholapur.		Difference.	
	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.
1931-32	5	7 0	4	6 7	1	0 5
1932-33	5	10 1	4	15 10	0	10 3
1933-34	3	14 3	3	1 5	0	12 10
1934-35	4	7 6	3	9 3	0	14 3
1935-36	5	13 7	5	2 5	0	11 2
1936-37	6	8 4	5	11 3	0	13 1
1937-38	5	1 9	4	11 6	0	6 3

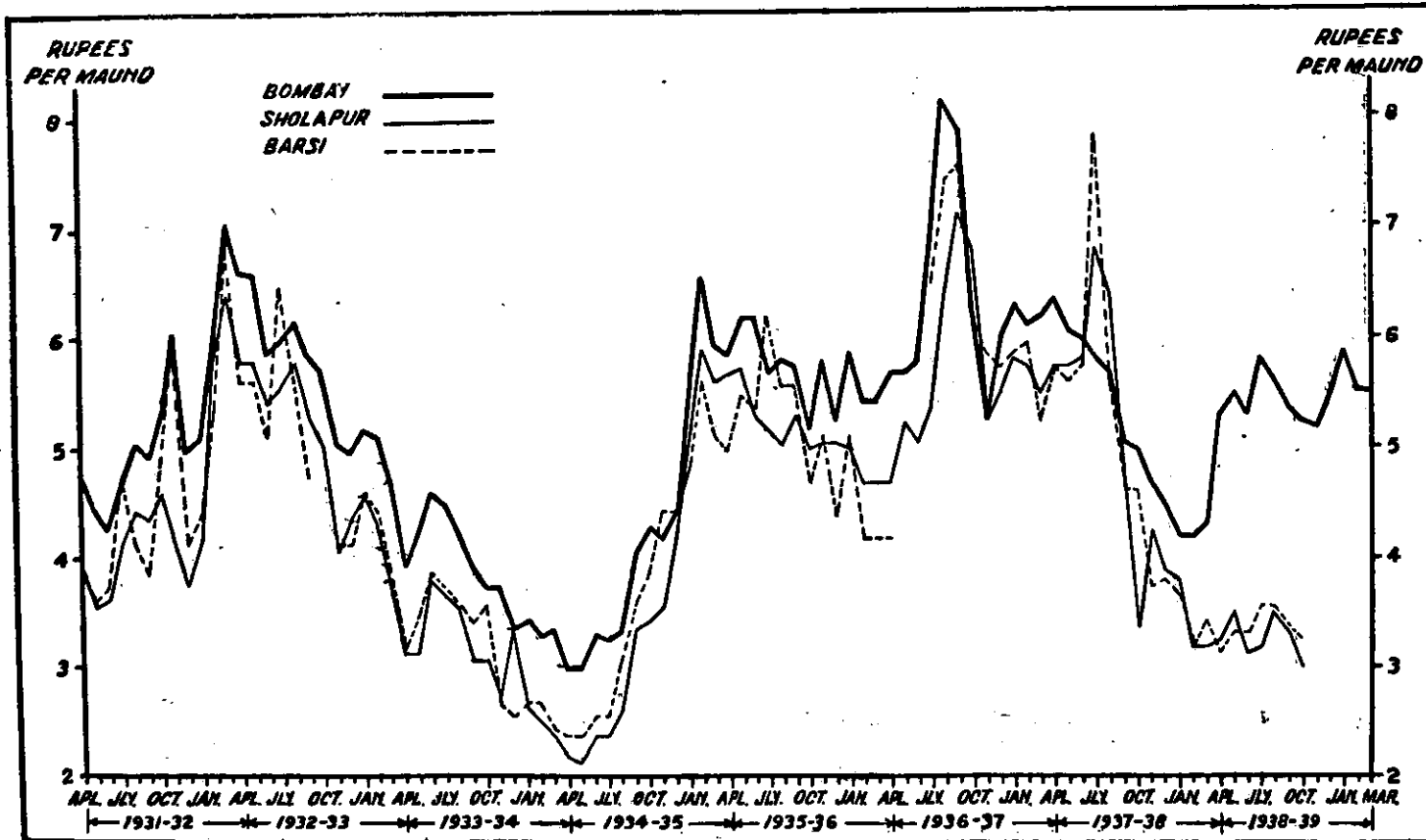
✓" The railway freight from Sholapur to Bombay is Re. 0-10-4 per maund and other expenses amount to nearly 3 annas per maund. It will be, therefore, obvious from the above figures that comparatively better prices are available at Sholapur.

In the case of nuts in shell, the prices in different markets show a comparatively discordant movement. The prices at Kolhapur, Karad and Dhulia shown in diagram facing page 100, reveal that the relationship between the prices at three markets varies from

AVERAGE MONTHLY PRICES OF GROUNDNUT KERNELS AT BOMBAY AND GULBARGA AND GROUNDNUTS IN SHELL AT DAVANGERE.



AVERAGE MONTHLY PRICES OF GROUNDNUT KERNELS AT BOMBAY, SHOLAPUR AND BARSII.



time to time. The following figures of annual average prices in these markets, however, show that on an average the prices were highest at Dhulia except in 1935-36 when the average for Kolhapur was higher. The prices at Kolhapur were higher than Karad from 1931-32 to 1933-34 and in 1935-36 and 1937-38, while reverse was the case in 1934-35 and 1936-37.

Average annual prices of groundnuts in shell at three markets of Bombay Presidency.

(Per maund).

Year.	Dhulia.	Kolhapur.	Karad.
	Rs. A. P.	Rs. A. P.	Rs. A. P.
1930-31	3 14 0	3 10 9	..
1931-32	3 7 6	3 7 0	3 5 8
1932-33	4 3 0	4 1 11	3 8 11
1933-34	2 12 0	2 5 8	2 1 9
1934-35	3 4 6	3 1 9	3 3 8
1935-36	4 4 1	4 4 8	3 13 1
1936-37	4 10 5	4 1 4	4 2 7
1937-38 .. .. .	..	3 7 8	3 3 5

The higher prices at Dhulia are explained by the fact that the trade in that market is mostly in Khandesh variety.

Similarly, the movement of prices of Bold nuts in shell at Latur and Raichur, two markets in Hyderabad, illustrated on the diagram facing page 101 show that the two markets, although generally following each other, at times show complete lack of agreement. For instance, from September to December 1935, the prices at Raichur are seen to be rising while at Latur they show a fall.

The markets in the Central Provinces also show a similar position. Malkapur, Khandwa and Khamgaon as will be observed from the diagram facing page 102, do not show much harmony specially in 1935-36 and later years, either in respect of their relative values or the trend of prices.

(4) VARIATIONS IN THE SAME MARKET.

The prices of different varieties of groundnut kernels and nuts in shell, as has already been discussed, are not the same. Therefore, if kernels or nuts of more than one variety are received in a market, the prices paid on the same day vary on this account. Even when

only one variety is received, the prices offered for different lots vary on account of the difference in quality—chiefly moisture and impurity content. The moisture and impurities are visualised by a cursory examination of the goods, based on feel and appearance, so that the difference in the judgment of different buyers is another factor contributing to the variations in the prices. In many markets, the prices offered are on the basis of impurities customary in the market and the actual prices paid for different lots vary depending upon the proportion of impurities actually found. For example, at Kolhapur the buyers offer prices on the basis of 2 seers dirt and impurities per bag of nuts in shell. After a lot is sold, one bag is taken from the lot and dirt and impurities separated. If the dirt and impurities in a bag are found to be 2 seers or less, the price offered is paid but if the dirt and impurities exceed this figure a proportionate deduction is made.

The prices offered by exporters' agencies are based on specified amount of dirt, damaged seeds, etc., and are subject to fixed scales of allowance but they vary depending on whether the price offered is on "Agency Pass" or "Port Pass" basis. In the former, the sampling of the goods is done at the agency and payment made on the basis of analysis of the sample. In the latter case, the sellers consign the goods to the agreed port and the sampling is done when the consignment reaches the port, and payment is made on the basis of the analysis of the sample drawn at the port.

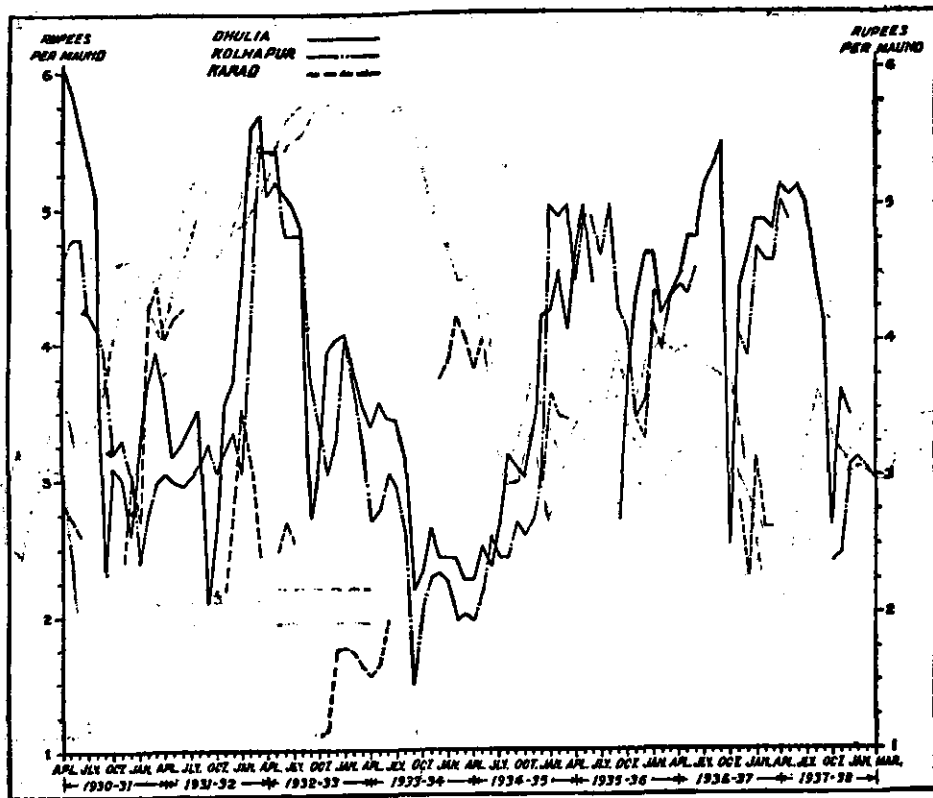
The prices offered by the different firms of exporters on the same day in the same market vary depending on each individual firm's commitments. As an example, the following prices offered by 5 buyers on the same dates for the same produce to a co-operative sale society in a market in Madras Presidency, may be cited.

Prices offered by different buyers for the same lots of groundnut kernels on a date in the first fortnight of certain months to a co-operative sale society in Madras Presidency.

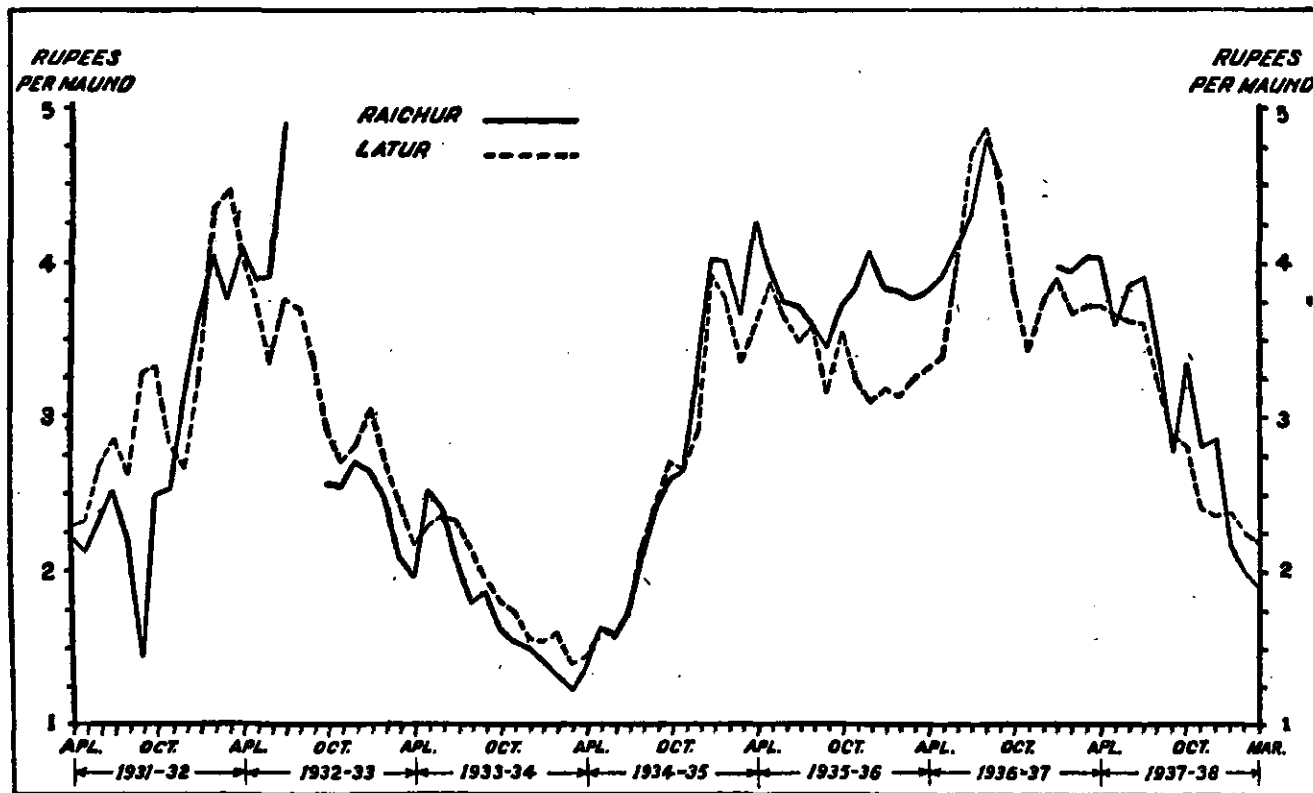
(Per candy of 531 lb.).

Months.	Buyers.				
	A	B	C	D	E
<i>1936-37.</i>	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
April	32 6 0	30 0 0	..	32 12 0	33 2 0
July	38 2 0	36 0 0	..	37 8 0	37 4 0
October	33 0 0	..	33 0 0	..	33 0 0
November	33 8 0	..	32 4 0	..	33 10 0
December	38 0 0	..	..	35 8 0	35 0 0
February	35 0 0	32 8 0	35 0 0	34 2 0	..

AVERAGE MONTHLY PRICES OF GROUNDNUTS IN SHELL AT KOLHAPUR, KARAD AND DHULIA.



AVERAGE MONTHLY PRICES OF GROUNDNUTS IN SHELL (BOLD) AT LATUR AND RAICHUR.



Prices offered by different buyers for the same lots of groundnut kernels on a date in the first fortnight of certain months to a co-operative sale society in Madras Presidency—contd.

(Per candy of 531 lb.).

Months.	Buyers.				
	A	B	C	D	E
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
<i>1937-38.</i>					
April	36 0 0	35 4 0	35 4 0	35 6 0	36 0 0
July	33 8 0	32 8 0	31 0 0	32 2 0	33 0 0
October	26 8 0	26 8 0	..	..	24 4 0
November	21 0 0	20 0 0	16 0 0	23 4 0	19 8 0
December	24 10 0	23 0 0	25 4 0	24 2 0	22 8 0
February	22 0 0	20 0 0	22 6 0	21 10 0	22 0 0
<i>1938-39.</i>					
April	22 8 0	22 0 0	22 10 0	23 2 0	22 10 0
July	26 12 0	26 0 0	26 0 0	26 10 0	26 10 0
October	23 0 0	22 0 0	22 6 0	22 4 0	22 4 0
November	21 12 0	19 0 0	21 0 0	22 2 0	21 8 0
December	24 4 0	..	24 2 0	24 2 0	24 0 0
February	23 8 0	22 4 0	23 0 0	23 2 0	22 12 0

It will be observed that the difference between the maximum and minimum prices offered by different buyers may be as little as 12 annas per candy, *e.g.*, in April 1937 when buyers A and E offered Rs. 36 per candy and B, C and D offered Rs. 35-4-0 per candy, or as much as Rs. 7-4-0 per candy, *e.g.*, in November 1937 when buyer D offered Rs. 23-4-0 and buyer C Rs. 16 per candy, the other buyers' offers being between Rs. 19-8-0 and Rs. 21 per candy.

Another instance may be given of the prices offered by two buyers at Tirukoilur market for delivery at Cuddalore port.

Prices offered by two buyers at Tirukoilur for Coromandel kernels.
(Per candy of 531 lb.).

Months.	1935-36.		1936-37.		1937-38.	
	A	B	A	B	A	B
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
April ..	38 5 0	38 0 0	35 8 0	35 0 0	37 1 0	38 2 0
May ..	40 2 0	43 8 0	34 14 0	..	34 6 0	36 0 0
June ..	39 12 0	40 0 0	36 9 0	36 4 0	35 3 0	36 8 0
July ..	35 2 0	35 4 0	39 7 0	39 14 0	37 7 0	38 8 0
August ..	37 1 0	37 10 0	41 13 0	41 4 0	33 14 0	34 10 0
September ..	34 0 0	33 8 0	39 0 0	39 4 0	29 0 0	..
October ..	37 13 0	37 8 0	34 0 0	34 10 0	30 12 0	31 8 0
November ..	32 9 0	32 8 0	35 12 0	36 8 0	28 8 0	29 10 0
December ..	34 5 0	35 0 0	39 11 0	39 12 0	27 14 0	28 6 0
January ..	36 11 0	36 12 0	39 7 0	39 6 0	26 8 0	27 8 0
February ..	34 7 0	34 4 0	36 0 0	37 0 0	24 9 0	25 4 0
March ..	34 12 0	34 8 0	36 5 0	37 8 0	25 2 0	25 10 0

The table shows that although the buyer A paid higher prices than buyer B on several occasions in 1935-36 and 1936-37, the buyer B invariably paid higher prices in 1937-38, presumably on account of the larger quantities required by him to meet his commitments. The difference between the two buyers varied from 1 anna to Rs. 3-6-0 per candy.

In Bombay, prices are quoted on "Bazar terms" and "Delivery terms". In the former, payment is made for the gross weight of bags and delivery is given at sellers' godown while in the latter the prices are for delivery at buyers' godown, net weight of produce being paid for. The prices on "Delivery terms" are naturally higher.

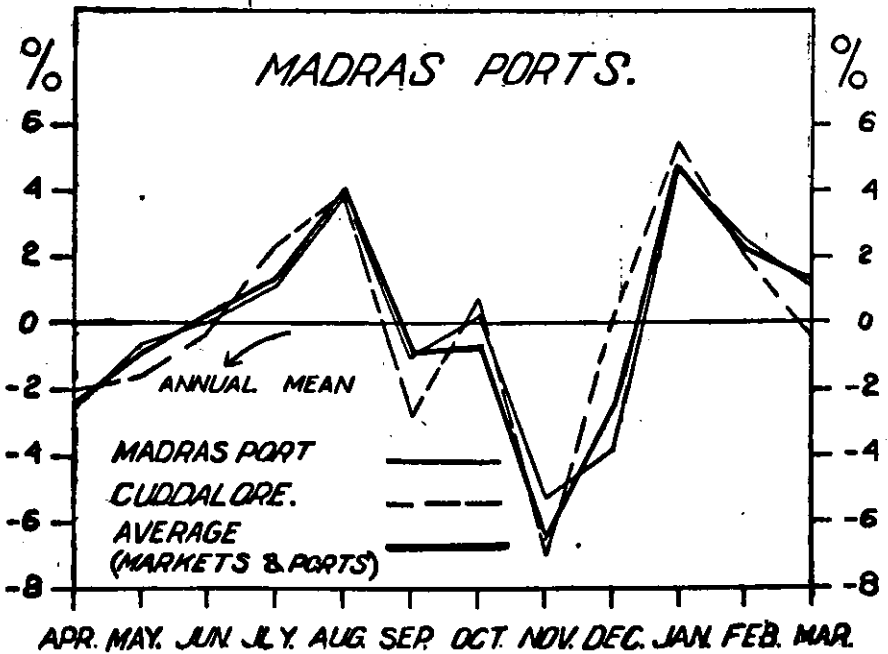
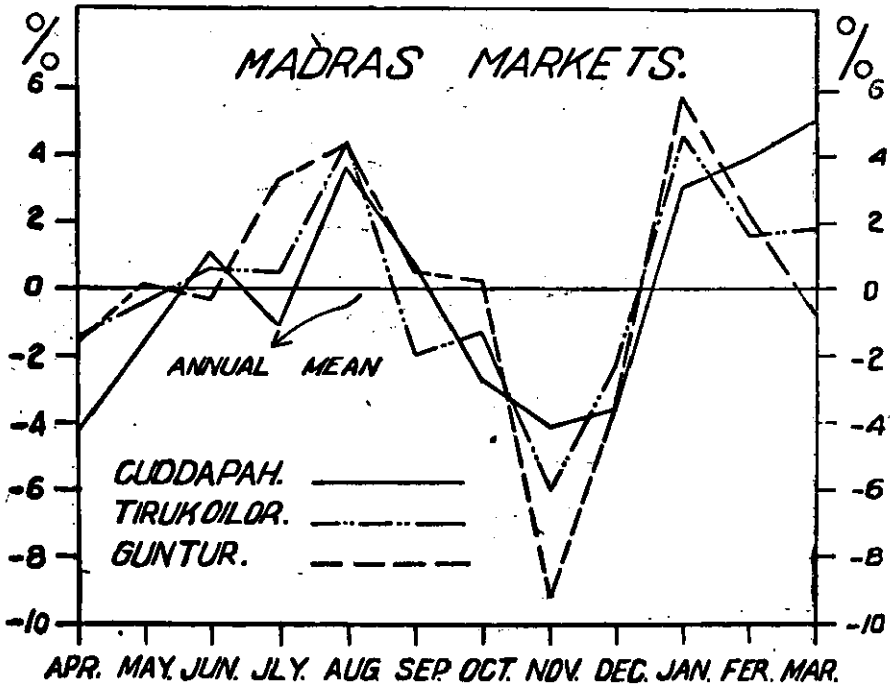
Again the prices also vary to some extent depending on the relation between the seller and buyer. For example, instances are reported when a cultivator seller takes or sells his produce to a wholesale merchant or commission agent to whom he is indebted, he is paid at a rate somewhat lower than the market rate. The commission agent, however, often waives his commission in such cases.

(5) SEASONAL VARIATIONS.

The prices of groundnuts, both of nuts in shell and kernels, are subject, in common with other agricultural commodities, to considerable seasonal fluctuations. The extent of variation in different areas

Facing page 103.]

PERCENTAGE DEVIATION OF THE AVERAGE MONTHLY PRICES OF GROUNDNUT KERNELS FROM THEIR ANNUAL MEAN AT SOME MARKETS AND PORTS IN MADRAS.



is indicated in the following paragraphs and illustrated on diagrams facing pages 103 to 110, which show the percentage deviations of the average monthly prices of groundnuts in shell and groundnut kernels from their annual mean at a number of markets.

Madras.—Three markets, Cuddapah, Tirukoilur (South Arcot district) and Guntur, have been taken as representing the position in the Presidency. Guntur shows the maximum range of variation amounting to 15 per cent between November and January, as compared with nearly 10 per cent in the other two markets. All the three markets (see upper diagram facing this page) show a pronounced downward tendency after October when Peanuts begin to be harvested. The lowest levels are reached in November, when besides the pressure of the crop, the kernels are not fully dry. The maximum fall is seen in the case of Guntur where the average November price between 1934-35 and 1937-38 was Rs. 2-15-3 per candy, *i.e.*, nearly 10 annas per cwt. or 9·2 per cent lower than the annual mean. The prices tend to improve in December and reach the peak in January. The maximum rise, seen also in Guntur, amounted to less than 6 per cent over the annual mean. After January, the prices show a rise at Cuddapah and a decline at Guntur and Tirukoilur, but by April the values in all the three markets fall below the annual mean. Thereafter, the prices show a marked rise once again in August when stocks get nearly exhausted. In September, with the beginning of harvesting of early varieties, the prices fall again.

At the port markets of Madras and Cuddalore also (see lower diagram facing this page), the prices begin to fall from October and are at their lowest in November. The prices in November at Madras are 5·3 per cent lower and those at Cuddalore 7·2 per cent lower than the annual mean. In January, they are 4·7 per cent higher than the annual mean at Madras and 5·4 per cent higher at Cuddalore. The seasonal variations thus appear to be somewhat less at Madras port as compared with Cuddalore. Taking an average of the three markets in the producing districts and the two port markets together, the prices remain below the annual mean from September to December, after which they begin to rise and remain over the annual mean up to March. The prices again fall below the annual mean in April and May, rising in July and August.

Bombay.—Sholapur and Barsi as well as Bombay show similar seasonal variations in the prices of kernels (see diagram facing page 104), but the maximum range of variation is nearly 14 per cent at Sholapur and Bombay between August and November and as much as 20 per cent at Barsi between August and March. This is accounted for by the fact that both Bombay and Sholapur are milling centres for groundnuts. All the three markets, however, show a precipitate fall in prices after September. At Bombay and Sholapur, the harvest dip is seen in November and at Barsi in December. January prices are generally higher but unlike Madras they are not the highest in the year. Prices show a downward trend after January and begin to rise again from April slowly first.

and reach the peak in August. The different markets show close relationship in seasonal variations and taking an average of the three markets, the prices are below the annual mean from October to May.

The seasonal variations are much more accentuated in the prices of nuts in shell as compared with those of kernels, the maximum range both at Dhulia and Kolhapur being over 31 per cent (see diagram facing page 105). Dhulia—an important market in West Khandesh district, growing erect varieties which are harvested earlier—shows a harvest dip in the months of September and October, the fall in September amounting to Re. 0-12-3 per maund or as much as 22·4 per cent below the annual mean. Prices improve from November to February, followed by a drop in March and subsequent rise from April.

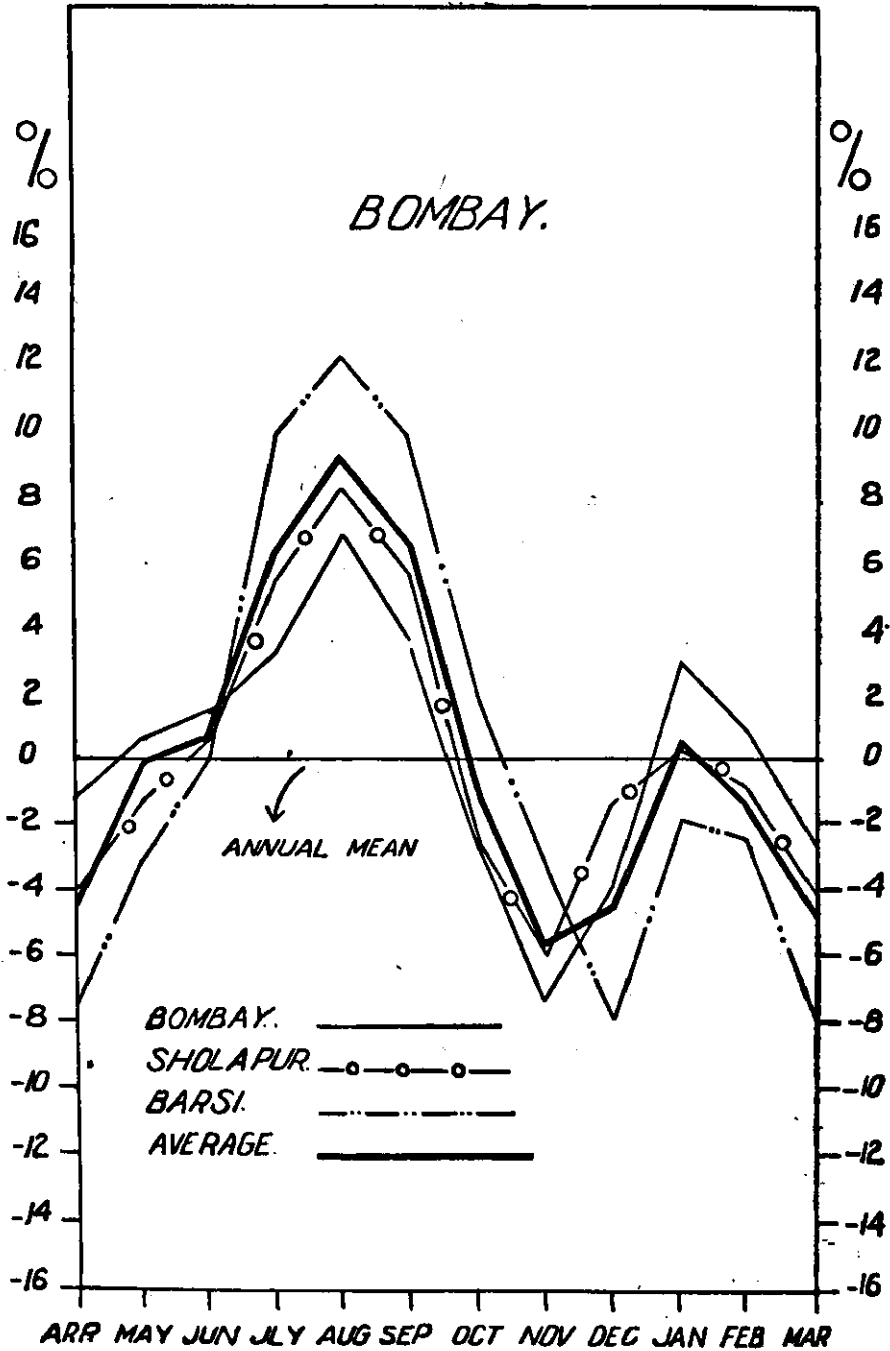
Kolhapur, where Bold variety is largely grown, shows a harvest dip from September to November, with a temporary recovery in October. This feature is accounted for not by any rise in price level in October but by the fact that although the main crop reaches the markets in November, small quantities of fresh nuts are taken to markets in September to meet the early demand for edible nuts. These are immature nuts with a high percentage of moisture and fetch very low prices. In October, they improve in moisture content and fetch better prices but in November, the pressure of the crop brings down the prices again. As in the case of Dhulia the prices tend to improve in December and the maximum is reached in January, when the prices are more than 16 per cent over the annual mean.

Taking an average of the two markets, the prices are below the annual mean from September to December and again in April. The highest average is recorded in January followed by June.

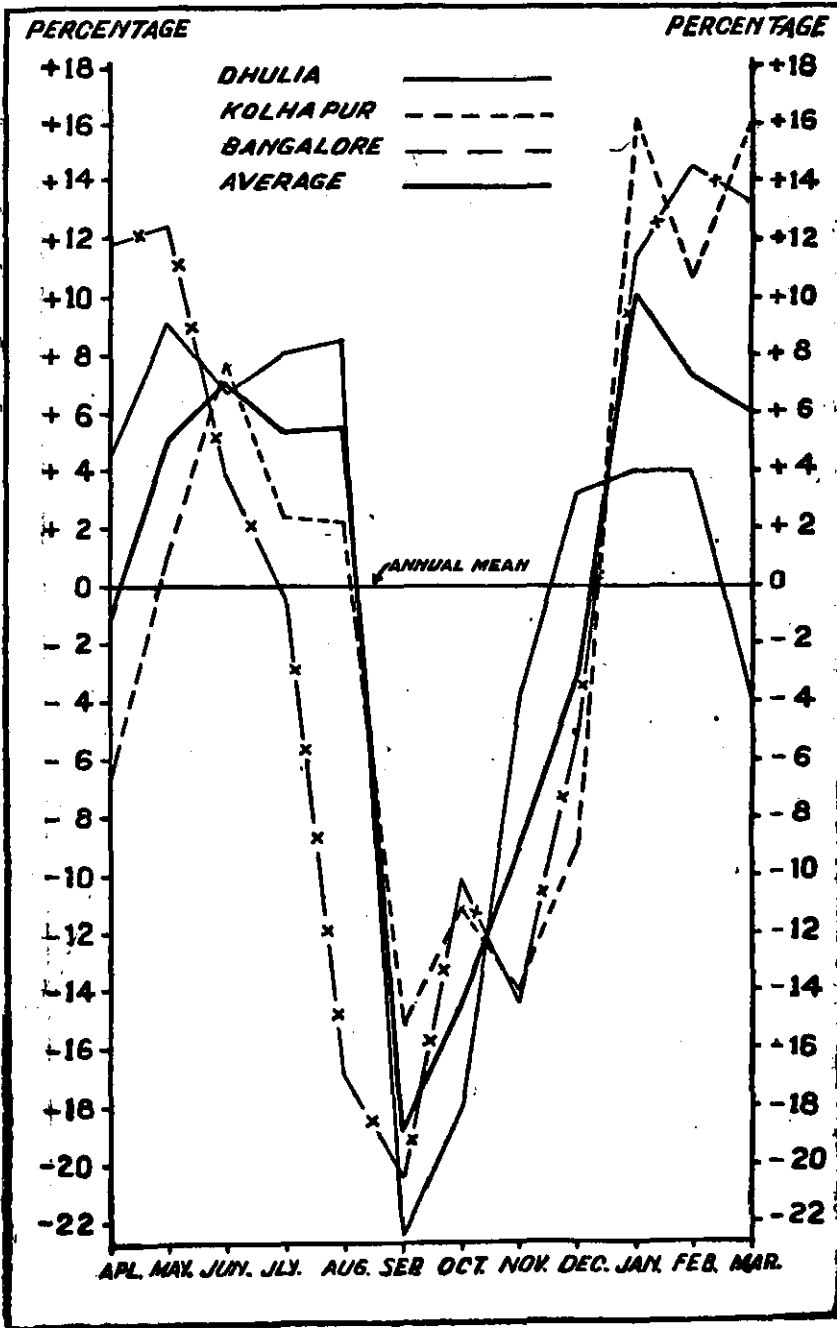
Hyderabad.—Gulbarga and Hyderabad, receiving both Bold and Peanut varieties, show a harvest fall between September and November, the lowest point being reached in October, i.e., nearly a month earlier than in Bombay market (see diagram facing page 106). The maximum range of variation amounts to over 32 per cent between October and January at Gulbarga, where average October prices were lower by Re. 0-7-7 per maund or 13·6 per cent. of the annual mean. Like Madras and Bombay, the prices tend to rise in December and reach a peak in January. At Hyderabad, however, the prices from April to June generally remain higher than January prices. Taking an average of the two markets, the prices are below the annual mean from September to December and again in March.

Regarding the seasonal variations in the prices of nuts in shell, Latur and Raichur, two markets in areas growing Bold and Coromandel varieties, both show a harvest fall in November in the price of nuts in shell (see upper diagram facing page 107). At Latur, the average November price in this market during the period 1933-34 to 1937-38 was Re. 0-3-7 per maund or 7·7 per cent. lower

PERCENTAGE DEVIATION OF THE AVERAGE MONTHLY PRICES OF GROUNDNUT KERNELS FROM THEIR ANNUAL MEAN AT SOME MARKETS IN BOMBAY.



PERCENTAGE DEVIATION OF THE AVERAGE MONTHLY PRICES OF GROUND-NUTS IN SHELL FROM THEIR ANNUAL MEAN AT SOME MARKETS IN BOMBAY AND MYSORE STATE.



and at Raichur Re. 0-3-2 or 6-6 per cent. lower than the annual mean. The prices recover sharply at Raichur in December where on the whole, the range of variation is comparatively less, owing to its being an important milling centre. The maximum range of variation is seen at Latur between August and November, when it amounts to 8 annas per maund or 17-2 per cent of the annual mean. The two markets show similar seasonal variations except between December and February. Taking the average of the 2 markets, the prices remain below the annual mean between October and April. The peak prices unlike kernels are reached in August.

Central Provinces.—The markets in the Central Provinces (see diagram facing page 108) also show considerable seasonal fluctuations in the prices of nuts in shell, the maximum range in Khamgaon market amounting to as much as over 42 per cent. between June and October. The harvest dip is pronounced in all the markets but at slightly different periods. Khamgaon and Malkapur in Buldana district, where Peanuts are mostly grown, get the crop earlier than in other markets and the harvest fall is at its maximum in October. Khandwa in Nimar district and Amraoti receive considerable quantities of Red Natal, the arrivals of which are a little later than Peanuts. The fall is, therefore, pronounced in October and November. Saugor, on the other hand, gets mostly Bold variety, which is harvested later. The harvest fall in this market occurs in November and December.

The maximum fall is seen at Khamgaon where the average October price was lower by Rs. 2-11-1 per maund or 22-2 per cent. below the annual mean. After the harvest rush, the prices tend to rise and generally reach a high level by January. The fluctuations in subsequent months are influenced more by local conditions and little common trend is seen in different markets after February. Taking an average of the five markets, the prices remain below the annual mean from September to December and February to April.

Mysore.—The seasonal variations in the prices of nuts in shell at Bangalore are somewhat similar to those in Bombay markets (see diagram facing this page). The maximum range of variation amounts to nearly 35 per cent. between September and February, the harvest fall taking place from September to November. The prices offered in September for nuts in shell harvested earlier are very low on account of their containing a high percentage of moisture. October prices are better on account of nuts containing less moisture but pressure of arrivals forces down the prices in November. Prices improve further in December and reach the peak in February.

Other areas.—The seasonal variations in prices in non-producing areas are irregular. Generally speaking, in consuming areas, where the demand is only for edible purposes, the prices are higher in winter months. Gauhati in Assam, Bahawalpur State in the Punjab and Delhi import groundnuts in shell only for edible use and the prices are seen to rise after September (see lower diagram facing page 107).

Summary.—The most striking features of the seasonal movements of prices of kernels (see diagram facing page 109) in the markets of Madras and Bombay Presidencies and Hyderabad are (i) the deep harvest trough which forms between September and December with its low point in October, November or December depending on the period of harvesting, and (ii) the general rise in prices in January and August (June in case of Hyderabad). The range of fluctuations is less in markets which are milling centres as the demand from mills tends to moderate the seasonal fluctuations.

The fluctuations in prices of nuts in shell, which are generally more violent than in the case of kernels, also show (i) a deep harvest trough, forming somewhat earlier between August and December with its low point in September, October or November, and (ii) the general increase in prices in December and January and a subsequent rise in June, July or August (see diagram facing page 110).

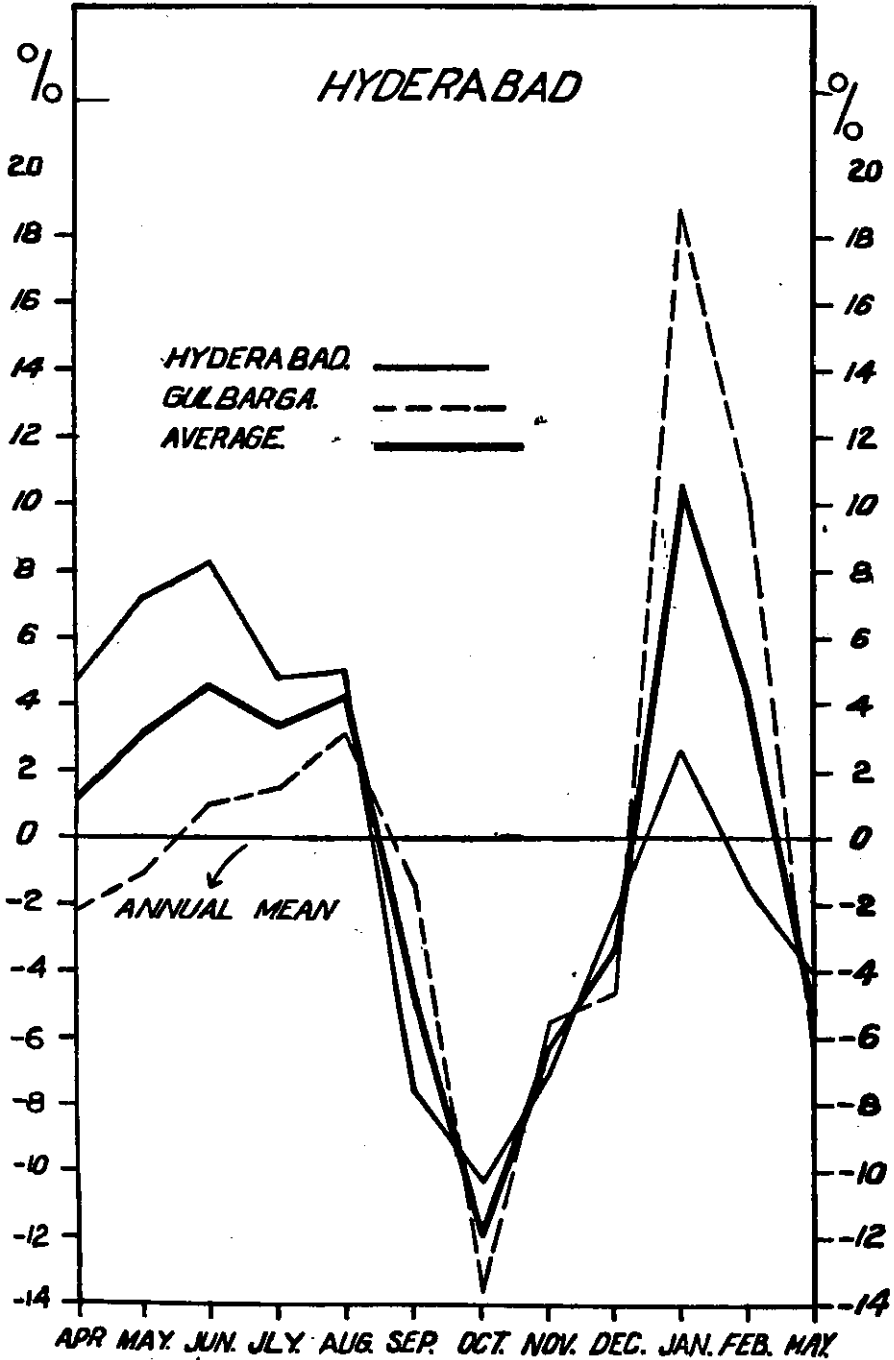
✓ The harvest fall in prices—in some cases amounting to over 40 per cent.—is a matter of serious consequence for the producers as they dispose of much of their produce in the months immediately following the harvest (see page 21). The fall in prices is more pronounced in the earlier part of the harvesting period when cultivators, in order to get money earlier, often harvest the crop before it is mature or take it to the market without fully drying it. The subsequent improvement in prices sets in at a time by which most of the producers get rid of their produce, so that the advantage of better prices does not fall to the lot of the producers. Once again the cultivator loses when, in case he has not kept enough seed, he wants to buy seed for sowing. (The steps that appear necessary in order to minimise seasonal variations are to encourage producers to market fully mature and dry crop and to bring about a more even flow of supplies on the markets by co-operative and other organisations providing facilities of finance to producers.) Such organisations would obviously benefit also by undertaking the process of decorticating kernels for crushing and in grading, packing and despatch to consuming centres of undecorticated nuts for edible purposes. The possibility of profits seems so large that even co-operative societies with their low standard of management and efficiency might expect to remain solvent and secure some benefit for producers.

D.—Comparison of " futures " prices.

Trading in groundnuts " futures " appears to be carried on at a number of centres, viz., Amalner and Kapadvanj in Bombay, Sangli in Deccan States, Latur in Hyderabad State and Jamnagar and Dhoraji (Gondal State) in Kathiawar, but the main centre for trading in groundnut " futures " on an organised basis is Bombay.

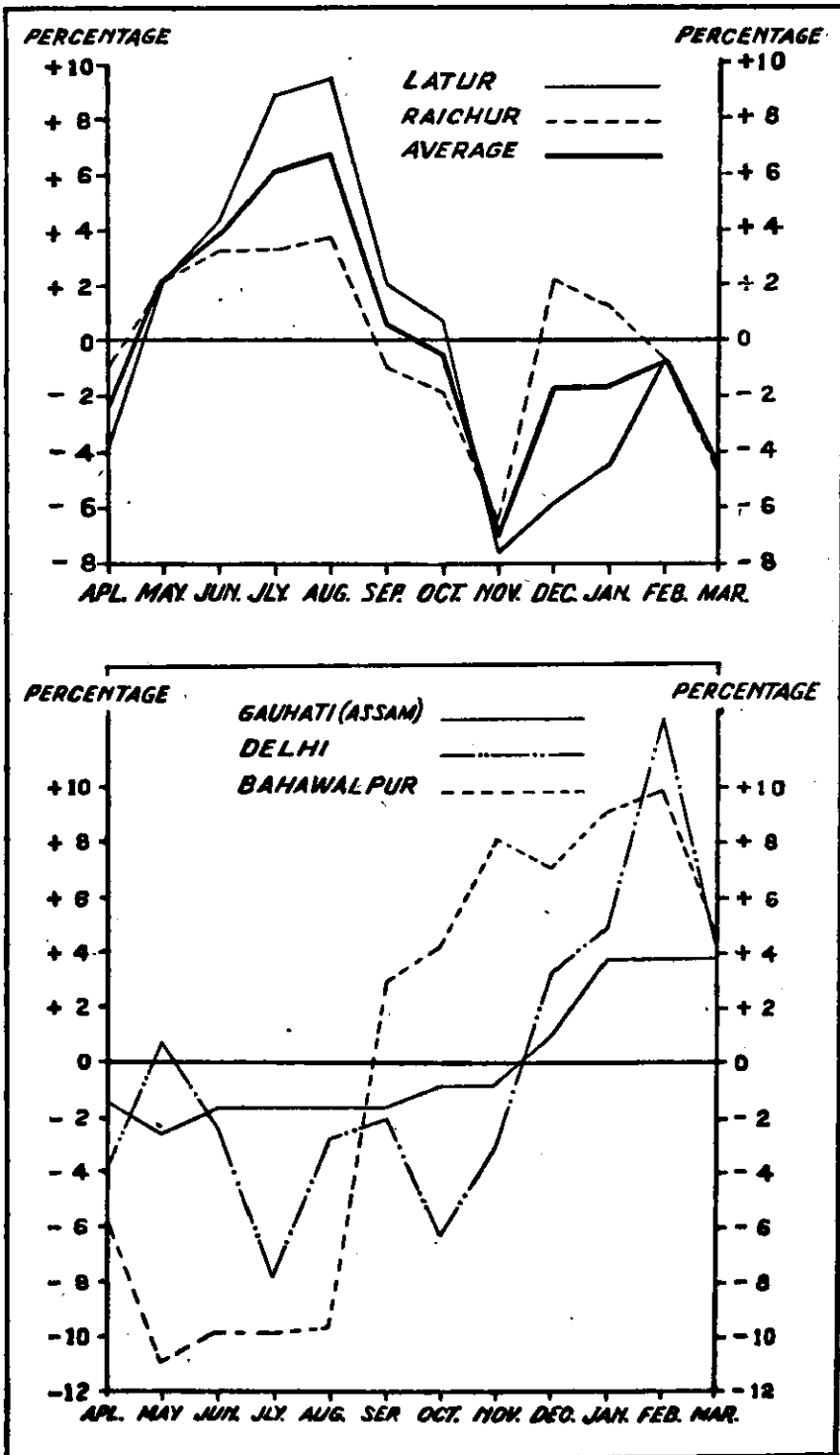
The transactions at Bombay take place almost entirely under the auspices and according to the rules and bye-laws of the Seed Traders' Association, Ltd. Another association, the Marwari Chamber of Commerce, Ltd., also has a contract for groundnut " futures " but

PERCENTAGE DEVIATION OF THE AVERAGE MONTHLY PRICES OF GROUNDNUT KERNELS FROM THEIR ANNUAL MEAN AT SOME MARKETS IN HYDERABAD STATE.



Facing page 107.]

PERCENTAGE DEVIATION OF THE AVERAGE MONTHLY PRICES OF GROUND NUTS IN SHELL FROM THEIR ANNUAL MEAN AT SOME MARKETS IN HYDERABAD STATE, ASSAM, DELHI AND BAHAWALPUR.



trading under this contract was done only for short periods in 1938 and 1939. The Grain Merchants Association which controls the "ready" trade in grains and oilseeds has a groundnut "futures" contract but the same is not operated. Kernels of Bold variety only are tenderable against the contracts and there are three delivery months, *viz.*, February, May and August. The bye-laws of Marwari Chamber of Commerce and Grain Merchants Association provide February, May and September as delivery months. The exact dates for the opening of each of the "options" are fixed from year to year by the association and vary slightly in different years.

The trading in February "futures", which is in respect of the crop expected to be harvested from November of the previous year onwards, generally opens in the beginning of July preceding the crop. At this time all the crop is not sown nor any forecast of the area sown is published. Trading in this position is open for over 6 months, and by the time this position closes, the bulk of the crop moves to terminal markets. The prices for this "option" in the earlier months reflect the prices anticipated for the crop after it is harvested. World values of oilseeds and vegetable oils, and reports about area sown largely contribute in determining whether the price level of the incoming crop is expected to be higher or lower than the prices of the current crop. Reports from time to time about the condition of the crop in India, news about production in India and other countries, supplies and values of other oilseeds and oils in India and the export demand, are other factors which come into play during the period this option is open.

The May contract opens about the middle of January, *i.e.*, nearly six weeks before the closing of February contract, and remains open for nearly 4 months. When trading in this position is opened, more definite information about the crop harvested is available—the final forecast of Bombay crop is published about this time and final All-India forecast a month later. The prices are closely related to "ready" values and are influenced, besides the value of other oilseeds and oils, by the outturn reported in the final forecast as compared with that estimated in earlier reports, the exports in the early months of the season and by the cost of carrying the crop.

Trading in August position, which is the last option in respect of a year's crop, opens about the middle of April, *i.e.*, more than a month ahead of the close of May contract. The trading in this position continues for about 4 months. The course of prices for this position depends mainly on visible supplies which are influenced by factors similar to those for May position.

The relationship between the "ready" and "futures" prices may be seen from a study of the diagram facing page 89, which shows the average monthly "ready" and "futures" prices at Bombay from 1931-32 to 1939-40 tabulated in Appendix XXVII. The diagram at once shows that "ready" and "futures" prices generally move close together and that during the two periods, from July 1933 to October 1934 and from August 1937 to September 1939, when average "ready" prices formed deep troughs, the average "futures" prices

prices were invariably higher than "ready" prices, and would apparently act as a stabilising influence. Again when "ready" values soared high between July and October 1936, the lower level of February option quotations once more exercised a stabilising influence.

The number of occasions, in different years, on which the weekly closing "futures" prices were at a premium or discount as compared with "ready" values during the 9 seasons 1931-32 to 1939-40, are summarised in Appendix XXVI. During this period, February option was higher than, "ready" on 136 occasions and lower on 105 occasions, i.e., for every 8 occasions of "futures" being cheaper, they were dearer on 10 occasions. But if 1931-32 and 1932-33, when world values of oilseeds were generally declining and February option prices appear consistently below "ready" prices, are not taken into account, February option was dearer on 131 occasions and cheaper on 61 occasions, i.e., for every one occasion of options being sold at a discount, a premium was obtained on two occasions. May position was higher on 114 occasions and lower on 20 and August higher on 101 occasions and lower on 32. This shows that the "futures" market, apart from the stabilising influence, displays, on the whole, a "bullish" tendency likely to encourage buyers for stock, and is, therefore, advantageous from the point of view of cash prices.

No records are kept of the quantities involved in the contracts for the different options but it appears from enquiries made at Bombay that the largest quantities are traded in for February option. The quantities actually delivered are, however, largest in the case of August option as will appear from the following figures of deliveries, supplied by the Association :—

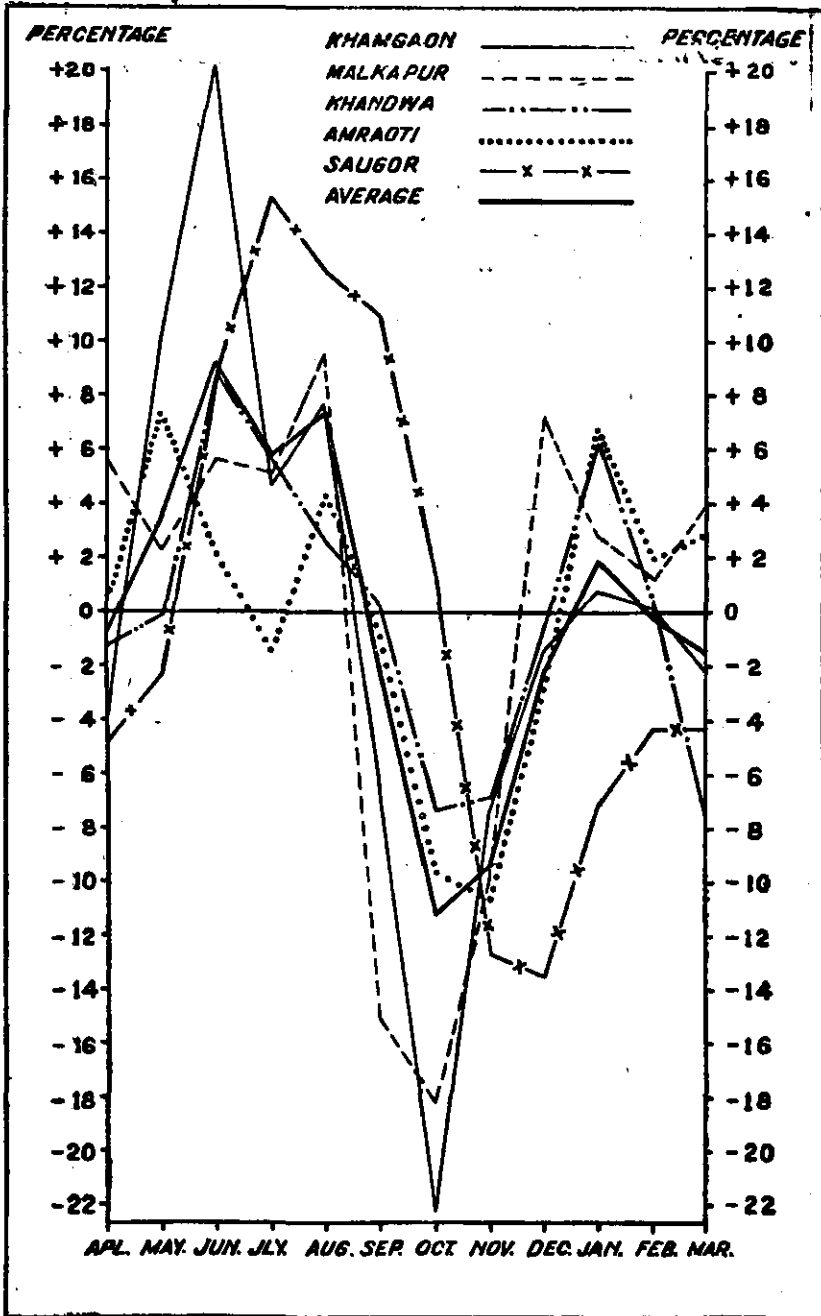
Quantities of groundnut kernels actually delivered against contracts for different options.

(Tons.)

Year.	Delivery months.		
	February.	May.	August.
1931*	6,125	2,050	..
1932	825	..	..
1933	2,450	3,050	6,525
1934	17,450	50	5,125
1935	4,700	1,400	6,400
1936	11,675	26,150	35,400
1937	6,550	3,975	5,425
1938	4,175	7,000	20,175
1939	3,875	3,200	7,800
1940	4,200	1,950	5,050

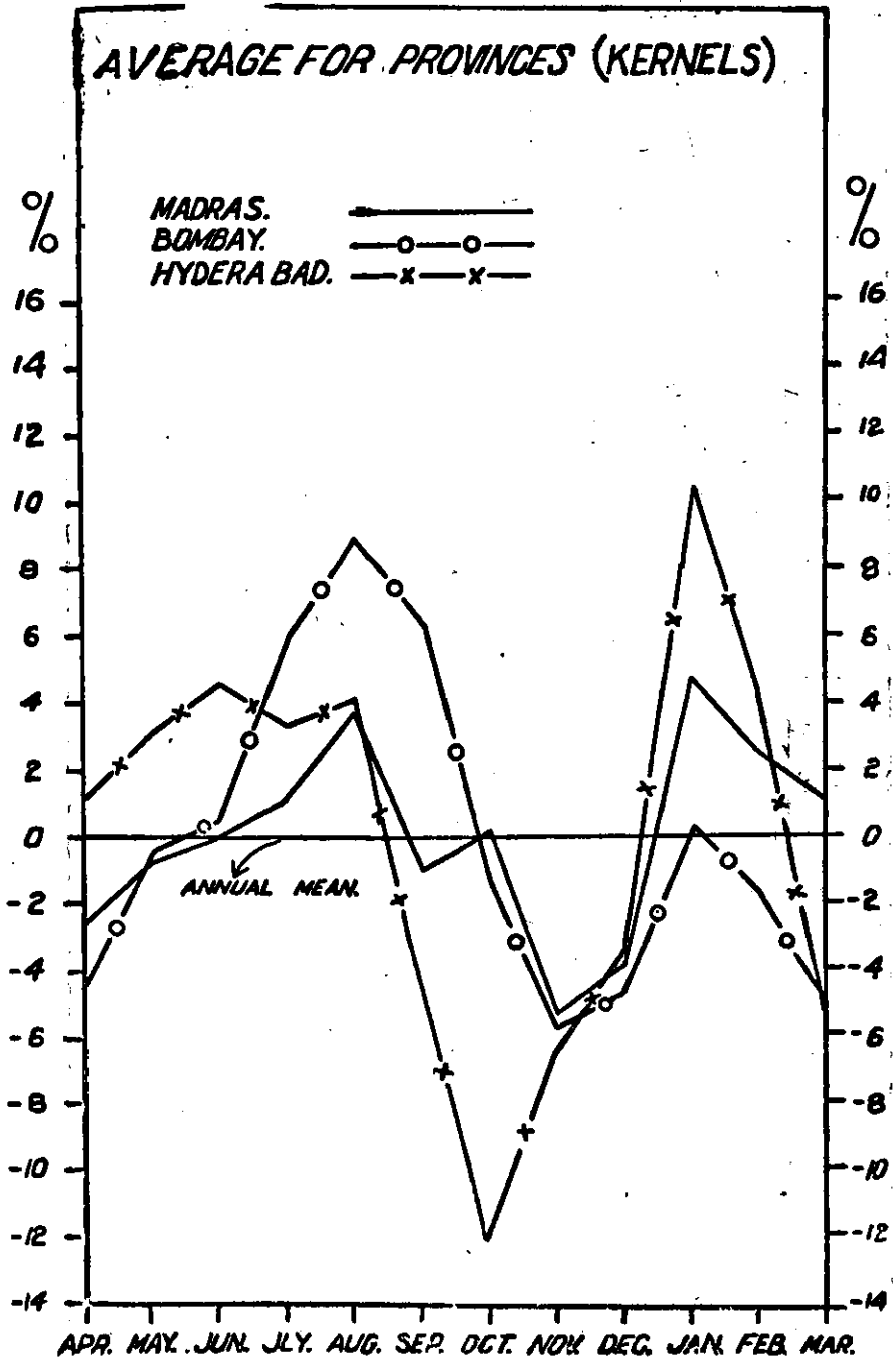
*In respect of 1931-32 crop harvested in 1931. Similarly for other years.

PERCENTAGE DEVIATION OF THE AVERAGE MONTHLY PRICES OF GROUND-NUTS IN SHELL FROM THEIR ANNUAL MEAN AT SOME MARKETS IN THE CENTRAL PROVINCES.



Facing page 109.]

PERCENTAGE DEVIATION OF THE AVERAGE MONTHLY PRICES OF GROUND-NUT KERNELS FROM THEIR ANNUAL MEAN IN DIFFERENT PROVINCES AND STATES.



The February option has the maximum speculative element, specially during the earlier months and it is noteworthy that the first option available in the case of this commodity is about 2 months after the arrival of this crop. This is probably because the early arrivals differ widely in respect of moisture content but the general rise in almost all the markets in January and subsequent tendency to fall in February suggests that a January option would have an effect of smoothing the fluctuations between December and February. This will also contribute to a more even distribution of the three options over the year as the interval between August and February option is comparatively long. The shifting of August option to September—which is one of the delivery months in the Marwari Chamber of Commerce Contract—is also likely to help in moderating the fall in September caused by arrivals of early varieties.

It may also be noted here that trading in groundnut "futures" is in respect of Bold variety which now forms only a little more than a quarter of the crop in Bombay. This variety was probably selected for trading at a time when it formed a much bigger proportion of the production in Bombay. It would, however, be apparent from what has been said that properly organised "futures" trading in Coromandels at Madras would have an effect of bringing the influence of supply and demand in India and international values to bear more closely on prices. These are matters for consideration of the trade.

Another form of "futures" transactions which take place at Bombay for groundnuts, as also several other commodities, is *teji mandis** or *put* and *call* options. When an operator expects a rise in prices, he buys a *teji* option by paying a premium called *najrana*. If the price on delivery date exceeds the price at the time the contract was made, the operator exercises his option to buy at the contract price and makes a profit equal to the difference between the prices on the delivery date and the contract rate. Should the price on the delivery date fall below the contract price, his loss is limited to the amount of premium paid. Conversely, when an operator anticipates a fall in prices, he sells a *mandi* option. In this case, if the prices fall on the delivery date below the contract price he exercises his option of selling at the contract price and makes a profit equal to the difference between the contract price and the delivery date price. If, however, the prices do not fall below the contract price, he does not exercise his option and his loss is limited to the amount of premium paid. When an operator wants to exercise either of the two options, which conditions on the delivery date may warrant, he enters a *teji mandi* contract. The advantage of *teji mandi* transactions, as compared to "futures" trading is that an operator while having a chance of unlimited profit has his loss limited to the amount of premium paid but this factor prompts amateur speculators, often not connected with the commodity, to indulge in these transactions. The by-laws of the Seeds Traders' Association provide that *teji mandi*

* *Teji*—literally dearness, i.e., a "bull" option or option to buy.

Mandi—literally cheapness, i.e., a "bear" option or option to sell.

Teji mandi—a double option, i.e., to buy or sell.

transactions will be entered into with the intention of giving or taking delivery of goods but it appears from enquiries made that *teji mandi* transactions are invariably settled by adjustments in cash. The extent of *teji mandi* operations in groundnuts trade is reported to be very small in relation to trading in "futures".

E.—Market intelligence.

Statistics and information collected and published in respect of groundnuts, both by official and unofficial agencies relate to (1) production, (2) movement of the produce and (3) prices. Information about stocks is conspicuous by its absence.

(1) PRODUCTION.

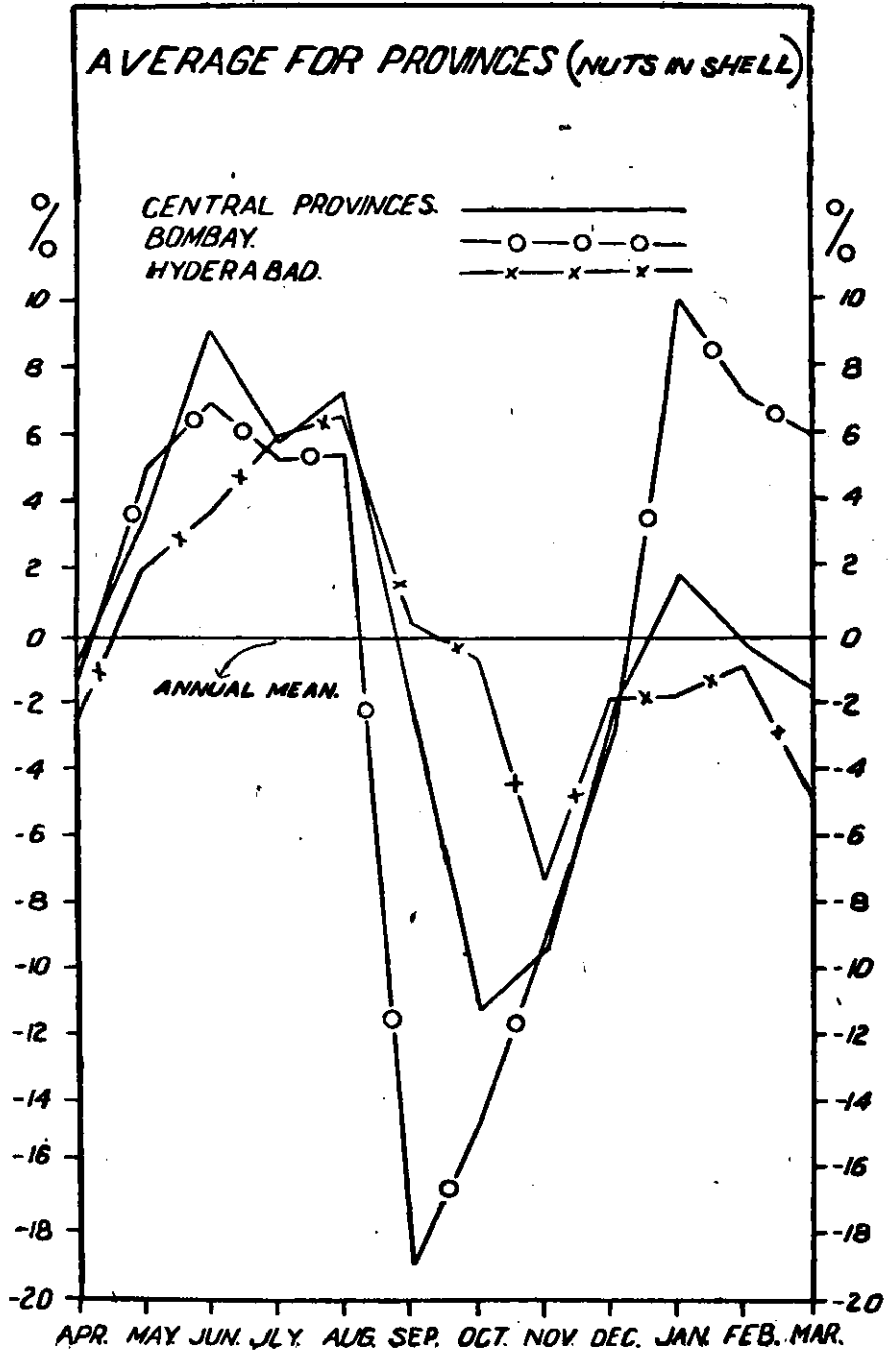
Three forecasts are published in respect of the groundnut crop. These cover Madras, Bombay and the Central Provinces, besides Hyderabad, Mysore and Bombay States. The newly constituted province of Orissa has been included commencing from 1937-38 crop.

The first forecast, which is published about 20th August, reports the condition of the crop at the end of July or beginning of August and gives the first estimates of area sown in the provinces and States mentioned above. In the case of Madras, however, it gives the area sown with and estimated outturn of summer (irrigated) crop and early varieties only and does not contain any information about the main crop. The second forecast published about 20th October includes the area in Madras, not included in the first forecast and reports the condition of the crop at the end of September. The third and final forecast, issued about 15th February gives the estimated outturn of the crop besides the revised figures of acreage.

The forecasts are released at a time and date previously notified, when they are exhibited at the office of the Director General of Commercial Intelligence and Statistics, Calcutta, and published in the next issue of the Indian Trade Journal, issued weekly. The information is communicated by the trade interests concerned to their offices or clients in other markets such as Bombay and Madras and extracts are also published by several newspapers. The estimates of area and outturn are later published in "Estimates of Area and Yield of Principal Crops in India" and detailed statistics of area in "Agricultural Statistics of India".

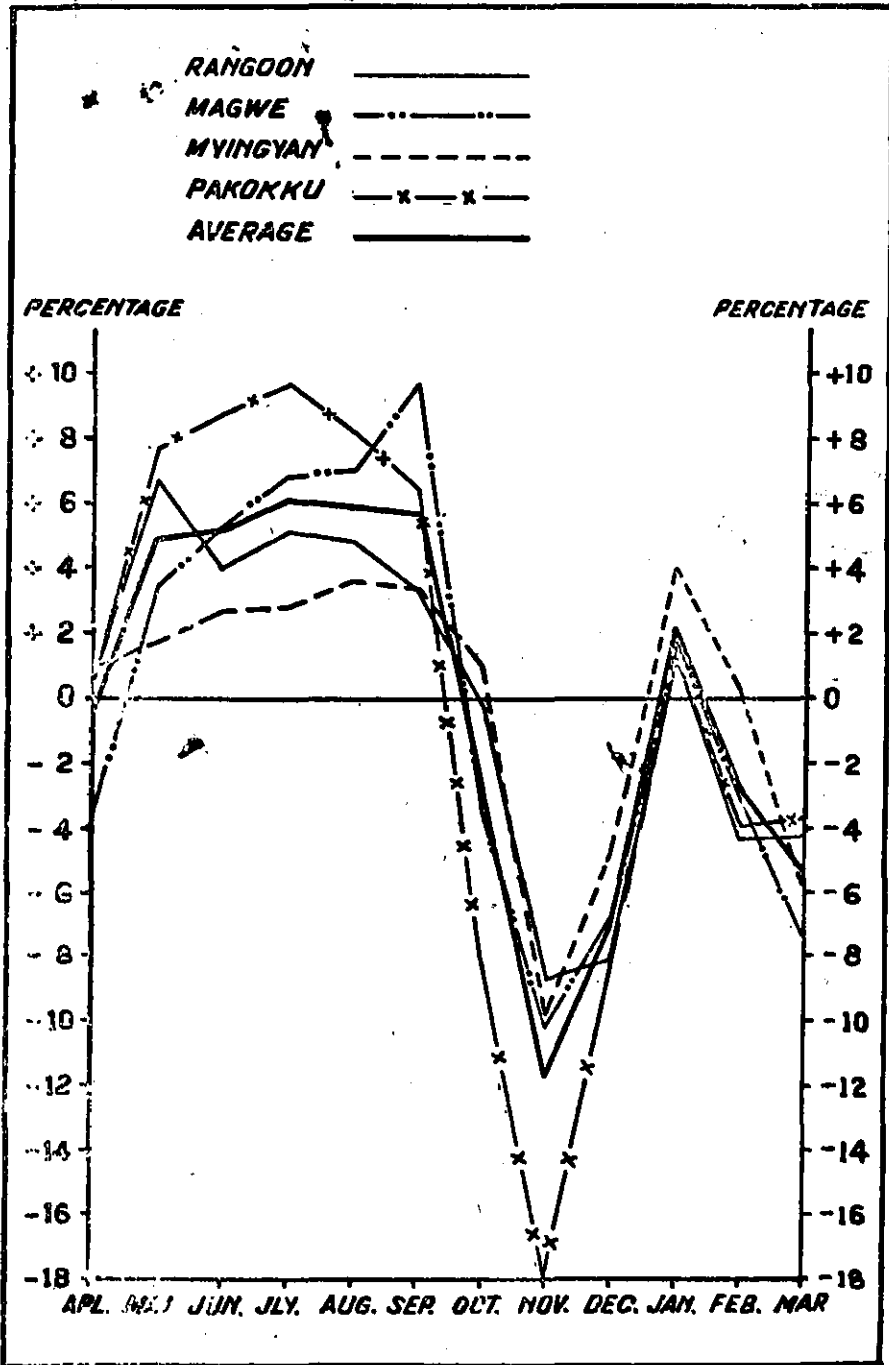
Besides the all-India forecasts, Madras, Bombay, the Central Provinces, Hyderabad and Mysore publish forecasts for their respective crops. These are published somewhat earlier than the all-India forecasts. Madras publishes its four reports about the middle of April, August, October and January and Bombay issues its three reports about the middle of August, October and December. Hyderabad's four reports are issued about the middle of August and October and beginning of February and April. The Central Provinces publishes its two reports in August and February and Mysore issues three reports in July, September and November.

PERCENTAGE DEVIATION OF THE AVERAGE MONTHLY PRICES OF GROUNDNUTS IN SHELL FROM THEIR ANNUAL MEAN IN DIFFERENT PROVINCES AND STATES.



Facing page 111.]

PERCENTAGE DEVIATION OF THE AVERAGE MONTHLY PRICES OF GROUNDNUT KERNELS FROM THEIR ANNUAL MEAN AT SOME MARKETS IN BURMA.



Apart from the official estimates, the chief exporting firms make their own estimates of production based on reports received from their agencies located at a number of centres in producing areas. These are, however, not published or made available to the public.

(2) MOVEMENT.

The movement of groundnuts by rail and rivers between different provinces and States and four chief sea ports, *viz.*, Bombay, Calcutta, Karachi and Madras as well as subordinate Madras ports, is recorded in a monthly publication, "Accounts relating to the Inland (Rail and River-borne) Trade of India". In addition to this, the Indian Trade Journal publishes the weekly arrivals and despatches of a number of commodities at 34 important stations in India with figures for the corresponding week of the previous year. Of these, not more than 12 are of any importance as far as the movement of groundnuts is concerned. It may be mentioned here that the figures relating to rail and river movement of this commodity are subject to error—considerable in some cases—as in recording these, no distinction is made between nuts in shell and kernels, both being simply added together. The movement from Madras is almost all as kernels, while considerable quantities move from the Central Provinces, the United Provinces, Rajputana, Kathiawar, etc., as nuts in shell, but in every case they are recorded as groundnuts. The arrivals at important port markets are also published in some local daily papers and in reports and bulletins issued by chambers of commerce and trade associations.

Information about exports abroad, collected from Customs Records, is disseminated both through official and non-official publications. The former include "Accounts relating to the Sea-borne Trade and Navigation of British India" and "Trade Statistics relating to the Maritime States of Kathiawar", both issued monthly. Detailed information about exports from British India ports is later consolidated in an annual publication entitled "Annual Statement of Sea-borne Trade of British India". Earlier than the issue of the publications referred to above, the Indian Trade Journal publishes the quantities exported monthly to the United Kingdom, Belgium, France, Italy and "other countries".

The Chamber of Commerce at Madras publish in their fortnightly "Price Current and Market Report" information regarding freights for and exports of groundnuts and several other commodities from Madras port and other subordinate ports of Madras. The chambers of commerce at some other centres also publish similar information. The figures of exports like those of rail trade also include both kernels and nuts in shell but in this case as the bulk of exports are as kernels, the margin of error is much smaller.

(3) PRICES.

Reliable series of price records are available for groundnut kernels at Madras and Bombay from chambers of commerce and trade associations but the position is not so satisfactory in markets in producing areas or in respect of prices of nuts in shell.

The information regarding prices reaches the wholesale merchants at markets through commission agents—who inform their clients about prices—and the exporting firms' sub-agents at different centres, to whom buying limits for the day are communicated by their Madras and Bombay offices. The dissemination of market information from the markets to the producers is, however, very slow and generally the cultivator gets his market price news from the village merchant or a neighbour who has sold his produce.

The utility of available price intelligence is to a great extent lost by prices being quoted in different markets for different units of weight and without reference to quality or percentage of impurities and moisture. For example, in Madras, prices are per candy of 531 lb. in some districts and per candy of 480 French lb. equivalent to 529.1 lb. in some others. Prices are at times per 500 lb. or per cwt. also. The basis of prices offered by exporters is usually 2 per cent impurities and 2 per cent "damaged" but in some districts, these are on a different basis of 3 per cent impurities and 2 per cent "damaged". In Bombay, prices are per cwt. and on the basis of 4 per cent refraction but in other markets of the province the basis of refraction is not always the same.

In the case of nuts in shell the price quotations are often based on local measures and weights. In Madras, nuts in shell are quoted in terms of *putti* which indicates a varying number of Madras measures in different districts while in markets of Bombay Presidency, the prices of nuts are usually per maund. The Central Provinces quote in terms of maunds, *palla* and *khandi* while Hyderabad quotes in terms of *boja*, *palla* and *khandi*. The allowances for impurities, etc., supposed to be covered by prices quoted, vary from market to market.

Under these conditions, producers can hardly be expected to benefit from market intelligence, little as it is. Standard weights and measures, a uniform system of price quotation and standard terms of contracts regarding impurities, moisture, allowances, etc., and a system of collection and dissemination of reliable price news are steps towards making prices better known to producers and securing them a better return for their produce. A system for the collection and transmission of prices was outlined in the Reports on the Marketing of Wheat and Linseed. The system, in brief, is that the Provincial Marketing Staff should arrange to collect prices at local key markets and post the closing rates at these and various other markets. The Central Office receives prices of one or two largest markets in each province and arranges to issue periodical bulletins to be broadcast.

The different channels through which news about prices now reach the different interests concerned fall under the following five heads :—

(a) *Government publications.*—The "Indian Trade Journal" publishes weekly prices of Coromandel kernels at London and Madras, and Bold kernels at Bombay. The prices at London are quoted per ton, those at Madras per candy of 500 lb. and at Bombay

per cwt. The journal publishes another series of prices at the end of the month, in which are included the prices of groundnut kernels at Madras, Bombay and Hyderabad and of nuts in shell at Bangalore. Here again the prices are quoted per candy of 530 lb. at Madras, per cwt. at Bombay, per 210 seers at Bangalore and per *palla* of 240 lb. at Hyderabad. A third series of prices, collected mainly from non-official agencies and representing prices of the principal crops during their harvesting periods at the more important marketing centres, is being published in "Indian Trade Journal" since August 1936, with the object of giving a better indication of the prices actually received by the cultivator. In this series, prices of groundnuts are being included at about 10 centres in Madras and 2 each in Bombay and the Central Provinces.

The prices of groundnuts are also published in some provincial gazettes but their accuracy is no better than that shown in Wheat and Linseed Reports and they serve little use to the trade.

(b) *Newspapers.*—The prices of groundnut kernels at London, Madras and Bombay obtained from chambers of commerce or trade associations are published in several important English daily papers, and repeated in several weekly or fortnightly papers. Apart from Madras and Bombay prices, a number of English and vernacular dailies published at several market centres, give prices of groundnuts when the commodity is of local importance. These prices are invariably obtained from the trade direct or through the paper's own correspondents.

(c) *Trade press.*—Information about groundnut prices, in some cases along with reviews of market conditions, is published in periodical reports and bulletins issued at big market centres by chambers of commerce and trade associations, e.g., Bombay Price Current issued by Bombay Chamber of Commerce, and also in daily or weekly reports and bulletins issued by individual firms. Such reports and bulletins are both in English and vernacular and are generally printed or cyclostyled. They may be issued for members' use only or for subscribers in general.

An extract from a daily market report issued by a Bombay firm is given below as a specimen of the information contained in these reports :—

" DAILY MARKET REPORT.

Groundnuts.—The London market was 1½ shillings up on Saturday. The closing London market quotation is £14-10-0. The local market ruled steady throughout and the prices fluctuated within a narrow range. The May, June and August contracts opened at Rs. 42-12-0, Rs. 43-8-0 and Rs. 44-8-0 respectively. The rates gradually improved to Rs. 42-15-0, Rs. 43-10-0 and Rs. 44-14-0 due to buying by Commission Houses. The highest rate for May was Rs. 43-1-0. The lowest rates for May, June and August were Rs. 42-8-6, Rs. 43-4-0 and Rs. 44-6-0 respectively. There was some selling by Messrs. _____ who have sold about 2,000 candys of Bold May. The tendency of the market is

steady. In ready goods a business of 50 tons of Bold Bombay is done at Rs. 8-9-0. The rates in the evening were as follows :—

Madras M'Goa Rs. 8-7-0 : Davangere M'Goa Rs. 8-5-0 : Bold Bombay Rs. 8-9-0.

Bold M'Goa Rs. 8-4-0 : Quality Bombay Rs. 8-8-0 : Madras Bombay Rs. 8-8-0.

Bold Groundnuts May Rs. 42-13-0 : *Teji mandi* Rs. 1-10-0.

Bold Groundnuts June Rs. 43-8-0 : *Teji mandi* Rs. 2-12-0.

Bold Groundnuts August Rs. 44-10-6 : *Teji mandi* Rs. 4-8-0."

(d) *Post, telegraph and telephones.*—The chief exporting firms engaged in groundnuts trade, with their offices at Madras and Bombay, have buying agencies at a number of centres in producing areas and they keep their agency staff informed of the prices by telegram, telephone or letter. The *arhatiyas*, at big markets like Bombay, keep their clients in up-country markets informed of the price movements generally by post. Telegrams are only used when there are wide fluctuations or when instructions are sought about close of sales or purchases. The use of telephones has increased considerably in recent years and trunk calls are often made to convey fluctuations in prices.

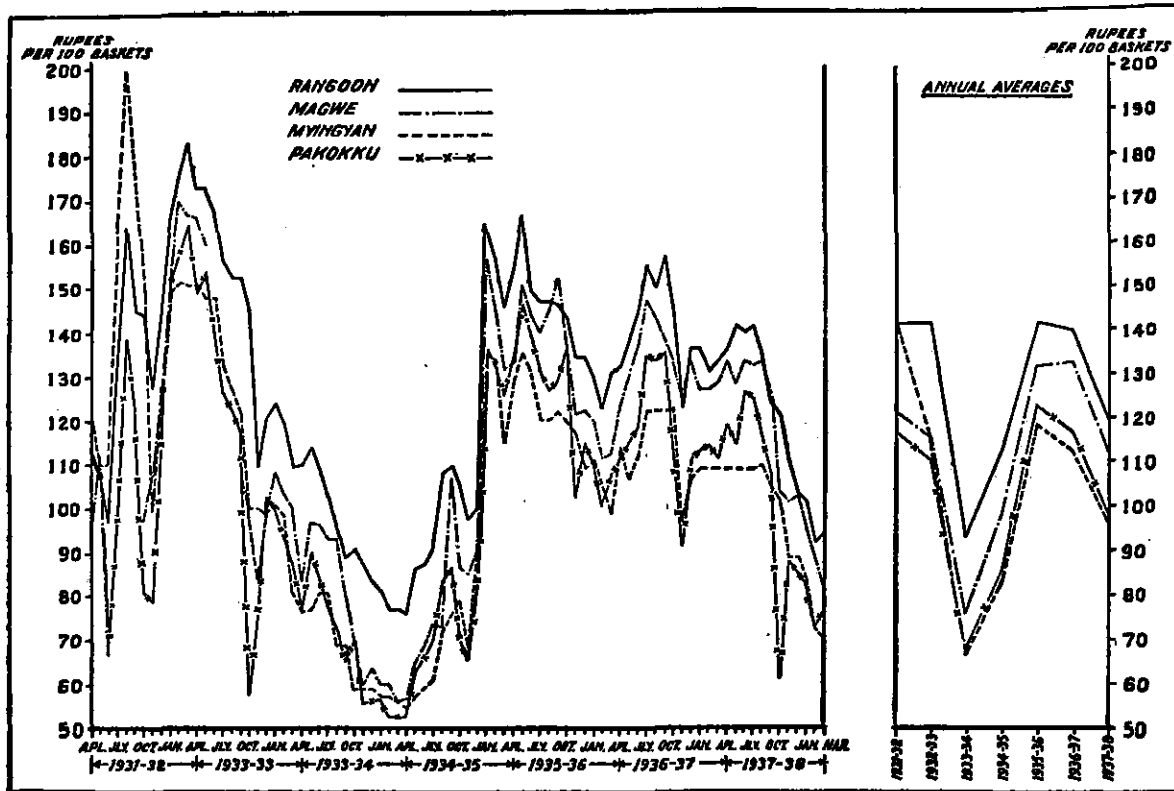
(e) *Radio.*—The use of radio for dissemination of market intelligence is of recent origin but is growing rapidly. The radio stations at Madras and Bombay include groundnut prices in their bulletins of prices of agricultural commodities. It is hoped that further progress will be made in utilising this means to inform the groundnut producers of the fluctuations in prices.

F.—Prices in Burma.

The prices in the markets of Burma are governed by those prevailing at Rangoon. The offices of several firms who own large oil mills and have buying agencies in the districts as well as traders supplying the requirements of mills are all located at Rangoon. The rates offered by the buying agencies under instructions from their head offices determine the prices at different collecting centres. The cultivators get to know these prices by personal enquiries or through town brokers.

The prices of groundnuts in shell in various markets differ by Rs. 5 to Rs. 10 per 100 baskets of 9 gallons each, depending on the distance from Rangoon and the quality of the nuts. The diagram facing this page, which illustrates the movement of prices at four markets, namely, Rangoon, Magwe, Myingyan and Pakokku, shows that the different markets generally follow the same trend though the relative level of prices is not always the same. Considering the annual averages, the prices are highest at Rangoon followed by Magwe, Pakokku and Myingyan although in 1931-32 and 1932-33 prices at Myingyan averaged higher than those at Pakokku. The higher prices at Magwe are largely accounted for by nuts being somewhat superior in quality. The difference between the prices paid for

AVERAGE MONTHLY PRICES OF GROUNDNUTS IN SHELL AT RANGOON, MAGWE, MYINGYAN AND PAKOKKU.



Facing page 115.]



DRYING GROUNDNUTS IN A FIELD.



DRYING GROUNDNUTS ON A THRESHING FLOOR.

different lots in the same market is more pronounced at the commencement of the season when the range of variation is about Rs. 2 to Rs. 3 per 100 baskets, depending on the condition and cleanliness of different lots.

The prices are also subject to considerable seasonal variations as will be seen from the diagram facing page 111, which shows the deviation of average monthly prices between 1933-34 and 1937-38 from the average annual mean. The deviations in different markets appear to follow a similar course, between September and February, after which the movement is somewhat divergent. The maximum range of variation is at Pakokku, where there is a fluctuation of over Rs. 27 per 100 baskets or nearly 28 per cent between November and July. The lowest prices in all the markets are recorded at harvest time in November followed by a rise in January. A subsequent off-season rise takes place between July and September. Taking an average of the four markets, the prices are below the annual mean from October to December and again from February to April.

The prices of groundnuts and groundnut oil at Rangoon, published in daily English and vernacular papers, are made use of by the traders and millers. Weekly prices are published in reports issued by some firms to their regular clients. Fortnightly prices at a few centres are also published in the Burma Gazette.

Prices.]

INTER-CHAPTER THREE.

The London price of Coromandel kernels provides a fair index of world values of this commodity. Groundnut kernels in London fetched as much as £32 per ton at times during the period of 1914-18 War, and even £50 per ton towards the end of 1919, but the prices in 1928-29 were below £21 per ton and since 1933-34 have not averaged over £15 per ton. Similarly, in India, groundnut kernels fetched as much as Rs. 450 or more per ton at Madras in August 1919 and over Rs. 250 per ton in 1928-29, but the average prices have not exceeded Rs. 163 per ton since 1933-34.

Madras and Bombay prices serve as an index of Indian prices but the quotations at these two key markets have not much in common. Madras quotations, for example, may be per candy of 500 lb., 529 lb. or 531 lb. and usually refer to Coromandel kernels, exclusive of bags and with a tolerance of 2 per cent damaged seeds and 2 per cent impurities. On the other hand, Bombay prices are for Bold kernels, inclusive of bags and on 4 per cent mutual refraction basis. Madras prices are largely influenced by exporters' buying limits whereas at Bombay, besides export values, the local milling demand and "futures" market exert their influence. Bombay prices in recent years have generally been higher than those at Madras.

The prices of kernels and nuts in different markets do not always move together. Even in the same market, prices paid for the same variety by different buyers on the same day may vary as much as over Re. 1 per maund. Different varieties, of course, fetch different prices. In Madras, Peanuts fetch 2 to 6 annas per maund less

than Coromondels while hand-shelled may fetch 6 annas to Rs. 1-4-0 per maund less than machine-shelled. The discount for hand-shelled kernels has been increasing. The trade has been discouraging the practice of hand-shelling with the result that the arrivals of hand-shelled kernels are steadily decreasing. In Bombay, Khandesh fetches a small premium over Khandesh Quality which in turn normally commands a premium over Core-mandel, Karad and Bold. The difference between Khandesh and Bold may be 2 annas to 6 annas per maund in favour of Khandesh but abnormal conditions have at times resulted in Bold fetching a better price than Khandesh. The prices fetched by different varieties are not always commensurate with their oil content. For example, in Hyderabad, Coromandel fetches a higher price than Khandesh although the superiority of Khandesh is now being realised by local mills.

The prices at almost all the markets show a deep harvest depression between August and December in the case of nuts in shell and September and December in the case of kernels. There is a subsequent rise in December-January and again between June and August. The seasonal fluctuations are more violent in the case of nuts in shell and amount to over 40 per cent in some markets. The harvest fall in prices is a matter of serious consequence for the producers, as it is at this time that they market the bulk of their production. When the improvement in prices sets in, the producer has little produce to sell and when he has to go to the market to buy seed for sowing, he finds the prices have once more moved against him. Producers themselves can help to minimise seasonal variations by marketing only fully mature and dry produce but efforts should also be made to bring about a more even flow of supplies on the markets by co-operative and other organisations providing producers facilities for finance.

Trading in "futures", which in an organised form is seen only at Bombay, appears to have a stabilising effect on the prices and is thus of advantage to the producer. The influence is, however, minimised due to the fact that only Bold variety which accounts for only about a fourth of the production is tenderable against the "futures" contract. Three positions, *viz.*, February, May and August are traded in. The trading in February option generally commences in the beginning of July—when all the crop has not been sown nor any official forecast of the sown area published; this contract is open for over 6 months. The May contract opens about the middle of January and the August position in the middle of April, both options remaining open for about 4 months each. The February option has the greatest speculative element specially in the earlier months and as this is the first option available after the arrival of the crop there is nothing to influence the course of ready prices after the arrival of the crop in the market upto January. The shifting of February option to January would tend to smooth out the fluctuations between December and February and contribute to a more even distribution of the three options. Similarly, the shifting of August option to September would tend to moderate the fall in prices which normally occurs in September. Organised "futures" trading in Coromandels at Madras would help to link export values with the demand in India and should receive consideration from the trade.

Satisfactory price records for kernels are available for the two key markets of Madras and Bombay but the position in assembling centres specially in respect of the prices of nuts in shell is far from satisfactory. The market news service available to producers is not only faulty but slow and a system for the collection and dissemination of reliable price news is a necessity if the producers are to get a better return for their produce

Burma.—Rangoon is the key market which governs the prices in other markets, which are quoted for nuts in shell. As in India, there is a harvest trough—in some cases representing a fall of as much as 27 per cent—with its low point in November, followed by a subsequent increase in January and again between July and September.

CHAPTER IV.—PREPARATION FOR MARKET.

A.—Harvesting.

(1) METHODS OF HARVESTING.

Harvesting is the most costly operation in the production of groundnuts and entails a great deal of labour because the pods have to be collected after being dug out from under the surface of the ground. The methods adopted vary in different areas depending on local soil and other conditions, and the type of nuts grown, *viz.*, bunch or trailing. In bunch types, the pods cluster round the root stalk, but in trailing types they are scattered along several trailing branches, so that while it is possible in the case of bunch types to pull out the plants with the pods, it is not so with trailing types (see plates facing pages 14 and 15). The bunch types are, therefore, comparatively easy to harvest.

(a) *Bunch types*.—In most of the areas, *e.g.*, Madras, Bombay and the Central Provinces, the whole plants are generally pulled out by hand. In Hyderabad, the plants are usually uprooted by working a harrow in the field. After the plants have been pulled out or uprooted, the adhering earth is shaken off and the plants are stacked in the field or tied in bundles and taken to the threshing yard immediately or after some drying in the field. A few pods falling from the plants or remaining in the ground are picked or dug out by hand. The plants are then allowed to dry usually for 4 to 15 days before the collection of pods is taken up. Some big cultivators may stack partly dried plants for about a month to finish other agricultural operations and take up plucking of pods when plenty of labour is available cheaply. On the other hand, some small cultivators dispense with the drying and take up the collection of pods immediately.

The pods are separated from the plants by twisting the green plants by hand, or by beating the dried plants by sticks or against a hard surface, such as a piece of stone or log of wood. The pods fall off easily from the stalks. They are next separated from the mixture of leaves, stalks, earth, etc. This is done by picking or by winnowing, *i.e.*, allowing the mixture containing leaves, pods, stalks, etc., to fall from a height when the lighter stuff is carried further by the wind and the pods fall near the winnower's feet.

(b) *Trailing types*.—The plants, as they stand or after cutting the haulms, are uprooted with the help of harrows or ploughs or by digging with hand implements. This is followed by further harrowing or digging to bring the pods to the surface, when they are picked. These operations present little difficulty in light and sandy soils and the pods may be picked up immediately after ploughing but in stiff soils or when the soil becomes hard, digging of the nuts is slow and tedious work. The cutting of the haulms is done to facilitate digging operations. In the Ceded districts of Madras which have the biggest groundnut areas, the practice is to work in the field, without cutting the haulms, a type of big harrow called *pedda guntaka* drawn by two or more pairs of bullocks. The blade digs

into the ground under the roots and the plants are uprooted. The field, after the plants have been gathered, is worked with a small *guntaka* three or four times and the pods brought to the surface each time picked by hand by a number of men and women. In North Arcot, Chittoor and Vizagapatam districts, digging by hand-hoes is very common. In parts of Trichinopoly district and some villages in North and South Arcot districts, fields are flooded and the pods collected when they float on water. For harvesting by this puddling system, the vines are first gathered and the land allowed to dry for 15 days, for unless the pods be thoroughly dry they will not float. Then the soil is moistened and ploughed and afterwards flooded. Most of the pods float and are drifted by wind or led with a broom to a corner of the field and collected. The ploughing and flooding is repeated three or four times as necessary. The work is finished as rapidly as possible, as otherwise the pods, getting saturated with water, sink to the bottom. The pods, after collection, have to be dried. This system is, obviously, possible only in places where a good supply of water is available.

In Bombay Presidency, Hyderabad and the Central Provinces, the haulms are generally first cut and the field then worked with a harrow or plough. The operation is repeated two or more times and pods brought to the surface collected each time. In Kathiawar, the plants are first pulled out by hand and then the field ploughed. Nuts coming to the surface are picked by hand. Similar methods are adopted in the United Provinces, the Punjab, Sind and other areas.

The pods are separated from leaves, stalks, etc., as in the case of bunch types.

(2) WASHING AND DRYING OF PODS.

After the pods have been collected as mentioned above, they are usually dried in the sun till the nuts make a rattling sound and kernels get loose in the shell. The period of drying varies from 3 to 10 days depending on weather conditions and the drying, if any, given to the haulms before the collection of pods. The pods are spread on roofs of houses or in threshing yards or other places, where they may be exposed to sun and are occasionally turned to expose the lower layers and rubbed to get rid of the sticking earth. Plates facing page 115 show drying of groundnuts in a field and on a threshing floor. This drying of the pods is usually done by the cultivators before sale but in some areas, e.g., in Salem, Coimbatore and North and South Arcot districts of Madras, the producers often take the pods to the market without drying and the drying is done by the wholesale merchants at the markets. The prices paid to producers in such cases are very low. In Bombay and Baroda State, the pods are sometimes taken to a nearby river or water course and washed to get rid of adhering earth and then dried.

(3) COST OF HARVESTING.

The harvesting of groundnuts requires a large amount of manual labour, the cost of which not only varies in different provinces and States of India but also in the same place at different times, depending on the demand for labour at any particular time. For example,

if heavy rains occur at the time of harvest, there is danger of damage and crop being lost, and the demand for labour increases with the result that the charges paid for labour are higher than normal. The cost of harvesting also varies appreciably for bunch and trailing types. The labour employed is often paid in kind and the producer's whole family is invariably occupied in the work. These factors make it difficult to arrive at accurate estimates of costs of harvesting, but roughly the cost may vary from Rs. 5 to Rs. 20 per acre.

In the South Arcot district of Madras, the cost of harvesting is estimated to be about Rs. 7 to Rs. 8-9-0 per acre for ordinary rain-fed crop and Rs. 19 per acre for irrigated crop. It may be noted that the yield per acre from irrigated crop is more than twice that of the rain-fed crop. In Bombay, the bunch types are reckoned to cost Rs. 5 per acre and the spreading types Rs. 8 to Rs. 10 per acre. In Hyderabad, the average cost is estimated as Rs. 4 to Rs. 5 per acre for spreading varieties and 25 per cent less for bunch varieties, while in the Central Provinces, it is estimated at about Rs. 6 per acre. When payment is made for labour in kind, on an average nearly 1/6th of the pods collected are given in Bombay, 1/7th to 1/8th in Hyderabad and 1/10th in the Central Provinces.

(4) HARVESTING MIXED CROPS.

Groundnut crop is sown pure or mixed with other crops such as red gram. Mixed sowing is done only with groundnuts of bunch types and in such cases, as the groundnut crop matures earlier, it is harvested before the other crop is ready. The method followed for harvesting is similar to that followed for pure crop.

(5) HARVESTING IN OTHER COUNTRIES.

The groundnut crop almost all over the world is produced on small holdings and harvested without the use of machinery. Only in the United States of America machinery is used for digging, picking and cleaning the nuts, but as the collection of all the nuts is not economical, about one-fourth of the crop is left in the ground to be "hogged off" by pigs. Progress with the introduction of machinery has lately been made in French West Africa.

(6) EFFECT ON QUALITY.

Probably, in no other crop the effect of harvesting on quality is so marked as in the case of groundnuts. The condition of the crop at the time of harvesting, methods of harvesting, and rains at the time of and immediately before and after harvesting, all have a bearing on the quality and quantity of groundnuts harvested as well as on the cost of harvesting.

If the crop be harvested too soon, when the pods are immature, light and shrivelled nuts are obtained, so that the outturn is low and the quality is poor. Experiments* have shown that throughout the development of the seed, there is gradual and uniform gain

* "Oil formation in groundnut with reference to quality," Patel and Sheesadri. The Indian Journal of Agricultural Science, April, 1935.

in oil content and reduction in free fatty acids and moisture content, so that pods harvested before being fully ripe do not give kernels with the maximum oil content and minimum free fatty acids and moisture content. On the other hand, if harvesting is delayed, the stalks of the pods get brittle and make lifting of the plant from the soil difficult. The land also becomes hard with the result that more labour and time is required to take out the pods and the cost of harvesting increases. The time for harvesting is indicated by the haulms turning yellowish and the lower leaves withering and falling.

The drying of the pods after harvesting is also of importance. If the pods are not sufficiently dried, they are liable to fermentation and development of free fatty acids so that oil made from such kernels is of poor quality. Although cultivators generally give some sort of drying to the pods, yet a good deal of groundnuts reach the markets without being properly dry, specially in the beginning of the season. The erroneous notion of the cultivators that they get paid for more weight by selling wet pods, and the need for cash are largely responsible for this practice. The system of collecting the pods by flooding the fields, although meaning a saving in the cost of harvesting, makes them liable to contain more moisture so that unless they are thoroughly dried afterwards, the kernels develop a high percentage of free fatty acids.

Rains, sometime before harvesting, assist in taking out clean and complete crop but heavy rains during the period of harvesting and drying do damage both to the pods and haulms. The seeds in the pods tend to germinate and it becomes necessary to harvest the crop very quickly if much damage is to be avoided. The demand for labour and consequently the charges become abnormally high so much so that many a time as much as half the pods collected are given away as labour for collecting them. The haulms, if they become wet after being gathered, become unfit for fodder.

B.—Decortication.

The pods, collected by methods described in the foregoing pages, are marketed as such, i.e., as groundnuts in shell or after a further process, called decortication or shelling, for taking out the kernels by breaking and removing the shell. The bulk of the produce leaves the cultivators' hands as nuts in shell but reaches the exporters and millers as kernels, the decortication being done at one of the intermediate stages.

(1) METHODS OF DECORTICATION.

Decortication is carried out both by machines and by hand.

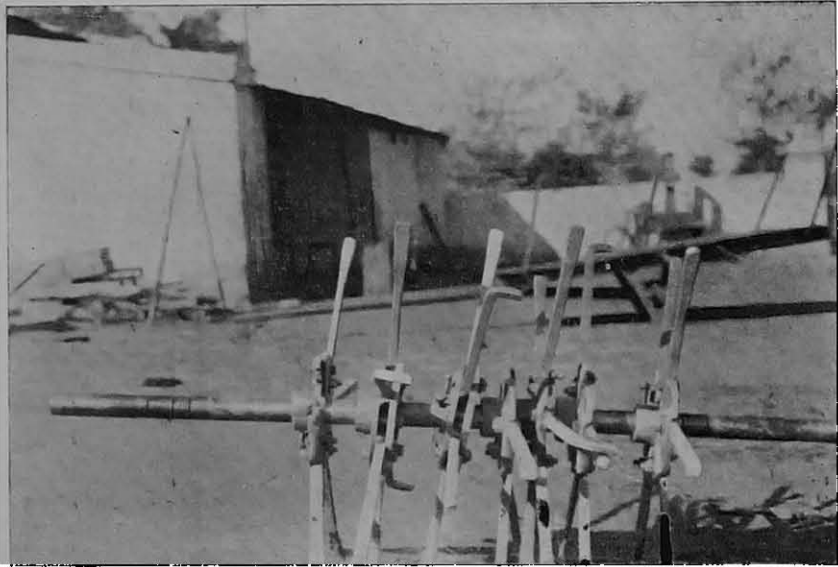
(a) *By machine.*—The machines used for separating the kernels from the pods are called decorticators. These are made in a number of sizes with different capacities and are driven both by power and hand, those driven by power being bigger and giving a larger output. Decorticators working in different parts of India appear to be made by three or four manufacturers of agri-

cultural implements and machinery in India and fall, according to their principle of working, in three classes, *viz.*, (i) Beater type, (ii) Improved beater type and (iii) Grate type decorticators.

(i) *Beater type decorticators.*—A number of steel blades revolve at high speed in a perforated drum (see upper plate facing this page). The perforations are round or oval and vary in size for nuts of different varieties, being so designed as to allow the kernels and shell to pass through but not the whole nuts. When groundnuts enter the drum, the combined action of the beaters and friction between the nuts themselves tear the shells. The shells and kernels, as they pass through the perforations, are met by blast from a blower, which carries off the shell, and the kernels fall to the ground. A decorticator working on groundnuts may be seen in the lower plate facing this page. The kernels may contain a few unbroken nuts in shell, stalks or pieces of stone, etc., and are further cleaned. This may be done by sieving and picking by hand, or by passing through a set of oscillating sieves mounted one above the other or by similar devices designed for the purpose. About 3,000 decorticators of this type are working in different parts of India especially in Madras and Bombay Presidencies. The cost of these machines varies from Rs. 60 to Rs. 400 for different sizes and the output from 20 to 50 bags of nuts in shell per hour, the smallest size being driven by hand. It may, however, be noted that the output of any size of machine varies to some extent, depending on the speed of the beaters which may vary from 150 to 300 revolutions per minute and the condition and size of nuts. As a rule, the higher the speed of the beaters and the drier and bigger the nuts, the greater is the output, but as decorticating dry nuts with beaters running at high speed, results in a high proportion of broken kernels and nooks, the speed of the beaters and moisture in the nuts has to be regulated in order to obtain the best results. The nuts are, therefore, often moistened with the object of reducing the proportion of broken kernels and nooks. In the months immediately following the harvest, the nuts contain a fair amount of moisture and moistening is not done but in the hot months from April onwards moistening is practised in many of the districts of Madras, in Pudukottai State and some places in Bombay. Water is sprinkled over the nuts immediately before decortication or the night before, about 4 to 6 lb. of water being added per 100 lb. of pods. In the case of Peanuts, the shell being thinner, watering is done only just before decortication.

(ii) *Improved beater type decorticators.*—The nuts before entering the drum, in which the beaters revolve, are partially crushed by a special device so that the beaters instead of directly striking the pods lightly do the work of separating the kernels from the shell. The kernels and shell, as in the case of ordinary beater type machines, pass through the perforations and are met by the blast of a fan which carries away the shells. It is claimed by the manufacturers of these machines that there is no necessity to moisten the nuts and the breakage in the kernels does not exceed 5 per cent. Like the ordinary beater type decorticators these machines are also made in several sizes varying in capacity from 5 to 100 bags of nuts per hour, the smallest size being driven by

[Facing page 124.]

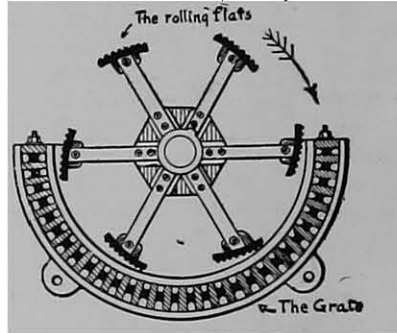


BLADES IN A "BEATER" TYPE DECORTICATOR.

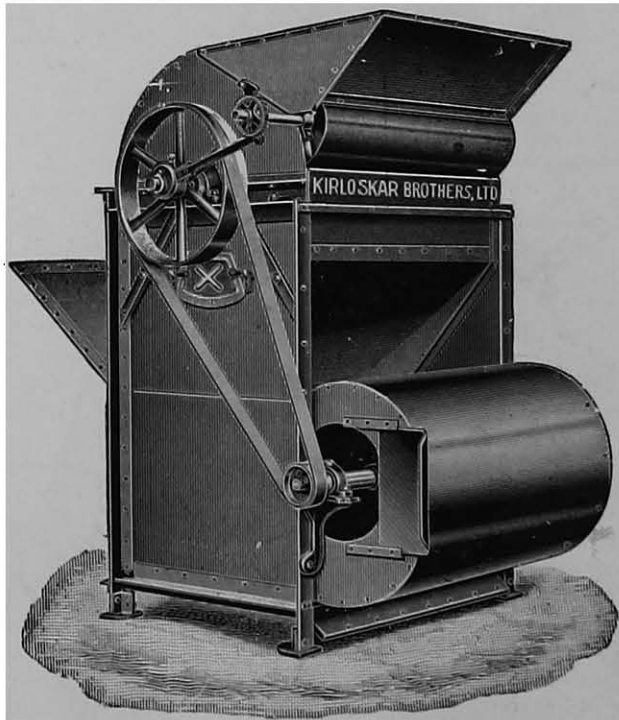


A DECORTICATOR WORKING ON GROUNDNUTS.

Facing page 125.]



SECTION OF "GRATE" IN A
DECORTICATOR.



A "GRATE" TYPE DECORTICATOR.

(By courtesy of Messrs, Kirloskar Brothers, Limited.)

hand. The cost of these machines ranges from Rs. 100 to Rs. 500. About 100 such machines are working in different places, especially Satara and Sholapur districts of Bombay and in Nizam's Dominions.

(iii) *Grate type decorticators*.—The nuts on entering the drum of the machine are rolled against a grate (composed of a number of flat steel bars with a small adjustable space between each as may be seen in the upper plate facing this page) by revolving crushing plates having channel grooves on their external surface, so that the shells are broken open and the kernels and shells pass through the grate. The separation of shells and kernels and subsequent operations are carried out in the same way as with other machines. The advantages claimed for this type of decorticators, one of which may be seen in the plate opposite, are that the power required is low and the breakage of kernels is minimised. The different sizes have capacities varying from 3 bags to 75 bags per hour and cost from about Rs. 150 to Rs. 600 each. Like the other types, the smallest size is driven by hand. Over 2,000 of these machines are now working in Madras and Bombay Presidencies and Nizam's Dominions and a few in the United Provinces, the Punjab and Bengal.

Stone separators are sometimes fitted to decorticators to take out pieces of stone, etc., from the nuts before they enter the machine.

(b) *By hand*.—The process of shelling by hand is very old and at one time was the most common process in most of the groundnut growing tracts. Although with the increase in the number of decorticating machines, the method is being abandoned, it is still met with in some of the districts of Madras, as North and South Arcot, Trichinopoly, Madura and Ramnad. The process consists of heaping the pods and sprinkling water over them in the evening. The nuts are spread the next morning and beaten with sticks or a wooden mallet which is notched on one side. Two such mallets will be seen in the upper plate facing page 126 showing shelling of groundnuts in progress. The kernels are then separated by winnowing and marketed generally after being dried. The kernels shelled by this process are known in trade as "Ordinary" or "H. D." kernels and fetch a lower price than those shelled by machines known in trade as "Machined" or "M. D." kernels.

Shelling by hand is also done without beating with sticks or mallets. Each pod is pressed between the fingers so that the shell is broken and the kernel taken out. The kernels come out whole without practically any broken or bruised kernels but the method is very slow. It is, therefore, resorted to only when the kernels are required for use as seed for sowing or when the quantities involved are very small.

(2) COST OF DECORTICATION.

The cost of decortication depends on a number of factors, such as the method employed, the size and type of machine used, the cost of power, the wages for labour and the condition and quality of nuts

decorticated, but roughly speaking varies from 6 pies to 1 anna per maund of nuts. In Madras, machine decortication is reported to cost from 5 pies to Re. 0-1-4 per maund of nuts and hand decortication about Re. 0-1-1 per maund. In Bombay Presidency, the cost of decortication is estimated to vary from 6 pies to 10 pies per maund. When the machines are driven by ~~hand~~ the cost is nearly 8 pies per maund of nuts, but the cost of shelling by hand is as high as 6 annas per maund. The cost in Hyderabad is similar to that in the Bombay Presidency, but in the Central Provinces, the cost is comparatively high, being estimated as 2 annas per maund. Shelling by hand in the Central Provinces costs, as in Bombay, about 6 annas per maund. In the United Provinces, decortication has been taken up in a few places for the last 2 or 3 years only and the cost is reported to vary from 6 pies to 1 anna per maund.

The charges made for decortivating groundnuts are generally in the shape of shell being left at the factory *plus* a small payment. This, depending as it does, on the demand for shell, differs in various places and at different times and is usually lower in places, where groundnut decortication is carried on along with other industries, *e.g.*, cotton ginning and pressing and shell used as fuel in boilers. About 3 maunds of shell are reckoned as equivalent to 1 maund of coal and where coal is relatively dearer, it is profitable to burn shell. Therefore, where shell is in demand for burning in boilers, not only no charge in cash is made for decortication, but a small payment is also made, the shells, of course, being retained. For example, the charge for decortication in Kolhapur used to be 2 annas per bag of kernels a few years back, which gradually became lower and lower till it became customary to decorticate groundnuts without any charge in cash, and at times during the last three years 6 pies to 1 anna per bag were paid for having the nuts decorticated and leaving the shells at the decortivating factories.

On the other hand, in some places, the owners of decortivating establishments have formed themselves into a pool or combine and agreed on a minimum rate to be charged for decortication. For example, the shelling factories at Nandyal agreed not to charge from their constituents less than 4 annas per bag of kernels (177 lb.). Similarly, in Davengere in Mysore the combine of decortivating factories decided to charge Re. 0-2-6 per bag of kernels. Out of this, Re. 0-1-6 is retained by the factory doing decortication and 1 anna is contributed to a fund or pool and is distributed later among the members according to the number of decorticators in the factory.

(3) EFFECT OF THE METHODS OF DECORTICATION ON QUALITY.

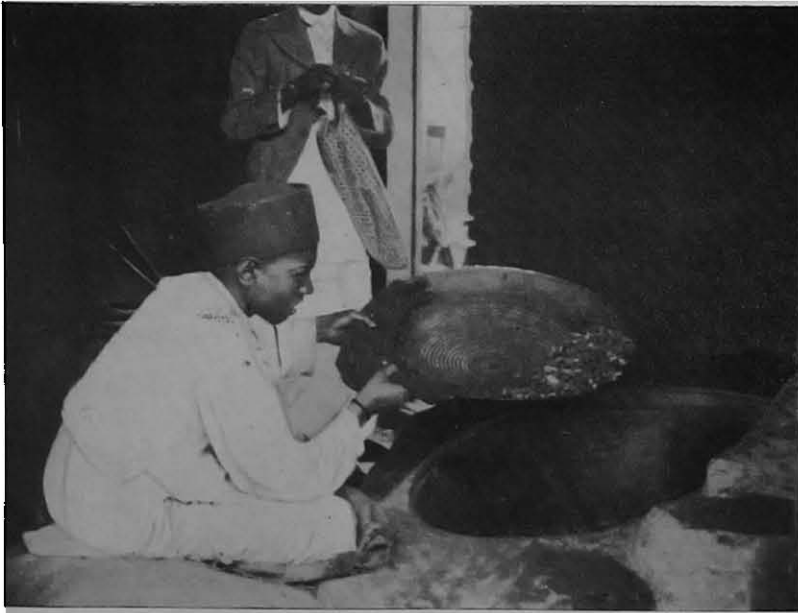
Shelling each pod by hand is the perfect method as far as quality is concerned, because nuts have not to be moistened, no extraneous matter gets mixed with the kernels, the seed-coat remains intact and the kernels are not bruised or damaged. The high cost of removing the shell in this way, however, precludes the adoption of this method when large quantities are involved.

On the other hand, when the nuts are decorticated without the use of machinery by beating with sticks or mallets, the quality of the kernels is harmfully affected. These kernels are generally more moist,

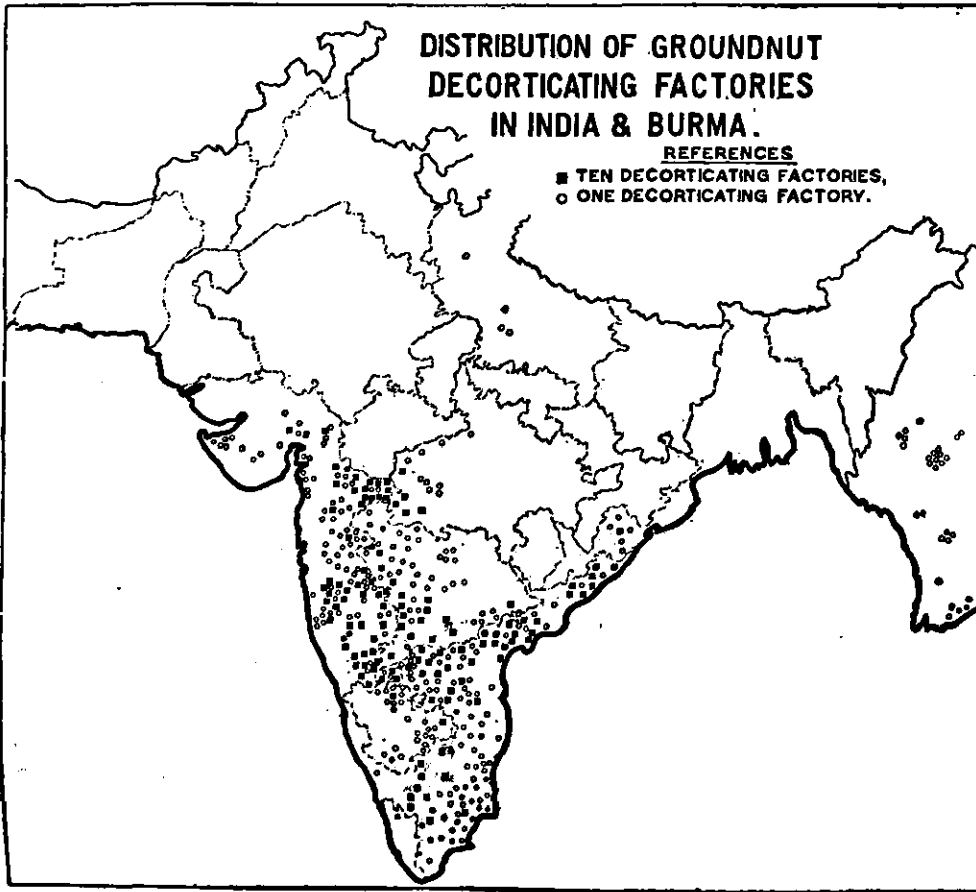
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HAND SHELLING GROUNDNUTS.



ROASTING OF GROUNDNUTS.



slightly darker in colour owing to their exposure to sun for drying and have a dirty appearance. Moreover, a number of kernels are bruised and damaged and some kernels lose their seed-coat. This method, practised in some districts of Madras, has, therefore, nothing to recommend it as far as quality is concerned. It has, however, the advantage that no expenditure on machinery is involved and the kernels can be taken out at the producers' holding obviating transport of shell to the markets or decorticating establishments. But as shell is not used by the producers for any special purpose being simply burnt away or wasted or in a few instances used as cheap manure, a better value is obtainable at places where there are other industries. It may be mentioned that in Europe and America some groundnut shell is used as cattle feed by being mixed with molasses, but this practice does not appear to be popular anywhere in India. Besides, the conditions under which nuts are stored by producers are usually defective and kernels being more susceptible to damage than nuts, the chances of deterioration in quality are less if the producers take the nuts in shell to the markets.

Decortication by machines can produce kernels of good quality if the working of the machines and the condition of the nuts are properly regulated, but very often the quality of the kernels is spoiled by moistening the nuts with a view either to avoid breakage of kernels or gain in weight or both and by running the machines at too high a speed in order to get more output. Although the decorticating machines do not appear to have reached the degree of perfection and it appears desirable to encourage production of better machinery by examination of the existing ones and offering encouragement for improvements, yet the quality of Indian kernels exported can be very appreciably raised by proper care at the decorticating factories. Small hand-driven machines are very suitable when small quantities have to be handled but as the cost of decortication is less with power-driven machines, the latter appear to be suitable for tracts having large areas under this crop, *e.g.*, North and South Arcot, Kurnool and Guntur districts of Madras or Khandesh and Satara districts of Bombay.

(4) DISTRIBUTION OF DECORTICATING ESTABLISHMENTS.

The decorticating establishments are, as a rule, located near assembling markets and railway stations, and usually have large open compounds surrounded by wire fencing. These are used for parking carts, stacking or heaping lots of groundnuts brought in for decortication and drying them, if necessary. The biggest number of decorticating factories is found in Madras and Bombay, which produce the major part of the groundnut crop in India and where the bulk of trade is in the form of kernels. In areas where the cultivation of groundnuts is comparatively small or recent, *e.g.*, the United Provinces and the Punjab, the nuts are largely handled as nuts in shell and the number of decorticators working is few. The map facing this page shows the distribution of decorticating establishments in different parts of India and Burma.

These factories are generally owned by wholesale merchants, who either buy nuts in shell from the producers outright or receive them

for commission sale or simply decorticate nuts brought to them. In addition to these establishments, oil mills crushing groundnuts often have their own decorticators which they use for decorticating nuts for use in their mills and at times for nuts brought to them for decortication.

The decorticating factories usually have heavy work only for 3 or 4 months immediately after harvest and often work day and night during this period. For the rest of the year they do not or do little of groundnut decortication. Only in districts where stocks are heavy, *e.g.*, the Ceded districts of Madras, the decorticators work throughout the year. Most of the establishments carry on groundnut decortication along with other industries which keep them engaged in other parts of the year—the shell providing fuel for the boilers—*e.g.*, cotton ginning, cotton pressing, oil crushing, rice milling, etc. For example, in Madras Presidency only about 1/6th of the factories confine themselves to groundnut decortication alone while more than half the establishments are associated with cotton ginning and/or pressing, in addition to decortication. The remaining factories have one or more other industries such as rice, gram or flour milling, jute pressing and turmeric polishing, etc.

C.—Preparation for market of edible nuts and kernels.

(1) FOR USE IN INDIA.

The nuts utilised for eating in India receive no special treatment or preparation and are consumed, as was mentioned in Chapter II, by taking out the kernels from nuts as such or after roasting them. Large sized nuts are preferred for eating.

The roasting is done by the indigenous process of agitating the nuts kept in a hot pan with hot sand and separating the sand by putting the nuts on a sieve (see lower plate facing page 126). Sometimes the nuts are also roasted in a pan kept over a fire, but such nuts have a charred appearance. The nuts lose 10 to 20 per cent. in weight by roasting and the charges for roasting vary from 2 pies to 6 pies per seer or 6 annas to 1 rupee per maund. The trade in roasted nuts is mostly retail. Roasting is, therefore, invariably done locally and rarely if ever, roasted nuts are sent long distances or by rail. The saving in freight and probable better keeping qualities of roasted nuts, however, appear to indicate possibilities of transport of specially selected edible roasted nuts from producing areas to distant consuming centres such as Calcutta, Delhi, Lahore, etc.

(2) FOR EXPORT ABROAD.

Nuts in shell and kernels intended specially for edible use in the export markets are, however, specially prepared by selecting and picking sound nuts and kernels, as far as possible uniform in size. These are known in the trade as handpicked selected nuts in shell and kernels and fall under three heads.

- (a) Handpicked selected nuts in shell,
- (b) Handpicked selected kernels, Bold, and
- (c) Handpicked selected kernels, Java type.

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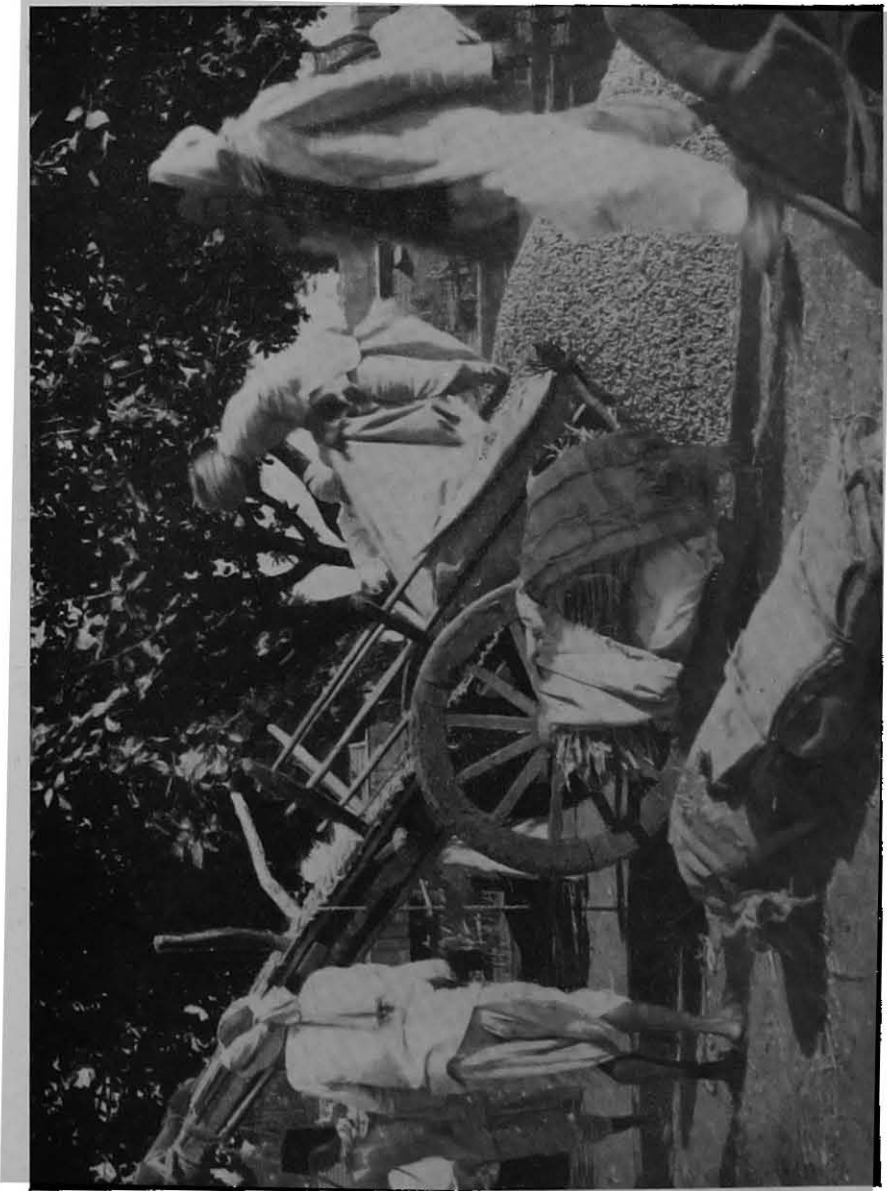


PREPARING "HANDPICKED SELECTED" NUTS IN SHELL.



MACHINE USED FOR PREPARING "HANDPICKED SELECTED" KERNELS.

[Facing page 129.]



(a) *Handpicked selected nuts in shell.*—These are prepared almost exclusively in Kathiawar States from the local produce of Bold variety, which consists of nuts, exceptionally large in size (see plate facing page 16) as compared with other Indian nuts and having a thick shell with clean whitish appearance. Large sized nuts, having two pods each, are picked by hand, the picked nuts being called Europe quality, which may be described as nuts having the following characteristics :—

- (i) Shells of a clean whitish colour,
- (ii) Free from impurities, i.e., lumps of earth, pieces of stone, stalks, etc., and
- (iii) Fairly uniform in size.

The work of picking the nuts is done by female coolies. Each woman takes a small quantity in a shallow iron tray called *soup*, and picks large sized nuts leaving damaged and shrivelled nuts, nuts with one pod and impurities such as pieces of stone, earth, stalks, etc., in the tray (see upper plate facing page 128).

The biggest sized nuts or No. 1 quality have a count of 52/54 nuts per 10 tolas (nearly 4 oz.), i.e., roughly 13-14 nuts per oz. No. 2 quality consists of slightly smaller nuts which have a count of 70 to 78 nuts per 10 tolas. The nuts left after picking No. 1 and No. 2 quality are generally utilised for crushing after decortication. The size of nuts varies, to an extent, from year to year depending on weather and rainfall conditions but from average quality Bold nuts grown in Kathiawar States, about 15 per cent to 20 per cent of No. 1 quality nuts and nearly 50 per cent of No. 2 quality nuts are obtained. The selected nuts are put in bags, each bag being filled to contain 72 lb. in case of No. 1 quality and 82 lb. in case of No. 2 quality. The cost of handpicking is reckoned as nearly 4 annas a bag.

China used to be the chief source for these nuts in European markets, but an increasing share of this trade is now being taken by India. Handpicked selected Indian nuts are, however, still exported under the Incorporated Oilseed Association contract for Chinese nuts in shell. The nuts exported from China generally have a count of 13/14 to an ounce and Indian nuts are also prepared to this count. The Chinese nuts are nevertheless preferred on account of their being comparatively more uniform in size and having tougher shells, which are not affected in roasting.

(b) *Handpicked selected kernels, Bold.*—These are prepared mainly at Kolhapur and Bombay from Bold kernels produced in Kolhapur State and neighbouring areas in Bombay Presidency, and Hyderabad and Mysore States. Like nuts in shell, handpicked selected kernels used to be prepared by manual labour but simple locally made machines are now used to do preliminary separation of kernels of different sizes. The machine, which may be seen in the lower plate facing page 128, consists of a set of sieves made by fixing perforated iron sheets to rectangular frames, placed one over another. The sieves are connected to an eccentric and vibrate to and fro. The kernels, obtained after decortication of nuts, are first put over a sieve which has round holes of a size which allows the kernels to pass through

while any nuts in shell which may have been left in decortication are retained on the sieve and fall out of a separate outlet. The kernels fall on a second sieve which has holes of such a size as to allow kernels smaller than the size required to pass through and fall on a third wire mesh sieve, which serves to separate dirt, nooks, etc. The size of holes in the second sieve is adjusted according to the size of kernels to be prepared and the kernels which pass over this sieve are further dressed by female coolies. Small quantities are put in small hand sieves with rectangular perforations through which the broken kernels pass. Any unshelled nuts, which may have escaped in the machine, skinned kernels, broken and split kernels, damaged kernels and impurities are removed by picking. The kernels are made to several different counts, the two most usual counts for the export trade being \surd 38/40 and 40/42 kernels per ounce. Kernels with a count of 45/47 and 55/58 are also prepared but they have a limited market. The kernels exported from China have a count of 32/34 and 38/40 kernels to an ounce. Kernels left after picking the bigger kernels are called Delivery quality and used for crushing. Like handpicked selected nuts in shell, the chief source of handpicked selected kernels used to be China and Indian kernels are exported under the Incorporated Oilseed Association contract for handpicked selected Chinese kernels. The Chinese kernels command a premium over Bombay kernels because of the regularity of size.

The proportion of kernels of a particular count which can be obtained from a lot of groundnut kernels depends on the quality of the produce and, to an extent, varies from year to year. Consignments consisting of Bold kernels only give a higher proportion as compared with those having an admixture of Karad or Coromandel kernels. It is reckoned that from an average year's produce of Bold kernels about 40 per cent of 38/40 or 55 per cent of 40/42 kernels can be prepared.

The cost of preparing handpicked selected kernels is estimated to amount to nearly 14 annas per bag of 2½ maunds.

(c) *Handpicked selected kernels, Java type.*—These are round kernels prepared from Khandesh variety kernels produced in Kathiawar States and some districts of Mysore and find use for packing and confectionary purposes. These are also prepared as in the case of handpicked selected kernels Bold by separating broken, damaged, skinned and shrivelled kernels and are generally prepared to two counts, *viz.*, 70/75 kernels and 75/80 kernels per ounce. The other competitor for Indian kernels of this type in European markets is Toebean kernels.

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A Conference between the Central Marketing Staff and interests concerned with the preparation of and trade in handpicked selected groundnuts in shell and kernels held at Bombay in 1939 drew up specifications for different grades of handpicked selected nuts in shell and kernels. A few consignments from 1939-40 crop sent from Kolhapur to Bombay were packed according to these specifications and samples were also sent to the United Kingdom. Further reference to the grades and grade specifications will be made in Chapter VII.

D.—Note on harvesting and decortication in Burma.

The nuts grown in Burma are all of trailing type but the methods adopted for harvesting differ in different districts. A small portion of the crop is harvested when the haulms are still green. The plants are run over by a wooden roller to loosen the soil and then pulled out. The pods are plucked by hand and dried in the sun for about 3 days by which time the husk becomes dry though the kernels are still wet. This practice of pulling out the plants when the haulms are green is adopted only in the neighbourhood of towns specially Magwe, to meet the requirements for edible purposes. The bulk of the crop is, however, harvested when mature.

The general practice in Magwe district is to cut off the haulms, harrow the field and collect the pods with the help of a wooden comb, a large amount of labour being required for picking the pods. The cost of harvesting is reckoned as about Rs. 7-12-0 per acre. The supply of labour is much less than the demand and delay in picking frequently happens for want of labour. The local labour is so inadequate that whole families migrate from paddy low lands to groundnut uplands to partake in picking groundnuts. These pickers are provided with temporary huts to live in and often given advances in cash or in the form of rice before the work commences.

The system of harvesting in Myingyan and Pakokku districts is to work a harrow in the field to uproot the plants. On very stiff soils a wooden roller studded with iron spikes is often used to loosen the soil. The uprooted plants are dried for about 3 days and then stacked. The nuts are then collected at leisure by plucking by hand or making them drop by beating the plants with a stick. The kernels are then separated by winnowing. The cost of harvesting is reckoned about Rs. 3-8-0 per acre. The system adopted in Pakokku is, thus, cheaper than that in vogue at Magwe but the former tends to give a higher proportion of immature nuts. The Pakokku method is also generally followed in most of the districts in the northern portion of the mid-Burma dry zone, whereas the Magwe system is in vogue in Magwe districts and further south.

It may be noted that in harvesting groundnuts by either of the above methods subsequent harrowing and picking are usually necessary to ensure that all the nuts are collected and that it is not customary in Burma to dry the nuts in sun after collection. The nuts collected are stored in bamboo receptacles and taken to market about a week after picking.

The nuts are invariably marketed in shell and the decortication is done by mills manufacturing groundnut oil on their own premises. The mills keep stocks of nuts in shell and decorticate them as required for milling. The shell from the nuts required for edible use is removed by the consumers by hand.

Preparation for market.]

INTER-CHAPTER FOUR.

Harvesting of groundnuts requires a large amount of labour and is, therefore, a costly operation, more so with trailing types of plants, which unlike bunch types cannot be harvested by pulling out the plants, but require a considerable amount of harrowing, ploughing or digging to get the nuts out of the ground. The condition of the crop at the time of harvesting, methods of harvesting and rains at the time of and immediately preceding harvest all affect the quality and yield of the crop. Nuts harvested too soon are immature, light and shrivelled so that the outturn is low and quality poor. If, on the other hand, harvesting is delayed, the stalks get brittle and the land hard so that harvesting becomes difficult and expensive. Rains before harvesting help in lifting the crop but heavy rains during the period of harvesting damage the pods. Drying of the pods after harvesting is also of great importance as inadequately dried nuts are liable to ferment and develop free fatty acids. The producers are often induced to cut short drying by their immediate need for cash and under the erroneous notion that selling wet pods brings payment for more weight, but they seem to forget that the buyers always make very liberal estimates of moisture.

Kernels are taken out from nuts either by mechanical decorticators or by the process of hand-shelling, which is still prevalent in some districts of Madras. As hand-shelling involves sprinkling water over the nuts and beating them with sticks, the process tends to spoil the quality of the kernels and has, therefore, nothing to commend it. The damage to kernels during mechanical decortication can be controlled to a great extent by correct adjustment and speed of the machines. As different varieties vary in size and shape, it is obvious

that the indiscriminate use of the same mesh—unfortunately a common practice—results in a high percentage of brokens and nooks. The charges for decortication vary from place to place and time to time depending on the demand for the shell so much so that in one place a producer may pay as much as 4 annas per bag of kernels for decortication, whereas in another place he may get it done for nothing provided he leaves the shell with the factory. In any scheme for improving the quality of Indian kernels, decorticating factories and their methods should receive due attention.

Nuts in shell and kernels intended for edible use in export markets consisting of Bold kernels or nuts with clean white shell receive further treatment by way of selection and picking by hand and are sold as hand-picked selected nuts in shell or handpicked selected kernels. This trade which has been increasing in recent years is largely from certain districts of Bombay and Kathiawar States but is capable of further extension if due regard is paid to maintaining a reliable standard of quality and selection.

Burma.—In Burma, the short supply of labour for harvesting in certain areas often results in delays. Decortication is usually done by oil crushing factories at their own premises, the transport in the form of nuts in shell from producing areas to crushing centres being more economical than in India, on account of cheap water transport between collecting centres and markets.

CHAPTER V.—ASSEMBLING.

A.—Methods and agencies of assembling.

As mentioned in Chapter I, about 15 per cent of the groundnut production is retained by producers, so that nearly 85 per cent of the crop forms the marketable surplus. This is disposed of by the producers (i) either by themselves taking it to the nearest assembling centres, or (ii) by selling at their own farms and villages to intermediaries, who take it to the assembling centres. These intermediaries include village merchants, itinerant dealers, moneylenders, landlords, and agents of wholesale merchants, decorticating establishments and oil mills. Decorticating establishments play a very important part, specially in South India, in the assembling (and distribution) of groundnuts, functioning in the triple role of wholesale merchants, commission agents and processors. As wholesale merchants, they buy and stock nuts on their own account, selling them as nuts or as kernels after decortication. As commission agents, they stock and sell, before or after processing, the nuts brought to them by producers and village merchants, while as processors, they not only decorticate nuts brought to them for a charge, but often undertake drying, decorticating and bagging of kernels. They also serve as centres for producers and village merchants to bring their nuts to, for sale as such or after decortication and thus function as assembling markets. Similarly, at times, exporters' agencies serve as assembling markets, specially in North and South Arcot districts, where considerable quantities of nuts are hand-shelled in villages and then brought as kernels to these agencies or other merchants for sale.

The sales in villages are invariably as nuts in shell while in assembling markets transactions take place both in the form of nuts in shell and kernels, the practice varying in different areas. In Madras, in the northern districts the producers usually sell their produce as nuts in shell either in their own villages or at the nearest marketing centres, while in the southern districts, apart from hand-shelled kernels, nuts taken to marketing centres are sold there both as such or after decortication as kernels. For instance, in Tanjore and Coimbatore districts nuts are usually taken to decorticating factories and offered for sale as kernels after decortication. In Bombay, the sales of produce brought from the villages usually take place as nuts; only in Sholapur district and Akalkot State, they are sold as kernels. In Hyderabad and Mysore, the nuts brought from villages are offered for sale both as nuts and kernels but in the Central Provinces, the United Provinces, the Punjab and Kathiawar and Central India States, the nuts from villages are disposed of as such. The nuts are taken to markets either loose in carts or packed in old bags, the weight of contents not being uniform.

The proportion of marketable surplus brought to assembling markets by producers and different intermediaries varies in different markets. The estimated share of different agencies concerned in

the assembling of groundnuts in the various provinces and States is summarised in the table below :—

Approximate share of different agencies in the assembling of groundnuts in India.

(Expressed as percentages of marketable surplus.)

Provinces and States.	Producers.	Proportion assembled by	
		Village merchants, itinerant merchants and landlords.	Agents of wholesale merchants, decorticating establishments and oil mills.
	Per cent.	Per cent.	Per cent.
Madras	60	20	20
Bombay	60	25	15
Hyderabad	30	68	2
Central Provinces	65	33	2
Mysore	30	60	10
United Provinces	35	60	5
Others	35	60	5
Average for India	52	33	15

(1) CULTIVATORS.

Cultivators play an important part in the assembling of groundnuts although their financial obligations often leave them little choice but to dispose of their produce to their creditors. When cultivators obtain short term loans repayable after harvesting of the crop from village merchants or *banias*, the produce is sold to them at the villages. When advances have been taken from commission agents or *dalals* in nearby markets, the produce is taken there to be sold to or through them. The agreements to sell to their creditors, at times, extend to more than one year's crop. Such agreements are generally verbal understandings but when several years' produce is involved, written agreements are drawn out. Instances are reported from the Ceded districts of Madras and Banganapalle State (Madras States) of producers entering into agreements to sell their produce from 1 to 10 years to village merchants giving them loans. The loans are generally given on pronotes in which a high rate of interest, such as 12 to 24 per cent is promised. If the produce is sold to or through them, low or no interest is charged but if the produce is sold otherwise, full interest indicated in the pronote is charged. The

prices paid to debtor cultivators are somewhat lower than the current local prices. For instance, in Madras, the prices paid to debtor cultivators are reported to be nearly one rupee per candy lower. Some well-to-do cultivators give loans of seed to other cultivators on *sawai* or *deorhi* system and take the quantities received back to markets for sale.

The amount of groundnuts brought to assembling markets by producers varies widely in different areas and at different parts of the year, their share being greater in the beginning of the season and gradually decreasing as the season advances.

In Madras, where nearly 60 per cent of the marketable surplus is estimated to be taken to assembling centres by producers themselves, the proportion taken by producers is higher in southern districts as compared with northern districts. In Pudukottai and Cochin States, well-to-do cultivators and those living within 15 to 20 miles of a decorticating factory take their nuts to the factory for disposal. In Bombay, the proportion of groundnuts brought by producers varies from 25 per cent to 75 per cent in different markets, the proportion for the whole province being similar to that in Madras, *viz.*, nearly 60 per cent. In the Central Provinces, nearly 65 per cent of the produce is brought to assembling markets by producers but in Hyderabad and Mysore their share is only about 30 per cent. Considering the whole of India, more than half (52 per cent) of the marketable surplus is reckoned to be taken to assembling centres by producers themselves.

The produce is brought by cultivators in the form of nuts in shell and sold as such or after decortication. Only in South Arcot district and some other areas of Madras Presidency, where hand-shelling is in vogue, producers decorticate the nuts in their villages and bring kernels to the markets.

(2) VILLAGE MERCHANTS, ITINERANT DEALERS, MONEY-LENDERS AND LANDLORDS.

The village merchants (*banias*) concerned in the assembling of groundnuts are usually small tradesmen, who collect the nuts on their own account in their own villages or by moving as itinerant dealers from village to village within a radius of 15 to 20 miles. They also work, specially in Madras and Kathiawar, on behalf of wholesale merchants, who give them advances, which may vary from Rs. 50 to Rs. 200 for buying groundnuts in villages and pay them a commission of 6 pies to 1 anna per bag of nuts (80 to 90 lb.) on their purchases. Village merchants usually carry on money-lending also, giving cultivators loans in cash or in the form of seed for sowing. In return for the financial help, a village *bania* often has an understanding and in some cases a written agreement that the produce will be sold to him. Village merchants also buy from labourers the nuts received as harvesting wages. The nuts purchased in villages are, as a rule, measured or weighed by buyers—and in some cases by brokers—and payment is usually made on the spot. In Bombay, the village *dalai* is paid nearly 6 lb. of nuts per candy.

Landlords often receive part of their rent and other dues in kind and thus collect some groundnuts along with other produce. For instance, in the Central Provinces landlords often let out fields to farmers on *batai* system, under which half the produce is given to landlords as rent.

These agencies together account for the collection of nearly 20 per cent of the marketable surplus in Madras, 25 per cent in Bombay, 33 per cent in the Central Provinces and form the main channel of assembling groundnuts in Hyderabad, Mysore and the United Provinces, where they account for more than 60 per cent of the arrivals in markets. Taking all provinces and States together they assemble nearly a third of the marketable surplus in India.

Groundnuts collected by these agencies, which are in the form of nuts in shell, are taken or sent to assembling markets or decortication establishments for disposal, decortication being done before or after sale.

(3) AGENTS OF WHOLESALE MERCHANTS, DECORTICATING ESTABLISHMENTS AND OIL MILLS.

The owners of the decortication factories are often, specially in South India, wholesale merchants of groundnuts and some of them own mills for crushing groundnuts. They collect groundnuts from villages either by sending out paid agents and clerks or through village merchants whom they finance. The millers also sometimes undertake assembling by sending men into the villages. Their share in the total produce assembled amounts to nearly 20 per cent of the marketable surplus in Madras, 15 per cent in Bombay, and 10 per cent in Mysore. In Cochin State, the agents of decortication factories buy a major portion of the produce in harvest season. Taking all areas together they assemble nearly 15 per cent of the marketable surplus. The nuts purchased by these agents are weighed and paid for in villages. Besides the purchases through their agents in villages, decortication factories and wholesale merchants make considerable purchases at their own premises from producers and village merchants, to whom they often give the loan of bags to bring the produce in. In Bombay, the charge for the loan of bags is usually 6 pies per bag.

(4) CO-OPERATIVE SOCIETIES.

There are no co-operative societies—except one in Baroda State—which undertake assembling of their members' groundnuts but there are some co-operative loan and sales societies, which besides financing the members, assist them in the sale of their groundnuts. A detailed reference to them will be made in the Chapter on "Distribution".

The Producers' Co-operative Society at Ubhel in Navasari district of Baroda State was formed in 1934 and has a membership of about 50 members. The farmers of five villages collect and store their groundnuts. The merchants and *dalals* from the neighbouring Surat market visit the Society and make a contract for purchase. The weighment is done at Society's godown and delivery given at the Society's godown or merchant's godown at Surat.

(5) COMPARISON OF DIFFERENT ASSEMBLING AGENCIES.

When a cultivator disposes of his produce in the village, he incurs no transport costs or market charges. Some cultivators think that they are masters of the situation in village sales but in many cases the use of defective weights and measures probably more than takes away any advantage they may have. When the produce is too little to be carted to a market, village sales may be a distinct advantage. The rates offered in villages invariably take into account the cost incurred in taking the produce to the market besides some profit to the intermediary but on occasions village merchants speculate and offer higher rates than the equivalent of current market rates.

When a producer takes his crop to a market, he is faced with multifarious charges and deductions, and at the end of a transaction he may come off worse than in a village sale. But as there is greater competition at the markets, it seems reasonable to assume that producers, on the whole, should get better returns in the market. This can, of course, be further ensured by provision of regulated markets, approved market charges and standard weights and measures.

B.—Markets.

A market, which may be broadly defined as a place or locality, where persons collect to sell and buy goods—agricultural produce or otherwise—may consist of just a small open space with or without a few sheds, where persons assemble periodically, or may be a well-laid out *mandi* with shops, godowns, space for parking carts, etc. It has already been stated that in case of groundnuts, decorticating establishments also serve as markets specially in Madras, Bombay, Hyderabad and Mysore, where distribution is largely in the form of kernels.

The markets concerned in groundnut trade fall under one or other of the three groups, *viz.*, (1) Primary markets, (2) Secondary markets and (3) Terminal markets.

(1) PRIMARY MARKETS.

Primary markets are mainly the periodical markets called *shandies* in Madras and *hats* or *paiths* in Northern India which, besides assembling, figure in the retail distribution of groundnuts also. These markets are usually held once or twice a week at convenient centres in villages, the site being an open space near the roadside or under the shade of trees. The stalls, if any, consist of a few thatches covered with straw or coconut leaves. The days for *shandies* in neighbouring areas are so fixed that the dealers may move from market to market. Some of the *shandies* at *taluk* headquarters, for instance Pollachi, are quite big and cover a big area specially laid out for this purpose with permanent stalls, cart parks, etc. Business in *shandies* starts early in the morning and goes on in bigger *shandies* till as late as 8 P.M., while the smaller *shandies* disperse in a few hours. A wide range of commodities consisting of foodstuffs and other common necessities of life are brought to and sold in these markets.

(2) SECONDARY MARKETS.

The secondary markets called *mandis* or *gunjes* are wholesale daily markets, usually situated in the district and *taluk* headquarters, important trade centres and near railway stations. Both assembling and distribution of groundnuts take place in these markets.

The markets vary considerably in size and layout. A general view of two wholesale markets, one in Bombay Presidency and the other in the Central Provinces may be seen in the plates facing pages 140 and 141. A well laid out modern *mandi*, of which some are seen in the Central Provinces, consists of a rectangular piece of land enclosed by commission agents' shops and godowns with space for parking carts and good sanitary arrangements. The older *mandis* consist of a number of merchants and commission agents' shops along a public thoroughfare. In some markets, where the open space in front of these shops is inadequate, an open and unoccupied space is selected for parking the carts of produce. Such enclosures are called *pettais* in Madras and are owned by municipalities. The brokers, commission agents and members of trading community assemble there in the morning to transact business. After the sale is effected, the general practice is for the seller to deliver the goods at the buyer's godown which may often be a few miles away from the enclosure. Payment is made in front of *arhatya's* shop except in some markets, where it is effected in the compound of the buyer.

(3) TERMINAL MARKETS.

The terminal markets are the port markets in Madras, and Bombay Presidencies and in Kathiawar States, where groundnuts are received for export abroad, from the interior markets either directly by the exporters or by merchants, who finally sell them to exporters or crushers. Some of the terminal markets in Madras Presidency are so near the place of production that the cultivators dispose of the produce direct to the exporters. An example of such a port market, which serves as a primary, secondary and terminal market, is found in Cuddalore.

(4) OWNERSHIP AND CONTROL OF MARKETS.

The markets are generally owned and managed by local bodies, such as municipal boards, district boards, notified area committees or by private individuals. The produce arriving in markets is invariably subjected to a toll or tax by the owner in the form of octroi or terminal tax payable on entering the municipal limits or market tolls and fees payable on entering the market precincts. The right of collecting tolls on produce arriving in the markets owned by public bodies is often auctioned for a year or longer period. The contractors, in return for lump sums paid to these bodies, are permitted to levy a toll or tax at approved rates on arrivals in the markets during the period of lease.

In Madras, all the markets are governed by the provisions of Madras Local Board Act and Madras Municipalities Act of 1920 and owners of private markets have to obtain licences. The majority of

shandies (periodical markets) are owned and controlled by district boards. At Masulipatam, the market is managed by a registered society consisting of 14 members.

In Bombay Presidency, a number of wholesale markets are managed by associations of local merchants, and in Bombay city the trade in "actuals" and "futures" are controlled by two different associations.

In the Central Provinces, the periodical markets situated in the villages and the interior are owned and controlled by district councils. The arrivals in the markets are cessed at 2 annas per cart, 9 pies per animal load and 3 pies per head-load. The commission agents and weighmen are licensed on payment of annual fees, which vary from Rs. 5 to Rs. 12 for commission agents and Re. 1 to Rs. 5 for weighmen. The charges for their services are fixed by the councils at Rs. 1-4-0 per 100 bags for commission agents and brokers, and 3 pies per bag or Re. 0-6-3 per 100 bags for weighmen and measurers.

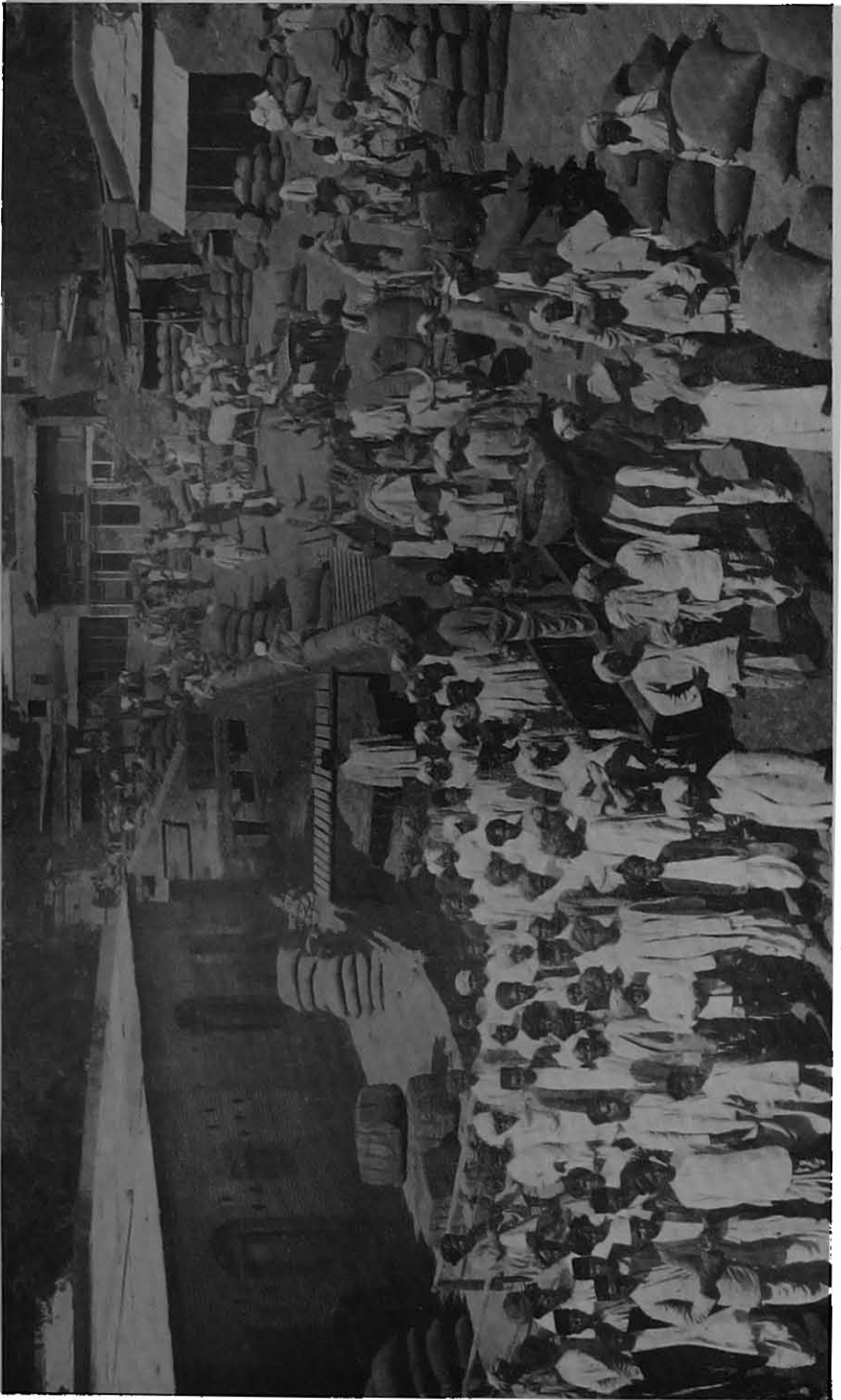
The daily markets situated in the district headquarters are owned and managed by the municipality or notified area committee of the place. One or more of the following taxes, which usually vary from 1 anna to 3 annas per maund, are generally levied in the above markets, *viz.*, vehicle tax, octroi, terminal tax, road tax and market cess.

In the United Provinces, the markets are generally owned and controlled by municipalities and local boards, but a number of village markets are owned by *zamindars* who collect a small charge on all produce sold in the markets.

(5) REGULATED MARKETS.

The regulated markets, *i.e.*, markets wherein trading is regulated by statutory legislation are generally better in layout as compared with other markets and provide more amenities for the users. In these markets, the commission agents, brokers and weighmen are licensed, charges for their services are specified, scales and weights are verified and in general trade practices regulated.

In Madras, the Commercial Crops Act (Madras Act No. XX of 1933) was passed in 1933 to provide for the better regulation of the buying and selling of commercial crops and to establish markets for that purpose. The commercial crops under the Act include cotton, tobacco and groundnuts. The Act extends to the whole of the province but its provisions apply to such areas and to such of the three crops as may be notified by the local government from time to time. In such notified areas, no person can purchase or sell the commercial crop or crops notified for that area, except under a licence granted by the local government and in accordance with the provisions of the Act. The local government establishes a market committee, consisting of 12 elected and nominated members, for every notified area to enforce the provisions of the Act and establish a market.



VIEW OF AN ASSEMBLING MARKET IN BOMBAY PRESIDENCY.

Facing page 141.]



**VIEW OF AN ASSEMBLING MARKET IN THE CENTRAL PROVINCES.
(Note the heaps of groundnuts in shell.)**

The Act was extended to groundnuts in South Arcot district in April, 1939, and the South Arcot Groundnut Market Committee was established with its headquarters at Cuddalore. The Committee was directed by the local government to open 6 market yards or central places for buying and selling, of which five have already been opened at Tindivanam, Tirukoilur, Vriddhachalam, Ulundurpet and Cuddalore, which are important marketing centres for groundnuts in the district. The sixth yard is to be located at Villupuram. Besides the market yards, the committee licenses premises of recognised persons.

Buyers, sellers and weighmen are all licensed, the weighmen being independent of the buyers and sellers and responsible directly to the committee. The charges and practices are regularised, exorbitant charges and malpractices being eliminated as far as possible. For instance, commission which used to be charged at 1½ to 4 annas per candy, has been reduced by 50 per cent and the taking of free samples by brokers and commission agents stopped.

The arrivals of groundnuts in these market yards from the date of their opening up to 31st March, 1940, and the estimated total arrivals in the markets during the same period are given below :—

Arrivals of groundnuts at market yards in South Arcot district.

Market centres.	Period.	Estimated arrivals in the market centre.	Arrivals in the market yard.	Percentage of total arrivals at the market yard to arrivals in markets.
		(Tons.)	(Tons.)	(Per cent.)
Tindivanam	12-12-39 to 31-3-40.	4,506	209	4.5
Vriddhachalam	25-1-40 to 31-3-40.	777	67	9.0
Tirukoilur	29-1-40 to 31-3-40.	1,152	58	5.1
Ulundurpet	9-2-40 to 31-3-40.	506	142	28.0
Cuddalore	8-3-40 to 31-3-40.	266	64	24.0

The low percentage of arrivals in the market yards is accounted for by the fact that sellers are often bound to particular traders by

financial obligations, and carts going to market yards have to pass the buying sheds of traders and get intercepted on the way. As best prices are possible to sellers only if buying and selling is concentrated exclusively in the yards, the committee is making efforts in the way of publicity and propaganda and it is expected that there will be larger arrivals in the market yards in the coming years. The committee is also attempting to publish prices in the market yards and a weekly review of the market conditions is made available to the traders free of charge.

The adoption of the All-India Standard Contract for trading in groundnut kernels is also receiving the attention of the committee.

In Bombay, the regulated markets do not figure in the groundnuts trade. In Hyderabad State, there are 21 regulated markets, of which Raichur and Latur are important for groundnuts. In Berar, the statutory legislation has lately been made applicable to groundnuts at Malkapur. In Gwalior State, 36 important *mandis* have been organised into regulated markets, the most important for groundnuts being Shivpuri. The municipalities and town committees are in charge of these *mandis*, and market committees—functioning under the Commerce Department—control the business in these *mandis*. A nominal tax of 6 pies to one anna per cart is charged from all carts coming inside the market limits for disposal of produce.

C.—Market functionaries.

A number of functionaries figure in the assembling and distribution of groundnuts. A brief account of the important functionaries is given in the following lines.

Adatyas (commission agents).—This term is applied to commission agents, who sell or buy produce on behalf of their clients. There are two classes of *adatyas*, *kachcha adatyas* and *pucca adatyas*. The *kachcha adatyas* are men of small capital, who sell the produce in assembling markets on behalf of those bringing it from the villages. They generally pay the seller immediately after sale, collecting the same from the buyer at a later date. They also finance the cultivators and village merchants. The *pucca adatyas* own big capital and buy and sell the produce on behalf of the merchants in outside markets. They may attend to drying, cleaning and packing before disposal to consumers. When goods are sold to them for sale, they advance 70 to 90 per cent of the value of goods. *Adatyas* often perform the functions of wholesale merchants also, buying and selling on their own account, but it is customary in most markets that an *adatyas* does not himself buy the produce sold through him. Of course, he is free to buy the produce sold through other *arhatyas* in the market. In the regulated markets of Hyderabad, *kachcha arhatyas* are not allowed by the bye-laws to buy the produce sold through them. *Adatyas* dealing in groundnuts in Madras, Bombay, Hyderabad and Mysore are often owners of decorticating establishments, where they decorticate their clients' nuts or their own purchases.

Dalals (brokers).—The function of a broker is to bring together the buyer and the seller but *dalals* perform different functions in different instances, working not only as agents and intermediaries

but also as *kachcha adatyas* in many instances. They may make purchases on behalf of buyers, keeping records of transactions, or may show samples of produce on behalf of sellers to prospective buyers and bring about a transaction. They also canvass sellers to sell the produce through their clients. For this purpose sheds are sometimes erected on the roads leading to the markets, where they meet the carts of produce. In the assembling markets of Berar, the brokers perform the functions of a *kachcha adatya* and auction the produce brought to the market. They also report the rates and number of carts sold to the market *daroga*, who keeps a record of these things.

Tolas (weighmen).—Weighing (or measuring) in the markets is done by *adatyas* or buyers' men. The person actually handling the scale or measures is called a *tola* or *baya*. In regulated markets or such markets as are controlled by market committees and municipalities, the weighmen are licensed and the charges for weighment are fixed.

Hamals and palledars (labourers).—These are labourers engaged for weighing, filling, packing and stacking bags. Besides the *palledars* employed by merchants and *adatyas* on monthly wages, they generally work independently or under contractors and are casually employed as and when their services are required, being paid on piece work system. The charges paid to them are called *hamali* or *palledari*.

Others.—There are a number of other minor functionaries in markets such as sweepers, water suppliers and other servants of the *adatyas* who attend to the convenience of the *adatyas'* clients. The charges of all these functionaries are indirectly drawn from the seller's produce.

D.—Market charges.

When groundnuts are taken to a market for sale, a number of deductions—payable in kind or cash or both—are made from the weight of the produce and its sale proceeds, after which the balance of the sale proceeds is paid to the seller. These deductions or market charges vary considerably in different markets and also according to the parties concerned in a transaction. When groundnuts are sold through an *adatyas* or commission agent in a market, the charges incurred may include terminal tax or octroi for entering the municipal limits, a market toll or cess for entering the market, *adat* or commission to the *adatyas* for arranging sale, expenses incurred in handling and weighing and contributions according to market customs to local charities and other functionaries. In direct sales to decortiating factories, no market tolls have to be paid—octroi or terminal tax have, of course, to be paid if the produce enters municipal limits—no *adat* is charged and there are usually no deductions for charities or other functionaries except in respect of actual handling and weighment of goods. When a broker is involved in bringing about a transaction, the charges include brokerage also. When decortiating factories sell the nuts on commission, the charges include commission. Besides the above-mentioned charges, considerable allowances are made for quality, i.e., on account of excess moisture,

impurities and damaged nuts or kernels. The various charges may, therefore, be classed under the following main heads :—

- (1) Tolls and taxes.
- (2) Commission and brokerage.
- (3) Handling and weighment charges.
- (4) Charity.
- (5) Quality allowances.
- (6) Miscellaneous.

These charges are mostly payable by seller but certain charges in some markets have to be shared or paid by buyers.

Tolls and taxes are usually levied per cart or per bag ; commission, brokerage and charities are worked out as a percentage of the value ; while handling and weighment charges may be on the basis of a bag, a maund, a candy or a cart. The charges in different markets are, therefore, not easy to compare and it is necessary to calculate them to a common basis before even a rough comparison can be made. The charges in a number of markets in the various provinces and States calculated to a common basis of 100 rupees worth of groundnuts taking the value of nuts as Rs. 3 per maund are given in Appendices XXVIII to XXXII.

(1) TOLLS AND TAXES.

These include octroi and terminal taxes, market cess or fees and other taxes levied by municipalities, local bodies, market committees and owners or contractors of markets.

In Madras, taxes and municipal charges are levied only in some markets, while entrance to other markets is free. For instance, there is a municipal charge of 2 annas per cart at Adoni and Hindupur, 1 anna per cart at Salem while there is no corresponding charge at Bezwada and Coimbatore.

In Bombay, the municipal charges work out to less than 4 annas on groundnuts worth 100 rupees at Amalner and as much as Rs. 1-6-3 for the same quantity at Bijapur.

In the Central Provinces, the market cess is as low as 3 pies per *palla* (nearly 3 maunds) at Khamgaon while at Akola a market cess of 1 anna per *palla* has to be paid besides an octroi duty of 2 annas per *palla*. The municipal taxes in some markets, *e.g.*, Nagpur, and Amraoti are as much as 2 annas per maund. The market cess in the regulated market of Malkapur is Re. 0-2-6 per cart (about 4 *pallas*).

In the United Provinces, the municipal taxes vary from 6 pies to 10 annas per maund. The terminal tax at Cawnpore is 8 annas per cart.

In Hyderabad, the market cess is 6 pies per cart at Jalna and 1 anna per cart at Raichur and Warangal in addition to municipal tax, which amounts to 3 annas per cart at Jalna, 4 annas per cart at Raichur and 1 anna per cart at Warangal.

In the regulated markets of Gwalior, the market committees levy a cess of 6 pies per cart besides a tax of 1 anna per cart. levied by municipalities. In Nawanagar State in Kathiawar, when a cultivator takes his groundnuts to a market for sale, he has to pay a

thala dan tax of Rs. 3-2-0 per Rs. 100 worth of groundnuts on leaving the village.

It may be mentioned here that the municipal taxes on groundnuts in several provinces are higher than those on other oilseeds on account of groundnuts being classed as dry fruits and not as oilseeds.

(2) COMMISSION AND BROKERAGE (ADAT AND DALALI).

Adat or commission, which represents the *adatya* or commission agent's remuneration, is usually paid by the seller, sometimes by both buyer and seller and in some markets by buyers only and varies from 8 annas to Rs. 3-4-0 per 100 rupees worth of produce sold. In some markets, commission is not charged in cash but is taken in the form of a certain weight of produce per cart, while in others it is customary to pay a commission to the buyer. For instance, a commission of 3 pies per rupee at Adoni and 1 pie per rupee at Hindupur in Madras is paid by the seller to the buyer, while at Coimbatore a commission of 1 per cent is paid to the *adatya*. At Virudhunagar the commission paid to the *adatya* is shared equally by seller and buyer. In Bombay Presidency, the *adat* varies from 1 rupee to 3 rupees per cent and in the Central Provinces from 10 annas to Rs. 1-11-0 per cent and is payable by the seller. In Hyderabad, the rate of *adat* is 2½ annas per *boja* of 96 seers of groundnuts at Latur, 1 rupee per cent from seller and 12 annas per cent from buyer at Raichur and 2 rupees per cent at Gulbarga. In Mysore, the commission is usually calculated at 6 pies per rupee, i.e., Rs. 3-2-0 per cent at Tumkur, and 9 pies to Re. 0-1-6 per bag amounting to 1½ to 3 per cent at Davangere. A commission of 1 rupee per cent is allowed in the regulated markets of Gwalior. *Dalali* (brokerage) takes the place of commission when the produce is sold by a *dalal* but forms an additional charge when both *adatya* and *dalal* are concerned in a transaction. Like *adat*, it may be payable by the seller, or the buyer or both. The rates of brokerage generally vary from 2 annas to 1 rupee per cent.

(3) HANDLING AND WEIGHMENT CHARGES.

These include such payments in cash and kind as are made to the labour employed in loading, unloading and weighment of the produce. The labourers (*palledars*), as already stated, are either employees of the *arhatya* or work on daily wages either for a contractor or independently. The unloading of the produce is usually done by those bringing it to the market or by *adatya*'s labour, while the weighment in most markets is done by weighmen. In regulated markets and in markets managed by committees, the weighmen are licensed and are independent of both buyer and seller. Women coolies are usually employed for cleaning.

The handling and weighment charges vary from Re. 0-10-6 to nearly 1 rupee per cent in Madras and Re. 0-8-3 to Rs. 1-3-6 per cent in Bombay. In the Central Provinces, the rates sanctioned by the district councils for the services of weighmen and measurers are 3 pies per bag and Re. 0-6-3 per 100 bags, but these are not always strictly adhered to and higher rates are charged. In Hyderabad, the *hamalage*, i.e., wages for labourers and weighment charges are 3 pies

per bag from seller and 3 pies per bag from buyer at Raichur and 1 anna per cart at Gulbarga.

(4) CHARITY.

Deductions for charity, in the form of a percentage on the value of goods or a quantity of produce taken out from the cart at the time of weighment, are made in most of the markets. They are usually payable by seller and in some cases by both buyer and seller. The common objects, for which these deductions are made, are *gowshalas* (homes for cows), temples and religious institutions. The charity deductions in different markets amount to Re. 0-1-4 to Re. 0-12-6 per cent in Madras, 10 pies to 11 annas in Bombay and as much as Rs. 2-8-0 to Rs. 3-14-0 per cent in the Central Provinces, which is accounted for by the practice of distribution of several seers of nuts per cart to beggars and others at the market, apart from the usual contribution in cash for *gorakshan* (cow protection) and temples. In Hyderabad, the charity contribution averages Re. 0-4-1 per cent in the five unregulated markets and only 6 pies per cent in five regulated markets. Charges for charities are not permissible by rules in the regulated markets of Gwalior State, but nevertheless small deductions in cash and kind are made on this account.

There are usually no definite periods for the disbursement of money collected for "charities" and often considerable sums lie to the credit of such accounts (*dharmada*) with various firms, and are evidently used for trading without allowing any interest. Only in a few cases there are arrangements for regular payment to the object for which the amount is deducted. For instance, at Latur in Hyderabad, the arrangement made by the *gorakshan* Committee is that the buyers do not pay to the *adatya* unless he shows the receipt from *gorakshan* Committee for the amount deducted from the transaction for the Committee.

(5) QUALITY ALLOWANCE.

Variations in quality due to moisture, presence of impurities, damaged nuts, etc., in different lots are either taken into account in offering prices after visual examination or adjusted by making allowances in the form of cash discount or some excess weight of produce taken without payment. In some markets, the practice is to deduct a fixed amount per bag or per maund from the weight of the produce and pay for the net weight. This weight varies from $\frac{1}{4}$ seer to 4 seers per maund in different markets and is deducted even if a certain lot does not contain that amount of impurities. But if the impurities are estimated to be appreciably higher than this fixed quantity, a further allowance is made. In some other markets, the impurities, etc., are determined by actually separating them from a bag or a small weighed quantity. The moisture is estimated by feeling the goods by hand, and the allowances made are necessarily arbitrary.

In Madras, the quality allowance made for different lots may vary from $1\frac{1}{2}$ lb. to 18 lb. per bag depending on moisture and impurities, while in several markets of Bombay such as Amalner, Bijapur and Dhulia, it is customary to deduct 3 seers from the weight of each bag of nuts. Even with this allowance, *hamals* do some cleaning at the time of weighment so that a seller loses doubly by having to give

excess weight to cover impurities and then not getting these impurities weighed with the produce.

In Hyderabad, the customary allowance is 2 seers per bag at Gulbarga and Raichur and 6 seers per bag at Kopbal, while it is 1 seer per maund at Tumkur in Mysore and 4 seers per bag at Akola and Khamgaon in the Central Provinces.

It will be obvious that in markets where it is not customary to deduct a fixed weight, and the quality is taken into consideration in offering prices, there is no allowance for quality, but this does not necessarily mean that the actual return obtained by the seller is higher. The charges shown under this head for different markets in Appendices XXVIII to XXXII are, therefore, not comparable as they have been shown only for such markets, where it is customary to deduct fixed weights.

(6) MISCELLANEOUS.

Besides the charges mentioned under the previous heads, some other deductions are customary in a number of markets. Small charges are made for the services of persons attending at the *adatyas* place to the comfort of the seller, such as cook, *kahar* (menial servant for cleaning utensils), *bhishti* (waterman), *munim* (clerk), etc. These charges are usually retained by the *adatyas*, the persons concerned being his employees on monthly wages. In some places, it is customary to give a certain quantity of produce free as sample. Again in some markets if silver and change is required in lieu of currency notes, a small allowance called "*note batta*" has to be paid.

(7) TOTAL MARKET CHARGES.

It will be seen from Appendix XXVIII that the market charges for sale of groundnuts in shell in 5 markets in Madras Presidency, without taking quality allowance into account, vary from 2.65 to 6.86 per cent, the average for 5 markets being 4.55 per cent. The quality is taken into consideration in offering prices. The charges are all payable by seller except at Virudhunagar, where the commission is shared by both seller and buyer. In Bombay, the charges in 5 markets, which are all paid by seller, vary from 10 per cent. to 13.55 per cent for groundnuts in shell, the average being 11.54 per cent (see Appendix XXIX). Quality allowance forms a very substantial item of the charges as it is customary in the markets considered to deduct a fixed weight varying from 1 seer to 4 seers per bag for impurities. The charges on kernels at Sholapur amount to 3.14 per cent only. The charges for sale of nuts in 5 markets of the Central Provinces vary from 5.03 per cent to 20 per cent (see Appendix XXX). At Akola and Khamgaon, 4 seers per maund, i.e., one-tenth of the produce is allowed for to cover impurities, etc., and this accounts for the total charges being high at these two markets. Charities also form a substantial item. Buyers pay a share of the commission at 3 markets out of 5, in the handling and weightment charges at 2 markets while they contribute to charities only at one market. Hyderabad markets show charges varying from 2.35 to 7.99 per cent in 5 unregulated markets and 2.01 to 8.32 per cent in 5 regulated markets (see Appendix XXXI). The average for 5 unregulated markets amounts to 4.38 per cent and in 5 regulated

markets to 3.58 per cent. At Gulbarga and Raichur, the charges appear higher than at other markets, as 2 seers per maund have to be given for impurities. Charities do not exceed 8 annas per cent. In the United Provinces, the charges in 2 markets are 5.09 and 6.32 per cent (see Appendix XXXII), while in a market in Mysore State the charges total 10.56 per cent, of which commission accounts for 3.12 per cent and quality allowance 6.25 per cent. Indore in Central India shows a market charge of 6.14 per cent, while in a regulated market of Gwalior State the total charges are as low as 1.87 per cent. On the other hand, at a market in Baroda State, the total charges amount to 8.09 per cent and in Jamnagar to 6.22 per cent including 3.12 per cent, which has to be paid as tax at the village.

E.—Market practices.

(1) PROCEDURE FOR SALE.

✓ Carts with groundnuts as well as other commodities reach the markets the previous evening or in the morning and are parked in the market or in front of *adatyas'* shops and in some markets of South India in enclosures belonging to municipalities called *pettais*. The sellers generally take their carts to the shop of the commission agent, from whom they had received advance or had previously established business relations. The commission agent once selected is not usually changed unless a cultivator yields to the canvassing of the touts of other commission agents, who are posted on the roads leading to the assembling market and employ various tactics to secure clients. It has already been stated that decortivating establishments also serve as assembling centres.

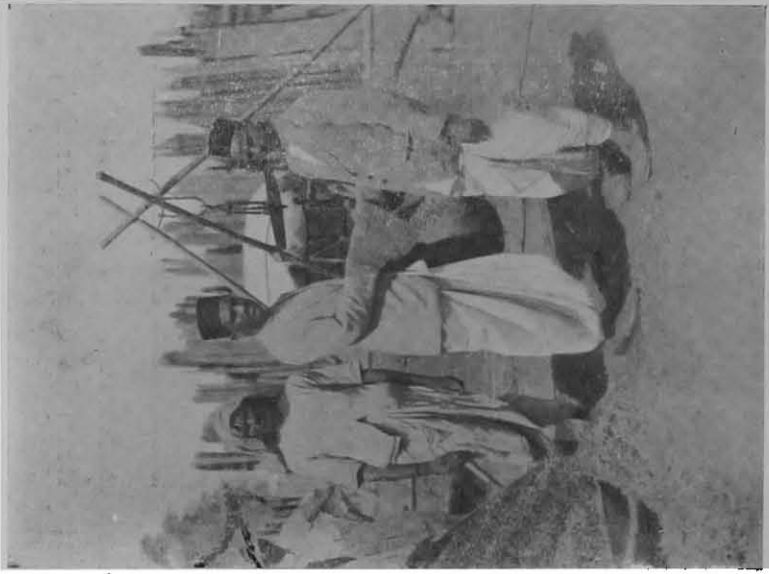
Groundnuts are generally brought to the assembling centres loose in carts, as may be seen in the plate facing page 129, which shows a cart of groundnuts being emptied for sale at a market. In some cases nuts or kernels are also brought packed in old bags. The produce to be sold is either heaped loose or stacked in bags. The heaps of groundnuts in a market may be seen in plate facing page 141, while plate facing this page shows the compound of a decortivating factory with a heap and some stocks of groundnuts. The decortivating machine hopper will be seen at the back of the scale on the right. In some markets, for instance at Akola, groundnuts offered for sale are allowed to remain in carts, which are arranged in different rows.

Transactions commence usually between 8 and 10 A.M. in different markets and are generally over by 2 P.M., the latter part of the day being devoted to weighment and settlement of accounts. The produce is first examined by buyers, taking a few handfuls from different parts of the heap or cart or from a bag or two selected at random. The plate on the left, facing page 149 shows a lot of groundnut bags being examined by a buyer. In the case of nuts, the buyer feels the weight of nuts, shells them and examines the kernels for their maturity and moisture content. When kernels are put up for sale, a handful is examined by squeezing the kernels. Wet kernels yield to pressure producing a depression and a creaking noise and also stick between the teeth when bitten.



VIEW OF A DECORTICATING FACTORY COMPOUND.
(Note the heap of groundnuts and the hopper of the decorticator to the right behind the scale.)

Facing page 149.]



OFFERING PRICES UNDER "COVER".



BUYER EXAMINING A LOT OF GROUNDNUTS IN SHELL.

The samples may also be drawn by commission agents and brokers working on behalf of the seller and shown to prospective buyers on the spot or at their offices and godowns. When carts are parked at a distance from the shops or market, samples are brought by commission agents or brokers. In some markets, it is customary to display samples. For instance, at Cawnpore samples of oilseeds are displayed on the roadside pavement in Cooperganj market. At Gondal in Kathiawar, half a bag of groundnuts from each cart is brought to the market for buyers to judge the quality. The buyers offer prices in one of the ways discussed in the following section.

(2) METHODS AND UNITS FOR OFFERING PRICES.

The methods in vogue as well as the units adopted for offering prices vary in different markets. The settlement of rates between buyers and sellers is invariably done through an intermediary, who may be a commission agent, a broker, an owner of decorticating establishment or a weighman, to whom the buyers communicate their offers either under cover or openly. In markets, where the produce is sold by auction, the buyers give their offers by bidding in the auction. The methods of offering prices may, therefore, be considered under three heads: (a) cover system, (b) open system and (c) auction system.

The prices in different markets are variously offered as rupees per maund, *khandi*, *mani*, *palla*, etc., or in terms of seers and *chhataks* as per rupee or in terms of a number of measures. The rates offered often include some excess weight to be given by sellers to cover impurities, etc. For instance, at several markets in Mysore, where prices are negotiated per *satta* of 8 local maunds (26½ lb.), each bag is filled to weigh 88 lb. gross, but is reckoned as 3 local maunds, i.e., nearly 80 lb. The extra 8 lb. include 3 lb. for tare and 5 lb. for impurities.

(a) *The cover system.*—In this system the offer is conveyed by the different buyers to the *adatya* by clasping his hand under cover of a piece of cloth (see plate on the right, facing this page). The prices are indicated by pressing one or more fingers, so that the price offered by each buyer is not known to others. The *adatya* informs the seller of the rates offered and generally the highest rate offered is accepted. This system is commonly practised in some of the markets of the Bombay Presidency, the Central Provinces, the United Provinces and Central India States. In some markets, it is customary not to disclose the rate accepted, while in others, the *adatya* or *dalal* declares the name of the highest bidder and asks the latter to declare his rate.

(b) *The open system.*—This system is prevalent in many of the markets of Madras, Bombay, the Central Provinces, the United Provinces, Hyderabad and Mysore and includes sales by private treaty. The buyers give their offers to the *dalal* when the latter goes round with samples or themselves go to the *adatya's* shop or decorticating factory and give their rates either alone or in the presence of others.

A modification of the system is the giving of offers in writing. It is practised by one of the co-operative sale societies in Madras Presidency. The officer-in-charge of the sale society has a note back

in the name of each buying firm or wholesale merchant. When a lot is to be sold, the buyers are either invited to see the lot, or a sample is sent along to different firms with the note books, on which they record their offers.

(c) *The auction system.*—According to this system, the *adatya* or *dadal* auctions the produce at a particular time of the day when all the intending buyers are present. The upper plate facing page 158 shows a lot of groundnuts being auctioned. Auction system is almost absent in Madras markets but is seen in several markets of Bombay, Hyderabad and Mysore. In Berar, auction system is very common. The heaps or carts of groundnuts are auctioned by *dalals*. During the season when the arrivals are large, in some markets receiving 200 or 300 carts daily, all the heaps or carts are not auctioned. After 10 to 15 per cent of the arrivals have been auctioned and the level of prices for the day known, the *adatyas* sell the remaining lots or carts by direct negotiations with purchasers. The *dadal* reports the names of the sellers and purchasers, the quantity sold and the rates to the market *daroga*. In the regulated markets of Gwalior State, after the produce is sold to the highest bidders in auctions, the rates are recorded in triplicate by the *mandi* committees, one copy each being given to seller and buyer.

(d) *Comparison of different methods.*—The different systems have their own merits and disadvantages. In the cover system, the prices offered by other buyers are not known to a buyer when he gives his offer so that he is tempted to give his maximum limit in order to buy the produce. This obviously is to the advantage of the seller. This tendency is, however, offset to a great extent when a buyer is permitted to give his offer under cover more than once. Besides, there are ample opportunities for a commission agent to favour a particular buyer, if he likes, specially when the rate accepted is not disclosed. In the open system the prices offered by different buyers may or may not become known to one another. The modification of giving offers in writing, although an improvement, admits of limited application. In the auction system, the presence of all the buyers at the same time brings about some competition between different buyers but as bids are raised slowly, a buyer is often able to buy goods below his maximum limit, to the disadvantage of the seller. Besides, auctions usually involve more time. The efficacy of different methods from the seller's point of view thus appears to depend more on the honesty and integrity of the commission agent or broker working on his behalf than any particular method. As long as the commission agent acts fairly between buyer and seller and the final rate and the buyer are disclosed, seller's interests appear to be adequately safeguarded.

(3) WEIGHMENT, DELIVERY AND PAYMENT.

After the price is settled, the produce is weighed either in front of the *adatya's* shop or at the buyer's godown, compound or factory. The owner of the goods is usually present when the produce is sold on the same day as it is brought to the market or decortivating factory. But when the goods are left with the commission agent for subsequent sale, weighment is attended to by the commis-

sion agent. The place of weighment is usually the place of delivery, subsequent transport, if any, being arranged and paid for by the buyer.

Weighing or measuring is done either by *adatya's* employees or by brokers or weighmen who are licensed in markets managed and controlled by local bodies or associations. It is reported from Hyderabad that weighmen are often *adatya's* employees but measurers are always independent wage earners. In most of the markets, weighing starts in the afternoon and continues till 5 or 6 P.M. and in season, when arrivals are heavy up to 8 or 9 P.M. and has sometimes to be deferred till the next day.

The produce after weighment is transferred in buyer's bags. A small quantity of groundnuts, which may be too small for the weight or measure used as the unit or which may contain a large proportion of dirt and impurities, is not weighed or measured but is given away free to the buyer.

During the course of weighment, produce is taken out to meet such market charges as are payable in kind. The lower plate facing page 158 shows a *sadhu* (religious mendicant) in a market in the United Provinces, sitting for his collection of groundnuts and other produce on behalf of a temple, a deduction for which is customary from all lots sold in that market. Deductions are also made from the weight of the produce for dirt and impurities, as already discussed.

The seller is paid by the commission agent or decorticating factory owner after deducting the market charges and his dues, if any, usually on the same day, although the latter does not receive the money from the buyer till after 2 to 15 days according to the custom of the market.

F.—Finance of assembling.

(1) VILLAGE MERCHANTS AND BANIAS.

The main source of cultivators' finance is the village merchant (*bania*) or *sahukar* (moneylender) from whom they borrow small sums for their agricultural operations and other expenses. Seed for sowing is borrowed in kind also. The terms and conditions of the loan vary according to the local custom and with the standing of the individual customer. The interest charged on cash loans is reported to vary from 12 to 30 per cent in Madras, 12 to 18 per cent in Bombay, 18 to 35 per cent in Hyderabad State and 12 to 24 per cent in the Central Provinces. Short term loans are repayable after harvest. The cultivator is generally not bound to sell his produce to his creditor, but in practice he does so to continue his credit and ensure further favours. In certain districts of Madras Presidency, however, the cultivator often agrees verbally or sometimes in writing, to sell his produce to the *bania* at a rate fixed by the latter for a number of years, which may vary from 1 to 10 years. The loan is given on a pronote or by *sahukar* getting the signature or the thumb impression of the cultivator in his account book. When the produce is sold to the *sahukar*, part or the whole of interest is sometimes waived, but the rate fixed for the produce is 5 to 10 per cent less than the market rate. The advances in kind for seed for sowing are on the usual *sawar* or *deorhi* system in which $1\frac{1}{2}$ times and $1\frac{3}{4}$ times respectively

of the produce borrowed has to be returned after harvest. In the interior villages of Gulbarga and Warangal districts of Hyderabad, double the quantities of groundnuts borrowed in kind have to be repaid. In the Central Provinces, the loan is recovered by collecting groundnuts worth $1\frac{1}{2}$ times the cash value of the loan. Seed advances are generally taken only by small cultivators.

(2) WHOLESALE MERCHANTS AND ADATYAS.

Wholesale merchants and *adatyas* who, as has been said earlier, are often owners of decorticating establishments, advance money to the village merchants and in some cases to growers in villages near the assembling markets, with the understanding that the produce brought to the market would be sold to or through them. In Madras, the village merchants, who collect groundnuts in villages for wholesale merchants are often paid commission at 6 pies to 1 anna per bag of nuts and also given advances of Rs. 50 to Rs. 200 for making payment in the villages. In the Central Provinces, the *beoparies* sometimes get advances from wholesale merchants for assembling groundnuts, the interest charged usually being 9 to 12 per cent per annum. In Hyderabad State, the merchants or commission agents pay advance to producers a couple of months before harvest at Rs. 4 or Rs. 5 per candy of expected produce and fix the price at which the produce should be delivered. After harvest the whole produce is sold to the merchant at this price, which is usually fixed 2 to 3 rupees per candy below the market rate.

When a cultivator or village merchant does not find the rate suitable on the day he takes the produce, he leaves it with the commission agent and receives from him 50 to 75 per cent of the value of the groundnuts deposited. When the sale is effected the amount is recovered with interest and rent is also charged if the period of storage exceeds a minimum number of days which varies according to local custom from 3 to 15 days. For instance, at Virudhunagar, 50 per cent of the value of the produce stored is advanced and interest at 12 annas per cent is charged after 12 days together with godown rent at 3 pies per bag per month.

(3) BANKS.

The banks confine their activities only to big towns and large markets. They do not finance the cultivators and village merchants on personal security or security of the produce. The wholesale merchants, however, get loans from banks, if groundnuts in shell are stored in bags in approved godowns. The stocks must be insured against fire, the premium for which varies according to the condition of the godown. The borrower executes a simple promissory note and transfers the stock to the agent of the bank. About 60 to 80 per cent of the value calculated at the market rate is advanced on an interest varying from 5 to 8 per cent. The maximum period of storage allowed for nuts is six months. If during the period of storage the price falls or depreciates to such an extent as to reduce the bank's margin, the borrower is called upon to restore the margin by a further deposit.

(4) CO-OPERATIVE CREDIT SOCIETIES AND BANKS.

Co-operative credit societies are mainly engaged in giving advances for agricultural operations, but some of them figure indirectly in financing the assembling of groundnuts also.

In the Madras Presidency, the South Arcot Central Bank gives short term loans for the cultivation of groundnuts to producers through rural co-operative credit societies, which are linked with South Arcot Central Groundnut Sale Society. These loans which are recoverable after harvest, *i.e.*, in about 6 months are advanced to the cultivators at the rate of Rs. 20 per acre of irrigated crop and Rs. 12 per acre of rain-fed crop. The borrower executes a mortgage bond agreeing, (1) to raise groundnut in the lands specified, (2) to deliver the produce to the concerned co-operative warehouse, (3) to authorise the officers of the Sale Society to recover the loan dues out of the sale proceeds of the produce. The amounts advanced by the Society under these conditions totalled over Rs. 26,000 in 1933-34 and nearly Rs. 20,000 in 1934-35. When the produce is sold, not only the loan advanced is realised but a portion of overdue long term loan, if any, is recovered if the margin admits and the cultivator is not likely to be put to much hardship.

In the Ceded districts of Madras Presidency, there are co-operative loan and sale societies, which advance loans to producers on the security of the produce at an interest of 8 per cent and a commission of 2 annas per candy. The produce is generally stored in the godowns of decorticating factories, the maximum period allowed for stocking being 9 months.

In Bombay, 4,500 co-operative credit societies are being financed by 10 district and one provincial co-operative bank and about 50 lakhs of rupees are advanced annually to agriculturists at 8 to 9 per cent per annum interest. The amount advanced for groundnut crop could not be ascertained separately. The urban co-operative banks at Karad and Islampur finance groundnut cultivators and petty merchants, while the Co-operative Sale Society at Jalgaon advances 60 per cent of the value—at about 9 per cent per annum interest—on stored groundnuts, which have to be insured against fire.

In the Central Provinces, Hyderabad, the United Provinces and Mysore, co-operative societies do not figure in the assembling of groundnuts but in Baroda State the Producers' Co-operative Society at Ubhel finances its members by advancing them 60 per cent of the value of their produce. The total quantities assembled by co-operative societies, however, do not exceed 1 per cent of the marketable surplus in the State.

G.—Assembling in Burma.

The assembling of groundnuts in Burma is somewhat different from that in India. There is no export trade and the nuts, apart from consumption for edible purposes, are all used for crushing by oil mills which, therefore, take a prominent share in the marketing of groundnuts and are the biggest buyers either direct or through their brokers at collecting centres.

Cultivators living within a day or two's journey of a collecting centre usually take their produce to a collecting centre while those living farther inland often sell to brokers acting on behalf of big oil mills. Village traders also collect groundnuts from cultivators for taking to collecting centres.

At each of the collecting centres, there are several brokers, who have large compounds for accommodating carts. Carts of produce collect overnight at these compounds, the choice of a particular broker depending on previous business relations or financial obligations. Buyers visit the compounds of brokers early in the morning, examine the produce by taking a handful and feeling the nuts and settle the price by bargaining with the brokers. At Pakokku, the brokers and buyers after inspection of the carts in brokers' compounds, gather at a central place and settle a price for the day. This price, which is the highest price offered by an individual buyer, forms the basis for bargaining throughout the day.

When price for a lot has been settled, the cart is taken to the buyer's godown where groundnuts are measured and payment made to the broker, who later in the day pays to the cultivator, after deducting brokerage and adjusting loans, if any.

The rate of brokerage varies in different places and sometimes in the same place. At Magwe, brokerage usually varies from Rs. 1-8-0 to Rs. 5, the common rate being Rs. 2-8-0 per 100 baskets and is payable by the seller. At Pakokku and Nyoungoo, the broker gets 8 annas per cart (on an average 25 baskets) from the seller and Rs. 2-8-0 to Rs. 3 per 100 baskets from the buyers and supplies one meal to the seller. Besides brokerage, wheel tax of 2 to 3 annas per cart is paid at most of the places.

The main source of cultivator's finance is the broker, who advances him cash or rice and millet. The loan is usually made on an "on demand" note without any security, the usual rate of interest being $2\frac{1}{2}$ per cent per month for advances in cash and 6 annas to 8 annas per month per bag on advances of rice.

Big cultivators or village traders, who bring 5 to 10 carts at a time, sometimes leave the produce with brokers for subsequent sale. The broker usually does not charge for storage and gives an advance. He in turn takes loans from local moneylenders at Rs. 2-8-0 to Rs. 3 per cent per month. The loan and interest are recovered from the owner of the produce after its sale.

[Assembling.]

INTER-CHAPTER FIVE.

Cultivators in person take more than half the marketable surplus to the markets. The proportion is usually higher in the beginning of the season, varying in different areas from one-fourth to three-fourths of the total. (The disposal of the produce, either at the market or in the village, is, however, often closely connected with the question of indebtedness.) In the village, the cultivator may have to sell his produce to the village merchant or *sahukar*, from whom he has taken loans, while at the market he may have no option but to sell the produce to his creditor *adatya*. Sometimes a producer binds himself to sell his produce to his creditor merchant or *arhatya* for a period of as long as 10 years. There is unfortunately a good deal of evidence to show that producers have to sell their produce to their financier or creditor buyer at lower than current market rates.) For instance, in Madras, the prices paid to debtor cultivators are often about Re. 1 per candy lower. The merchants and commission agents sometimes give advances to producers a couple of months before the harvest, fixing the price at which the produce is to be delivered. This price is more often than not Rs. 2 to Rs. 3 per candy below the prevailing market rate.

The cultivators sell their produce either as nuts in shell or after having them converted into kernels at decorticating establishments. These play a very important role in the assembling of groundnuts, functioning as they do in the triple role of wholesale merchants, commission agents and processors.

When the produce is sold at the village, the cultivator may feel himself to be in a better bargaining position but the use of defective weights and measures ✓

usually deprives him of any advantage.) When the produce is taken to an assembling market, it has to bear many different charges, both in cash and kind. Most of the charges are payable by the seller, some by the buyer while others are shared by both buyer and seller. Besides commissions payable to *arhatyas* and *dalals* and charges for handling and weighment, the (seller has usually to agree to some deductions for charities, which may include *gowshalas*, temples, religious institutions, etc., and a host of market functionaries, such as *bhishti*, *kahar*, *munim*, etc.) Octroi or terminal tax,' which in many places still continues to be levied on groundnuts on the same basis as dry fruits is in some cases as high as 10 annas per maund. A tax of $\frac{1}{2}$ anna per rupee has been reported as being levied on produce leaving a village for sale. Apart from these, further deductions are made in the form of allowances for quality, impurities and moisture, the last named being estimated by a feel of the goods. Even when quality and impurities have been taken into consideration at the time of price settlement, it is not unusual to find more deductions being claimed and agreed to at the time of weighment. In some markets, it is customary to deduct a certain weight—which may vary from $\frac{1}{4}$ seer to 4 seers per maund—normally on account of impurities from all produce sold in the market irrespective of whether that amount of impurities is present or not. Of course, should impurities exceed the limit, the amount of allowance is further increased. The total of the different market charges together may amount to as much as 20 per cent of the value of goods in the case of nuts in shell. (Regulated markets, besides providing greater amenities, appear to offer some relief in this direction by eliminating exorbitant charges and malpractices, but their number and the volume of produce passing through them is so far relatively very small. Co-operative credit and sale societies in some cases help in the sale of produce, although their usual activity is in the way of

loans and advances. The total quantities handled by co-operative sale societies are so small as to have no appreciable effect on the marketing of the crop.

Burma.—As almost the entire production is used for crushing by oil mills, they play the most important part in the assembling of groundnuts. Cultivators living within the easy reach may take their produce direct to crushing centres but sales to village traders and brokers acting on behalf of oil mills are more usual. The brokers at collecting centres are the main source of cultivator's finance.

CHAPTER VI.—DISTRIBUTION.

A.—Methods and agencies of wholesale distribution.

Diagram facing page 159 generally indicates the various channels through which the groundnut crop moves between its leaving the producer's farm and reaching the consumer in India or the exporters for shipment abroad. The agencies concerned in assembling have been discussed in the previous chapter while distribution, *i.e.*, the movement of the crop from the assembling market to the final consumer in India or for export abroad takes place through one or other of the undermentioned agencies :—

- (1) Cultivators.
- (2) Village merchants.
- (3) Decorticating establishments.
- (4) Commission agents and wholesale merchants.
- (5) Exporters.
- (6) Oil mills.
- (7) Co-operative societies.

It may be noted that in Madras, Bombay, Hyderabad and Mysore after groundnuts have been sold as nuts at assembling centres, to wholesale merchants, *adatyas* or decorticating establishments, a major portion is decorticated and subsequent movement takes place in the form of kernels. The quantities purchased by oil mills are usually decorticated as and when required. In Kathiawar States, the distribution is both as nuts and kernels, while in the Central Provinces, United Provinces and the Punjab the movement, apart from despatches to Bombay for export, is in the form of nuts in shell.

(1) CULTIVATORS.

The cultivators, who are responsible for assembling more than half of the marketable surplus, take part in groundnuts distribution also. Apart from their sales in villages and periodical markets to oil mongers and retail dealers for edible purposes, they also sell groundnuts at assembling markets to mills or in their own villages to representatives of oil mills, specially in the Central Provinces, where oil mills are the largest buyers of groundnuts in the assembling markets. In the southern districts of Madras, some producers sell nuts, after getting them decorticated or kernels obtained by handshelling in villages to exporters' agencies through brokers on "Agency Pass" or *take quale* basis, while in the port markets of Madras, cultivators from neighbouring producing areas sell fairly large quantities directly to exporters.

(2) VILLAGE MERCHANTS.

The village merchants distribute groundnuts in much the same way as producers, disposing them to the retailers and oil mongers in villages and oil mills and exporters' agents in assembling markets.

(3) DECORTICATING ESTABLISHMENTS.

Decorticating establishments have a share not only in the assembling of groundnuts but also in their distribution. In the former case,

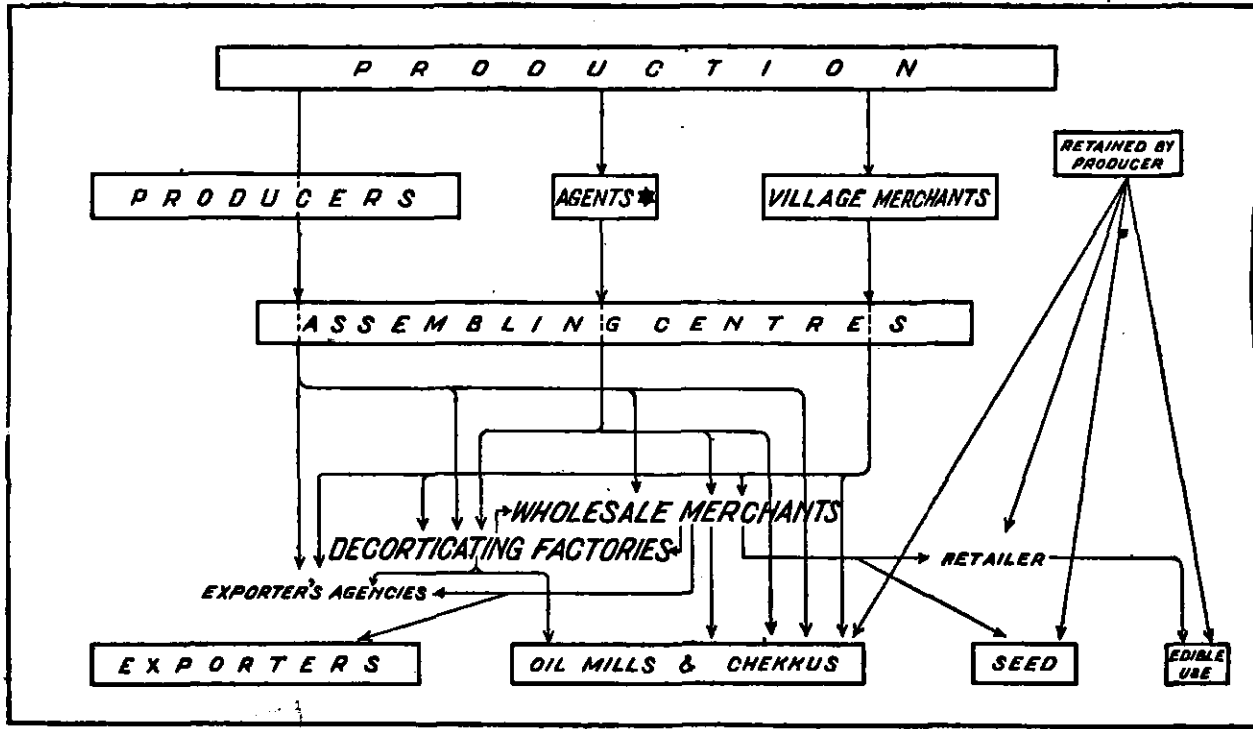


GROUNDNUTS (IN SHELL) BEING AUCTIONED AT A MARKET.



A SADHU COLLECTING GROUNDNUTS IN A MARKET.

CHANNELS OF ASSEMBLING AND DISTRIBUTION OF GROUNDNUTS (IN SHELL AND KERNELS).



* AGENTS OF WHOLESALE MERCHANTS
DECORTICATING FACTORIES & OIL MILLS.

the cultivators and village merchants bring to them nuts for sale and in the latter case, they sell kernels to exporters and oil mills. They work as wholesale merchants on their own account or as commission agents or brokers for the purchase of kernels by exporters and oil mills.

(4) COMMISSION AGENTS AND WHOLESALE MERCHANTS.

Wholesale merchants and commission agents figure prominently in the distribution of groundnuts. Some of these are big concerns having branches in assembling and consuming markets and deal in one or more agricultural commodities. The commission agents and wholesale merchants in the assembling markets usually have business relations with commission agents in consuming markets and they keep each other informed of the rates, stocks, etc., of their respective markets by postcards, letters or telegrams. On the basis of this information, the commission agents and merchants in terminal markets enter into forward contracts with the exporting firms and mills. The purchases of the merchants in assembling markets are similarly guided by the advice received from consuming markets. It has already been stated that owners of decorticating establishments often work as wholesale merchants.

Besides selling to retailers, the sales made by wholesale merchants are mainly to mills and exporters' agencies, with whom they enter into forward delivery contracts and unfixed contracts which will be referred to later. A popular method of distribution practised by these merchants is to send consignments on commission account to *adatyas* in consuming markets, who are authorised to sell the goods above a given minimum price or according to instructions given from time to time. For such consignments, the owner has to bear all expenses as also risks due to fluctuations in prices and allowances for quality.

(5) EXPORTERS.

Exporters' agencies form another important link in the distribution of groundnuts. In Madras, the export trade in groundnuts (mostly as kernels) is controlled mainly by three firms, while in Bombay, besides these three firms, a few Indian concerns are also engaged in the export trade. One of these concerns has a branch in Madras also. The quantity shipped by Indian firms is, however, very small compared with that shipped by the three European firms. These international firms of exporters have their head offices in Europe and with branches at important ports of India control a network of sub-agencies situated in the producing areas. The sub-agencies effect purchases according to the instructions received from the controlling office. The price limits are intimated by telegram once or more often in a day.

The exporters also get their supplies through guarantee brokers, who are commission agents of repute having branches at various assembling centres, and enter into contracts with merchants on behalf of the exporting firms to whom they guarantee the fulfilment of the contract. The purchases are made by entering into contracts for delivery of goods at once or by a specified date. The contracts are made on "Agency Pass" or "Port Pass" basis and specify, besides

the price and the variety and quantity to be delivered, the amount of impurities, damaged seeds, nooks etc., allowed free, together with a scale of allowances for impurities, etc., in excess of the free tolerance.

When groundnuts are bought on "Agency Pass" basis, the seller delivers the goods at the depot or godown of the agency making the purchase, where a sample is drawn by the agency staff and analysed. Full payment is made on the basis of the results of this analysis. For goods purchased on "Port Pass" basis, the seller consigns the goods to a specified port and hands over the railway receipt to the buying agent, who advances the seller 80 to 90 per cent of the value of goods. When the consignment reaches the port, a sample is drawn by the exporter's staff there. The result of analysis of this sample is intimated to the buying agent concerned, who pays the seller the balance of the value of goods.

Sometimes goods are also purchased on the basis of visual examination by the agent. No samples are drawn or analysed. The agent gives his offer on seeing the goods and if the same is acceptable to the seller, the goods are weighed and payment made in full. Such sales are more common in North and South Arcot districts and are known as *tale quale* purchases.

The exporters also buy a considerable portion of their groundnut requirements on the basis of unfixed contracts. This practice is more common in the Ceded districts of Madras. The seller hands over his goods to the exporter's agency or office, without fixing any rate and receives an advance generally amounting to 80 per cent of the value calculated on the buying limit of the agency on the day of the presentation of railway receipt. A contract is signed stipulating that the price must be fixed in writing by the seller within a specified period, generally 60 days and will be the limit which the buyers have in hand on the day fixed by the seller. If the seller does not fix the price within the specified period, the price is taken to be the limit which buyers have in hand on the next day after the expiry of the specified period—generally the 61st day. The price fixed on that day is, however, payable only on such quantity as the agency has instructions to buy on the day. In the case of decline in the market value, the buyer may demand refund of part of money advanced in order that the money advanced is always at least 5 per cent below the market value.

(6) OIL MILLS AND CHEKKUS.

The oil mills generally get their requirements by purchases in the assembling markets or through commission agents and wholesale merchants with whom they, like exporters, enter into contracts. Some of the big oil mills have guarantee brokers. Oil mills also collect groundnuts from the villages through agents on commission basis or through their permanent employees. They buy considerable quantities of nuts in shell and decorticate them in their own decorticators as and when required. The *chekku* owners buy from producers or from village and wholesale merchants, their purchases being both as nuts and kernels. The oil millers like wholesale merchants sometimes dispose of their excess stock to the exporters or acting as commission agents send groundnuts to merchants in other markets.

(7) CO-OPERATIVE SOCIETIES.

Co-operative societies have a small share in the total distribution of groundnuts.

In Madras, the most important society to attempt sale of their members' groundnuts is the South Arcot Central Groundnut Sale Society, which was registered in 1925, its members being primary societies or individuals. The area of operation of this Society is the whole of South Arcot district and parts of Trichinopoly district. The affairs of the Society are conducted by a board of directors of whom at least 3 are representatives of affiliated societies. Three warehouses were opened in 1933 at Cuddalore, Vriddhachalam and Tirukoilur, and two later at Tindivanam and Ulundurpet. Each warehouse is in charge of a warehouse officer, who assists the cultivators in two ways.

- (i) He weighs bags of groundnuts brought by cultivators to the warehouse and issues a weight certificate charging 3 pies per bag. The cultivator is thereby saved from being cheated by the use of manipulated weights or scales.
- (ii) He takes a sample from the cultivator's produce and sends it to the different buying firms. Prices offered by the buyers are intimated to the cultivator and if he accepts the rates, the produce is sold for which a commission of 4 annas per candy only is charged by the Society.

The warehouses are located in rented buildings and lack accommodation for storing or sufficient yards for drying produce. Nevertheless the warehouses are gaining in popularity. The quantities sold through each of the four warehouses are as under :—

Groundnuts sold annually by co-operative warehouses in South Arcot district of Madras.

(Candies of 531 lb.).

Year.	Cuddalore.	Vriddhachalam.	Tirukoilur.	Villupuram.
1932-33	137	230	828	..
1933-34	1,369	710	647	..
1934-35	3,023	3,662	1,522	..
1935-36	2,238	4,930	1,472	..
1936-37	3,722	5,731	2,372	..
1937-38	2,038	3,502	1,983	334
1938-39	1,000	6,196	3,436	4,593
1939-40	1,174	1,975	1,632	6,911

The bulk of the sales were to exporters' agencies and the produce sold belonged to both members and non-members.

In Bombay, the co-operative sale societies function as commission agents. They are generally not able to compete successfully against the tactics of local merchants and the quantities of groundnuts sold by them—about 3,000 tons annually—represent a very small fraction of the total arrivals in a market.

In the Central Provinces, a groundnut pool has recently been started at Khamgaon.

In Hyderabad, the Gulbarga Co-operative Society functions as a commission agent, selling its clients' produce and giving them about 70 per cent advance on value of groundnuts left with the Society for sale. The Society handles about 1,600 maunds of groundnuts in shell in a year.

B.—Finance of distribution.

The distribution of groundnuts from the assembling markets to the consumers in India or export abroad is financed at various stages by *adatyas* and wholesale merchants, exporters, oil mills, banks and *shroffs*. The funds for the trade between different centres are remitted in several different ways.

(1) ADATYAS AND WHOLESALE MERCHANTS.

Adatyas at consuming centres or ports generally advance about 70 to 80 per cent of the value of groundnuts sent to them for commission sale by wholesale merchants and commission agents in producing centres. The rate of interest is usually between 6 and 9 per cent, varying according to market conditions from time to time and also the financial status of and business relations with the party. At Bombay, when goods are sold on rail delivery terms* 90 per cent of the value is paid on presentation of railway receipt, the balance being paid after sampling and analysis. In case of sales on bazar terms* full payment is made in 24 hours. *Adatyas* in their turn receive part payments from exporters and mills on presentation of railway receipts or delivery of goods against fixed or unfixed† contracts entered into with them. The practice followed in many cases is that a wholesale merchant in producing area books the goods, on the advice of the *adatyas* in a consuming centre, to a shipper's or oil miller's godown or siding. The railway receipt is sent to the *adatyas*, who passes it to the exporter or oil mills and remits the part payment received to the wholesale merchant.

Wholesale merchants allow credit for some period, which may vary from a week to 3 months, in their sales to retail merchants and oil mills.

Some of the *adatyas* and wholesale merchants, in addition to trading in commodities, function as banks or discount houses, drawing and discounting *hundis* (bills of exchange).

*See page 204.

†See page 203.

(2) EXPORTERS.

The three international firms of exporters, who between them, handle the bulk of export trade in groundnuts, provide themselves with funds in India for the purchase of groundnuts and other commodities by selling sterling bills of exchange usually drawn at three months sight, or telegraphic transfers through banks dealing in foreign exchange. The sale of imported commodities is another source of funds. The buying agencies in producing areas are financed in two ways, depending on whether an agency is authorised or not to draw drafts or *hundis*, on the firm's controlling office. When an agency is so authorised, funds are obtained by discounting the *hundis* or drafts locally, but when an agency is not authorised to draw drafts or *hundis*, telegraphic transfer through exchange banks is the usual system adopted for financing the agency. In some cases, *adatyas* are authorised to finance the agency's purchases, the *adatyas* being re-imbursed by the head office by cheque or draft with interest at 8 to 12 per cent per annum. When *adatyas* are appointed to make purchases, they buy groundnuts, arrange for decortication, cleaning, packing and despatch of kernels and draw on the exporters after the despatch of goods. The *hundi* drawn is sent with the railway receipt.

The exporters, as has been already said, pay 70 to 80 per cent of the value of goods sold to them against fixed or unfixed contracts on presentation of railway receipts, the balance being paid after sampling and weighment at the agency or port according as whether the goods are purchased on " Agency Pass " or " Port Pass " basis. One or two firms of exporters also advance money to merchants on stored produce on conditions similar to those of banks, which will be referred to later.

(3) OIL MILLS.

Some of the big oil mills have buying agencies and finance the merchants and *adatyas* on the same lines as exporters, paying them 70 to 80 per cent of the value of groundnuts against railway receipts. Oil mills also finance village merchants for buying groundnuts for them.

(4) BANKS.

Several banks give loans on the security of pledged produce. The conditions generally required for making advance on stored groundnuts are that nuts in shell are kept in godowns under bank's lock and key and insured against fire at owner's cost. The advance is usually 60 to 70 per cent of the value calculated at a rate fixed by the bank, which may sometimes be 20 to 25 per cent below the market rate. The rate of interest usually varies from 5 to 8 per cent and the maximum period allowed for repayment of loan is 6 months. If during this period the price falls, the owner of the stock is asked to remit the margin. Withdrawals of stocks are allowed against deposit of funds by the borrower provided the amount outstanding is covered by the market value of stocks under pledge with about 25 per cent margin.

Banks also finance approved merchants and business firms by allowing them cash credits, the limits for which are fixed on the basis

of enquiries about their business and financial status, turnover, etc. The rate of interest charged on such credit is usually low as these amounts can be called back by the banks at short notice.

Besides giving advances and loans, banks buy and discount *hundis* and drafts, remit money from one centre to another and handle trade documents and railway receipts. Their activities are, however, confined to the more important trade centres.

It is interesting to note that it has been pointed out by the Reserve Bank in the statutory report that grading of agricultural produce, standardisation of contracts, establishment of properly regulated "futures" markets and development of storage facilities are necessary steps towards improving the financing of the movement and marketing of agricultural produce.

(5) SHROFFS.

The *shroffs* are the indigenous bankers of India, who play a very important part in the financing of internal trade in agricultural produce. The Chettiars in South India are *Brahmans* while the *shroffs* in North India, who may belong to Marwari or Sindhi communities, are usually *Vaishes* by caste. Firms of *shroffs* often carry on wholesale trade in cotton, grain, cloth, sugar, etc., or work as *adatyas*. They advance loans on stocks of produce, the rate of interest generally being between 9 and 12 per cent but they do not insist on the produce to be insured against fire. As a rule, the formalities to be observed in their case are fewer, and the conditions of security less strict but the rate of interest is somewhat higher as compared with banks. They also advance loans on personal security and discount *hundis*.

(6) REMITTANCES.

Funds are remitted from one centre to another in a number of ways. Bank drafts, cheques and telegraphic transfers are commonly used between places where banking facilities exist, while postal money orders and sending currency notes by insured post are resorted to when amounts involved are small or in places where banking facilities do not exist. The *hundis*, however, appear to be the most important medium for the adjustment of accounts between traders in different places.

Hundis.—These drafts or bills are a cheap and convenient method of transferring money from one place to another and for obtaining credit. There are two kinds of *hundis*, the *darshani* (literally—on presentation) and the *muddati* (literally—for a period), payable, respectively, as their names imply, at sight or on presentation, and after a specified period. Bill brokers arrange transactions between buyers and sellers of these drafts, the normal brokerage being from 3 to 6 pies per hundred rupees payable by the buyer or by the individual or firm discounting the *hundi*. The discount rates for long term drafts such as *muddati hundis* may be high—as much as Rs. 5 per cent in the case of weak or doubtful parties. The security offered against these *hundis* is mainly personal and endorsements from persons or firms well known to the discounting house are sometimes insisted on as a kind of guarantee. The

inability to honour a *hundi* is considered a very serious event and virtually amounts to insolvency.

Darshani hundi.—The *darshani hundi* is the sight draft of day to day business and may be compared with the “demand draft” of the modern banking system. It is generally payable on presentation but in some markets it is customary to allow a few days of grace. No revenue duty is payable on *darshani hundis*.

Muddati hundi.—The *muddati hundi* forms one of the most important instruments of credit handled by the *shroffs*. *Muddati hundis* are generally drawn for anything between 21 and 61 days though they may also be drawn for any other period. Only few of the commercial banks handle this type of paper.

Railway receipts for goods sent by rail are often sent through a bank, or through another party known to the sender, accompanied by a *darshani hundi* drawn on the consignee, to whom the railway receipt is given only after he duly honours the *hundi*. When there are long established business relations between two parties, the railway receipts are sent direct to the consignee. On the other hand, when parties have had no business relations and the amount involved is small, the documents may be sent by V. P. P. (Value Payable Post).

The expenses incurred in remitting funds vary depending on market conditions and the amount involved. Banks usually charge 6 pies to 4 annas per cent for issuing drafts payable at other centres, the minimum charge for small amounts being 4 annas. Their charges for discounting *hundis* ordinarily vary from one to one and a half per cent over the bank rate. The *shroffs'* charges for discounting *hundis* are highly elastic depending on the status of the drawer and may be anything up to 4 per cent higher than the bank rate. Discount is always payable in advance and is deducted by the discounting agency from the amount paid to the drawee. The average cost of remittance by *hundis* may, however, be reckoned as about 1 anna per cent although a *darshani hundi* for a particular market may be sold at a premium or discount, depending on the local demand for funds. The limits of premium and discount may at times be as much as Re. 1 per cent in places where there are no established banks.

C.—Cost of distribution.

The distribution costs, *i.e.*, costs incurred in the change of ownership and the movement of the produce, after its sale at an assembling centre up to the time that it reaches the consumer in India or an exporter's godown at a port market for export abroad, are made up by a number of items such as transport charges, stacking, cleaning, loading and unloading charges, cost of bags, commissions paid for subsequent sales and other sundry charges. The quantities used by oil mills or purchased by exporters are mostly traded in wholesale while the quantities used for edible purposes entail further movement to retailers, hawkers and vendors. A reference to retail trade will be made in a subsequent section. The individual items involved in wholesale distribution vary in different cases. For example, transport charges usually vary according to distances involved, while commission and sundry charges vary according to market customs and the number of times the goods change hands. The distribution

costs, therefore, vary according to the extent of the movement and the channels through which the produce passes.

When direct sales are effected by cultivators or village merchants to owners of *chekkus* or consumers for edible purposes, the distribution costs are negligible. In case of sales at assembling centres to local oil mills, the distribution costs only comprise of handling and cartage charges from the place of sale to consumers' premises or godowns. When the buyers at assembling centres are exporters' agencies, the distribution costs consist of the cost of bags, handling, cleaning, weighing and transport charges including railway freights to the port of destination, and the expenses incurred at the port, which may include charges for handling and transport, and cleaning and manipulation of the goods. When groundnuts are sent by a wholesale merchant in a producing centre to an *adatya* at a port or consuming centre for subsequent sale to an exporter, oil mill or for edible use, the distribution costs fall under four main heads:—

- (i) Expenses incurred by the wholesale merchant at the assembling centre in the handling, packing and transport up to the time it is put on rails.
- (ii) Railway freight to destination.
- (iii) Expenses incurred by the *adatya* at destination on behalf of the owner of goods in taking delivery of goods, paying octroi and terminal tax, if any, and handling and transport from the station to his godown.
- (iv) Expenses incurred in subsequent sales at destination which may include market expenses, brokerage, *adatya's* commission and the charges realised by the buyer for sampling and weighment of the goods.

The market charges at consuming centres are invariably paid in cash and are not so numerous or varied as at the assembling centres. The incidence of distribution costs in different cases may best be illustrated by a few examples.

Below is a statement of expenses incurred on a consignment of groundnuts in shell bought by a wholesale merchant in Madhoganj market in the United Provinces and sent to an *arhatya* at Patna* in Bihar, who sold it to an oil mill there.

	RS. A. P.
Price paid for 182 maunds, 34 seers net groundnuts in shell at Madhoganj market at Rs. 3-0-3 per maund	551 6 0
Cartage from market to godown including unloading at godown at Re. 1 per 100 bags	2 5 0
Cost of 230 bags at Rs. 20-3-0 per 100 bags	47 2 0

*In 1938.

	Rs. A. P.
Charges for packing, weighing and stitching bags at Rs. 1-8-0 per 100 bags	3 7 3
Twine	0 9 8
Loading on carts at 8 annas per 100 bags	1 2 6
Cartage to station at Re. 1 per 100 bags	2 5 0
Station expenses	1 8 0
<hr/>	
Price f. o. r. Madhoganj	609 14 0
Railway freight on 189 maunds, 20 seers at Re. 0-8-5 per maund	99 11 0
<hr/>	
Price f. o. r. Patna	709 9 0
Collecting charges at Patna station	1 0 0
Loading on carts at Patna station and cartage from Patna station to oil mill at Re. 0-0-3 per bag	3 9 6
Adat at Patna at Rs. 1-4-0 per cent.	8 13 9
Dharmada at one anna per cent.	0 7 0
Weighment at oil mill at 12 annas per 100 bags	1 11 9
<hr/>	
Cost at Patna mill godown	725 3 0
<hr/>	

The total distribution costs on this lot of groundnuts in shell, between Madhoganj market and oil mill at Patna, amount to Rs. 173-12-6 representing nearly 31.5 per cent of the value of goods at the despatching station. The biggest individual item is railway freight, which accounts for 57.4 per cent of the distribution costs. Bags account for 27.1 per cent and all other expenses together for 15.5 per cent of the distribution costs.

Another instance giving the expenses incurred on a consignment of kernels between the same two stations is given below :—

	Rs. A. P.
Price paid for 400 maunds of groundnut kernels at Madhoganj market at Rs. 4-6-0 per maund	1,750 0 0
Cartage from market to godown including unloading at godown, at Re. 0-0-3 per bag	3 2 0
Cost of 200 bags at Rs. 24 per 100 bags	48 0 0
Charges for packing, weighing and stitching bags at Rs. 8 per 100 bags	6 0 0

	Rs. A. P.
Twine	0 8 0
Loading on carts at godown at 12 annas per 100 bags ..	1 8 0
Cartage to station at Re. 0-0-3 per bag	3 2 0
Station expenses	2 4 0
	<hr/>
Price f. o. r. Madhoganj	1,814 8 0
Railway freight on 406 maunds at Re. 0-8-5 per maund	213 19 0
	<hr/>
Price f. o. r. Patna	2,028 2 0
Collecting charges at Patna station	1 0 0
Loading on carts at Patna station and cartage from Patna station to oil mill at Rs. 2 per 100 bags ..	4 0 0
Adat at Patna at Rs. 1-4-0 per cent.	25 5 6
Dharmada at one anna per cent.	1 4 3
Weighment at oil mills at Re. 1 per 100 bags ..	2 0 0
	<hr/>
Cost at Patna mill godown	2,061 11 9

The distribution costs on this consignment of kernels amount to Rs. 311-11-9 representing 17·8 per cent of the value of goods at Madhoganj. Railway freight accounts for 68·5 per cent., bags for 15·4 per cent and other expenses together for 16·1 per cent of the total distribution costs. It will be observed that distribution costs are relatively lower by over 40 per cent when the goods are handled as kernels instead of nuts. It is desirable, therefore, that all ground-nuts for crushing should be decorticated in the producing areas.

Another instance may be given of costs incurred when kernels are purchased at an assembling centre by an exporter's agency and sent to the nearest port for export.

	Per bag (177 lb.). Rs. A. P.
Price delivered at the buying agency at Guntur at Rs. 28 per candy	9 5 4
Cost of one bag at Rs. 25 per 100 bags	0 4 0
Filling into bag, stitching and twine	0 0 6
Weighing	0 0 2
Loading on carts	0 0 2
Carting to station	0 0 9
Station expenses	0 0 4
Agency commission	0 0 9

		Per Bag (177 lb.).
		Rs. A. P.
Transport charges from Guntur to Masulipatam ..		0 4 7
Cart hire, Guntur to Chebrole	0 1 7	}
Boat hire, Chebrole to Masulipatam	0 3 0	
Cartage from station to godown		0 0 9
Stacking in godown		0 0 2
Sampling and miscellaneous charges		0 0 3
Trade allowance		0 0 9
Cost at exporter's godown, Masulipatam		10 2 6

The distribution costs in the above instance amount to Re. 0-13-2 per bag, representing 8·8 per cent. of the price at Guntur, without taking into account the charges for drying and deductions for impurities, etc. In case of a consignment sent from Guntur to Coconada by rail, the distribution costs would amount to nearly Rs. 1-11-11 per bag, or nearly 18·7 per cent. of the Guntur price, as the transport charges (railway freight) in this case amount to nearly Rs. 1-3-4 per bag as compared with Re. 0-4-7, charges by cart and boat from Guntur to Masulipatam. The transport charges to various ports from the markets in their respective hinterland vary and may be as low as 2 annas a bag or as high as Rs. 2 per bag.

D.—Export costs.

After groundnut kernels are received in exporters' godowns at ports, they are usually subjected to some manipulation before being exported. The kernels are dried and cleaned, if necessary, and several lots are piled together to prepare consignments of uniform quality. The extent of cleaning depends to some extent on the port of shipment. Contracts for exports to the United Kingdom are on "pure" basis, while those for Marseilles are on the basis of "2 per cent impurities". If, therefore, a consignment has to be prepared for shipment to Marseilles and the lots from which it is to be prepared contain less impurities, the consignment is made up to contain the desired percentage of impurities by the addition of specially prepared pieces of earth and nooks, etc. The prepared goods are packed in bags and carted or railed to wharfs to be put on board a steamer. The various items contributing to export costs are loading and unloading and cleaning and manipulation charges, transport charges to wharf, shipper's commission, steamer freight, insurance, superintendence and brokerage. The biggest individual item is steamer freight, which varies between different ports and at different times of the year. The "liner" freights, i.e., freights for part of the space booked on a steamer are higher than "charter" freights, i.e.,

freights for a steamer's entire cargo space. The proportion, which the different items bear in the total export costs, will be clearly seen from the following statements showing a comparison of the prices at Madras and Bombay with that at London.

Comparison of prices of groundnut kernels at Madras and London on a date in February, 1938.

	Per ton.	
	Rs. A. P.	Rs. A. P.
Cost f. o. r. shipper's godown, Madras (including bags) at Rs. 26-2-0 per candy (531 lb.) .. .. .	.. .. .	110 3 0
Unloading wagon and stacking in godown .. .. .	.. 0 3 0	
Weighment and sampling .. .. .	.. 0 4 0	
Cleaning, drying, manipulation and weighment after goods are ready .. .. .	.. 0 12 0	
Stitching and twine .. .. .	.. 0 2 0	
Loading wagon at shipper's godown .. .. .	.. 0 2 0	
Haulage to wharf .. .. .	.. 0 4 6	
Unloading at wharf .. .. .	.. 0 2 0	
Harbour dues .. .. .	.. 1 8 0	
Loading in steamers' "slings" .. .. .	.. 0 5 0	
Shipper's commission at 1 per cent. .. .. .	.. 1 1 7	
	4 12 1	
Cost f. o. b. Madras .. .. .	.. .. .	114 15 1
		(Shillings per ton).
Equivalent cost in shillings at 1s. 6d. per rupee .. .. .	.. .. .	172-41
Freight to London at 27s. 6d. per ton (20 cwt.) .. .. .	.. .. .	27-50
Insurance at $\frac{1}{4}$ per cent. .. .. .	.. .. .	0-86
Superintendence at 6d. per ton .. .. .	.. .. .	0-50
Difference between buying basis in Madras (tolerance 2 per cent. impurities and 2 per cent. damaged seeds) and selling basis at London (pure) .. .. .	.. .. .	7-18
Selling brokerage 1 per cent. .. .. .	.. .. .	2-11
		38-15
Calculated price c. i. f. London .. .. .	.. .. .	210-56
		=£10 10 6 per ton.

The price at London on the same day was £10-13-9, which shows that the price at Madras on the day was below parity with the London price. Interest has not been taken into account in the above calculation and the rate of exchange has been taken at 1s. 6d. The actual rate of telegraphic transfers from India to London is usually a fraction of a pence less than 1s. 6d., e.g., 1s. 5 7/8d. or 1s. 5 29/32d., etc. On occasions, however, the telegraphic transfer rate is slightly over 1s. 6d., e.g., 1s. 6 3/32d. The costs incurred in exporting to London in the above instance amount to over 45 shillings per ton or more than 27 per cent of the value at Madras.

A similar comparison between prices at Bombay and London in September 1938 is given below :—

Comparison of prices of groundnut kernels at Bombay and London on a date in September, 1938.

	Rs. A. P.	Per ton. Rs. A. P.
Cost f. o. r. Bombay at Rs. 5-3-0 per cwt. . . . .	.. ..	103 12 0
Loading carts at station and cartage to and unloading at godown .. .. .	.. 0 13 0	
Weighment 10 % bags and sampling .. .. .	.. 0 4 0	
Cleaning, manipulation and weighment .. .. .	.. 0 12 0	
Stitching and twine .. .. .	.. 0 2 0	
Difference in value of bags received and sent (Rs. 10 per 100 bags) .. .. .	.. 1 5 0	
Railing from Bombay Trust godowns to docks at Rs. 14 per wagon (20 tons) .. .. .	.. 0 11 3	
Wharfage at Rs. 1-8-0 per ton plus surcharge 4 1/6% .. .. .	.. 1 9 0	
Muccadamage .. .. .	.. 0 5 0	
Shipper's commission at 1% .. .. .	.. 1 0 7	
	<hr/>	
	6 13 10	
Cost f. o. b., Bombay .. .. .	.. ..	110 , 9 10
	(Shillings per ton.)	
Equivalent cost in shillings at 1s. 6d. per rupee .. .. .	.. ..	165.92
Freight to London at 18s. per ton of 14 cwt... .. .	.. .. 25.71	
Insurance at 1/4 % .. .. .	.. .. 0.83	
Superintendence at 6d. per ton .. .. .	.. .. 0.50	
Difference between buying basis in Bombay (tolerance 4% refraction) and selling basis in London (pure) 6.91	
Selling brokerage at 1% 2.02	
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	35.97	
Cost c. i. f., London	201.89
	=£10 1 11	

The price at London on the same day was £10-8-9, which shows that the price at Bombay was below parity with the London price. The total export costs amount to over 46 shillings per ton or more than 29 per cent of the value at Bombay.

It was mentioned in Chapter III, that the day to day prices at Bombay are often above parity with London prices owing to the demand from the local mills. This will be seen from the following statement in which the prices at Bombay and London on a date in February, 1938, have been compared.

Comparison of prices of groundnut kernels at Bombay and London on a date in February, 1938.

	Rs. A. P.			Per ton.
				Rs. A. P.
Cost f. o. r. Bombay at Rs. 5-9-6 per cwt.	111 14 0
Loading, unloading and cartage to godown	0 13	0	
Weighment and sampling	0 4	0	
Cleaning, manipulation and weighment	0 12	0	
Stitching and twine	0 2	0	
Difference in value of bags received and sent	1 5	0	
Railing to dock	0 11	3	
Wharfage at Rs. 1-8-0 per ton <i>plus</i> surcharge 8½ %	1 10	0	
<i>Muccadamage</i>	0 5	0	
Shipper's commission at 1%	1 1	11	
		7 0	2	
Cost f. o. b. Bombay	118 14 2
				(Shillings per ton.)
Equivalent cost in shillings at 1s. 6d. per rupee	178-32
Freight at 23s. per ton of 14 cwt.	32-86		
Insurance at 6d. per ton	0-89		
Superintendence at ½%	0-50		
Difference between buying basis at Bombay (4% refraction) and selling basis at London (pure)	7-43		
Selling brokerage at 1%	2-22		
		43-90		
Calculated price c. i. f. London	222-22
				=£ 11 2 3

The price at London on the same day was £10-13-9, so that the Bombay price was above parity with the London price. The export costs in this instance totalled over 54 shillings per ton amounting to more than 32 per cent of the value of goods at Bombay.

E.—Total charges incurred and price spreads from producer to consumer.

It has been mentioned in an earlier chapter that a producer disposes of his groundnuts either at his village or takes them to an assembling market or decorticating factory for sale. When he decides to take the goods to a market or factory, he incurs some expenses by way of handling and transport from the farm or village to the assembling centre. The amount of this expense depends on whether the cart is cultivator's own or hired, the distance from the village to the market, the type and condition of road, the season, the quality of produce and the mode of transport. A market of some sort or decorticating factory generally exists within 1 to 20 miles of the village and the transport of produce from village to market usually costs from 2 pies to 2 annas per maund. After the journey from the village to the market or decorticating factory, further expenses have to be incurred in entering in, and selling the produce at the market. These charges have already been discussed in Chapter V and may vary from 1 to 20 per cent of the value of the goods, i.e., roughly 6 pies to 10 annas

per maund. The goods from the market or factory move to consumer's godown or to different destinations, in many cases after being decorticated. The costs incurred in this movement, as already stated, vary according to the extent of the movement and the channels through which the produce passes. The total charges incurred in the movement of the goods and the price spreads from the producer to the consumer, therefore, vary in different cases within very wide limits.

Price spreads for five typical instances in the marketing of groundnuts in shell are given in Appendix XXXIII. In the first instance, a producer within a few miles of Dhulia market in Bombay brings his groundnuts to the assembling market at Dhulia and sells them through a *kachcha arhatya* to a local oil mill. The only cost which the produce incurs after the sale at the market is cartage from the assembling market to the oil mill godown and, therefore, the producer's share in the consumer's price is relatively high amounting to 88 per cent. In the second instance, a producer brings his groundnuts to Khamgaon market in the Central Provinces and sells them through a *kachcha arhatya* to the agent of a Nagpur oil mill. The charges incurred after sale at the assembling market include transport from Khamgaon to Nagpur station and thence to oil mill godown. The producer's share in the consumer's price is only 67.7 per cent. In the third instance, the producer takes his nuts to Madhoganj market in the United Provinces, where it is sold to a wholesale merchant, who later sends the goods to a *pucca arhatya* at Cawnpore for sale. The goods are eventually disposed of to an oil mill at Cawnpore. The railway freight from Madhoganj to Cawnpore being only Re. 0-2-2 per maund as compared with Re. 0-7-6 between Khamgaon and Nagpur, the distribution costs are comparatively lower and the producer's share in the consumer's price works to 77.4 per cent. In the fourth instance, a producer brings his nuts to Maiupuri market in the United Provinces, where they are purchased by a wholesale merchant. The Mainpuri merchant sells the goods to a wholesale merchant at Delhi, from whom they move to a retailer and finally to a consumer. The distribution costs in this case include the retailer's margin. The producer's share in the consumer's price (retail) is only 49.4 per cent. In the last instance, the producer brings his nuts to Kandorana market in Kathiawar, where they are sold to a wholesale merchant. He sends them through Bedi port to an *arhatya* at Karachi, from whom the goods pass to a wholesale merchant and later to a retail merchant and finally to consumer at Karachi. The producer's share in the consumer's price works to only 42.8 per cent.

Price spreads for another five typical instances in which the nuts reach the destination in the form of kernels are given in Appendix XXXIV. In the first instance, the producer brings his nuts to a decortivating factory at Salem, where the nuts after decortication are sold to an exporter's buying agency. The agency despatches the goods to the port godown at Cuddalore. The producer's share works out to 75.7 per cent of the consumer's price. In the second instance, the producer brings his nuts to Dhulia market, where they are bought by a wholesale merchant, who then sends the

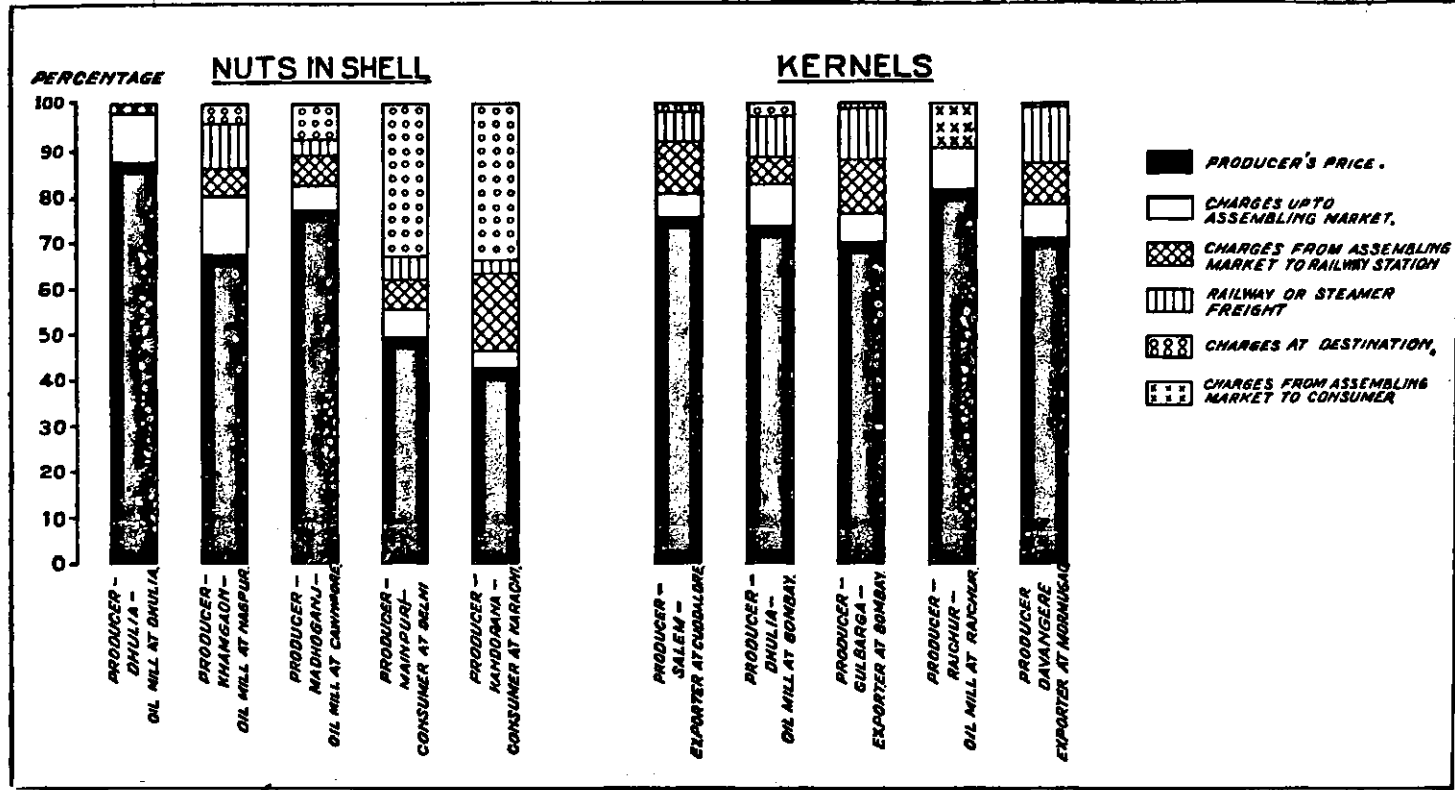
kernels to an *arhatya* at Bombay, where the goods are finally sold to an oil mill. The producer's share amounts to 73.6 per cent. It will be interesting to note that when at the same market, the nuts were sold to a local oil mill, the producer's share was 88.0 per cent. In the third instance, the goods are brought by the producer to a decorticating factory at Gulbarga, which sells the goods after decorticating to an exporter's agency. The exporter's agency then consigns the goods to Bombay. The producer's share works to 70.0 per cent. In the fourth instance, the producer brings his nuts to Raichur market in Hyderabad, where they are sold to a wholesale merchant. The merchant later sells the kernels to a local oil mill. As no railway freight is involved in this instance, the producer's share is relatively high amounting to 81.4 per cent. In the last instance, the producer brings the nuts to Davangere market in Mysore, where they are sold to a wholesale merchant. The merchant later sells the goods as kernels to an exporter's agency, from where the goods are sent to Marmugao port. The producer's share is 70.9 per cent of the consumer's price.

It will be thus observed that the producer's share in different instances varies from 70 to 88 per cent. of the consumer's wholesale price and 43 to 49 per cent of the consumer's retail price. The producer's share in the consumer's price, as may be seen from the diagram opposite, is highest when the produce is sold to an oil mill at assembling centre and lowest when goods are sold retail at distant markets. Of course, the consumers' prices at distant markets are higher than those at assembling centres in producing areas.

In all these instances, it has been assumed that the weight found at assembling centres did not vary in subsequent transactions and the produce was not subjected to allowances for quality except where quality allowances form part of charges at assembling markets. In practice, the consignments are usually subjected to deductions on account of moisture and impurities, etc., and, therefore, the producer's return is lower than represented in the above instances. Again, these instances only refer to cases, where the producer himself brings the produce to the market. It has already been stated in the previous chapter that the producers bring only 52 per cent of the marketable surplus to the assembling market, the remaining 48 per cent being bought from them in villages by intermediaries. In such transactions the intermediaries naturally make some profit and the producer's share is somewhat lower. Taking these factors into account, the producer's share in the consumer's price does not appear to be more than 60 to 75 per cent or roughly 66 per cent of the consumer's wholesale price. As compared with consumer's retail prices, the producer does not appear to get more than 45 per cent.

The export costs discussed in the preceding section were seen to be from 27 to 32 per cent of the value at Indian ports so that the prices at Indian ports in normal times may be reckoned as about 70 per cent of the c. i. f. London prices. The prices received by

PRICE SPREADS IN THE MARKETING OF GROUNDNUTS (IN SHELL AND KERNELS).



. Facing page 175.]



RETAILER SELLING GROUNDNUTS.



FRUIT SHOPS RETAILING GROUNDNUTS.

the producers in India, therefore, amount to nearly 46 per cent of the c. i. f. London prices.

F.—Trade associations and trading in "futures".

Madras.—Trade associations concerned with trading in groundnuts are conspicuous by their absence in Madras Presidency—the biggest groundnut producing province in India. The crop developed as an export commodity with trade under the control of shippers and the organisation of the internal trade has not kept pace with the increased local demand.

Bombay.—The trade in groundnuts at Bombay proper is regulated mainly by two organised and financially sound associations while a number of smaller associations exercise some control at several important centres.

At Bombay, the Grain Merchants' Association regulates the transactions relating to delivery contracts and ready sales of groundnuts and several other seeds and grains, while the Seed Traders' Association controls trading in "futures". Another association, the Marwadi Chamber of Commerce, also has a groundnut "futures" contract but the same has been operated only two or three times for short periods. The objects of these institutions are essentially the same, *viz.*, to promote and protect the interests of the trading community, to frame rules and regulations for conduct of sales and purchases, to establish uniformity in trade usages and to provide facilities for arbitration. These associations do not participate in buying or selling on their own or their members' account. The management is in the hands of a committee elected by the members. The office bearers generally include besides the president, one or more vice-presidents and a secretary assisted by one or more assistant secretaries.

Grain Merchants' Association, Bombay.—This is probably the oldest association in Bombay engaged in the regulation of grain and oilseeds trade (rice excepted) of Bombay and now has over 300 members. Its rules and bye-laws regarding contracts, basis of refraction and scales of allowances, etc., find general recognition in the trade in actuals at Bombay in respect of a number of oilseeds, grains and spices, *viz.*, linseed, rape seed, sesame, castor, groundnuts, *mowha*, poppy, cotton seed, kardi seed and niger seed in addition to wheat, gram, barley, maize, peas, *jowar*, *masur*, cumin seed, coriander, etc. The Association selects 15 surveyors annually or as required and maintains a survey section equipped with necessary apparatus and laboratory. It also keeps a record of prices of these commodities.

The sources of income are admission and membership fees, survey fees and fees for issue of certificates. The admission fee is Rs. 101 and the membership fee Rs. 51 annually for associate members and a cess of 1 anna per 100 bags for 8,000 bags or above sold in a year for ordinary members. Associate members have no right of vote and begin to pay cess on becoming full members. The survey fees in case of members are Rs. 10 from each party, of which the surveyors are paid Rs. 10, the balance Rs. 10 being credited to the Association. In case an umpire has to be appointed, the two surveyors' fees are reduced to Rs. 2-8-0 and the umpire is paid

Rs. 7-8-0, the balance being credited to the Association. The fee for a certificate to do broker's business is Rs. 25 per year for every broker or partner of a firm of brokers. The brokers' employees authorised to work on behalf of their employers have to pay an annual fee of Rs. 11. A person wishing to operate as *muccadam* has to deposit Rs. 2,000 or give a security from members for that amount. The fee for a weighman's certificate is Rs. 11 per year and for authorised employees of a weighman Rs. 2 per annum. The hours of business are 11 A.M. to 6 P.M. on week days.

Seeds Traders' Association, Bombay.—This body was started in 1926 to control the "futures" trading in certain oilseeds like groundnuts, castor, cotton seed and linseed. It was registered in 1938 and the membership according to the new constitution is limited to 301. Out of this number, 150 are to be from merchant class and 151 from broker class. The present membership is nearly 300, some of the members being also members of the Grain Merchants' Association. The Seeds Traders' Association has drawn up contracts for trading in commodities mentioned above and selects 11 surveyors annually to give awards in case of arbitrations. The unit of transactions for trading in groundnut "futures" is 100 candies of 560 lb. each *i.e.*, 25 tons of Bold groundnut kernels, the delivery months being February, May and August. The Association functions as a clearing house and fixes a clearing rate every fortnight for the adjustments of claims and liabilities resulting from transactions between the members, who settle accounts directly amongst themselves. The entrance fee for the merchants class is Rs. 51 and for the brokers class Rs. 500. The annual subscription is Rs. 21 for both the classes. The association also collects a cess of 6 pies per 100 candies *i.e.*, 25 tons. A non-member client has to deposit a margin money of about Rs. 500 per 100 candies and the brokerage sanctioned by the Association is 4 annas per cent on the value. The Association does not keep records of all the transactions or of the total quantities contracted but only records quantities actually delivered against contracts for each of the options. Enquiries made at Bombay indicate that the quantities actually delivered against "futures" contracts form a small proportion of the total "futures" transactions. The following table gives the quantities actually delivered against each of the options from 1931 to 1940 :—

Quantities of groundnut kernels delivered against contracts for different options at Bombay.
(Tons).

Year.	February.	May.	August.
1931	6,125	2,050	2,900
1932	825	..	..
1933	2,450	3,050	6,525
1934	17,450	50	5,125
1935	4,700	1,400	6,400
1936	11,675	26,150	35,400
1937	6,550	3,975	5,425
1938	4,175	7,000	20,175
1939	3,875	3,200	7,800
1940	4,250	1,950	5,050

Murwadi Chamber of Commerce.—The Association is mainly concerned with trading in wheat and linseed. They have a groundnut “futures” contract also but as has already been said, the contract has been operated only two or three times for short periods. According to the provisions of the contract the unit of transaction is 25 tons of Bold groundnut kernels and the delivery months are February, May and September. The rates for settlements between the members are fixed on 15th and the last day of the month and payments are made 4 days later.

In the up-country markets of Bombay Presidency, there are several merchants' associations regulating to some extent the ready sales of groundnuts at different centres, for instance, Sholapur, Chalisgaon, Bijapur and Belgaum. These associations generally aim at regulation and development of local trade and settlement of disputes between members. They usually fix the local market charges and lay down rules regarding payment and procedure regarding weighment, delivery and arbitration.

The Sholapur Merchants' Association has a membership of about 30 merchants, who pay Re. 1 per month as subscription. It has fixed the period for payment by buyers as 8 days and the *adat* on sales at 6 pies per rupee with a discount of 1 per cent if payment is made within 8 days. The Chalisgaon Grain Merchants' Association collects 1 anna per cart from sellers at the market and an annual fee of Rs. 21 from members. It checks the weights and measures used in the market and posts Bombay rates at the market. The Bijapur Merchants' Association, which has a membership of nearly 150, has fixed the *adat* at 8 annas per *atki* of 200 lb. payable equally by buyer and seller, *dharmada* (charity) at 4 annas per cent and godown rent at 3 pies per bag per month when sold after one month. The Belgaum Merchants' Association, which has a membership of over 200, has fixed *adat* at 6 pies per 28 lb. of groundnut pods.

The Sangli State Government has created a supervising board for regulating trade at Sangli market. The board is composed of 5 members, of whom 2 are nominated by the local Chamber of Commerce and two by the State; the fifth member, who is chairman of the board is a State officer. The goods are to be sold by auction and the market charges and deductions have been fixed. The Sangli Chamber of Commerce, which has a membership of over 100, works in co-operation with the supervising board.

These associations generally lack financial stability and the rules in many cases are not strictly adhered to. The arrangements for arbitration are often unsatisfactory and instances are reported when the disputes between members had to be decided in courts of law.

Besides the associations concerned in trade in “actuals”, there are associations handling “futures” transactions at Amalner, Kapadvanj (Kaira district) and Sangli.

The association at Amalner is an unregistered body composed of nearly 40 members who are either merchants or brokers concerned with groundnut trade. Business can be transacted by members only. No membership fee is charged but the brokers have to keep a deposit

of about Rs. 200 each. The unit of transaction is 25 *pallas* for which the following charges have to be paid by the seller to the association :—

	Rs.	A.	P.	
<i>Dalali</i>	0	6	3	per 25 <i>pallas</i> .
<i>Adat</i>	3	2	0	per 25 <i>pallas</i> .
<i>Dharmada</i>	0	6	3	per 25 <i>pallas</i> .
Library	0	2	0	per 25 <i>pallas</i> .
Total	4	0	6	per 25 <i>pallas</i>.

When a transaction is entered into, the broker completes an agreement form and passes it to the association clerk. He recovers the above-mentioned charges and passes it to the buyer who pays seller Rs. 2 per *palla* as deposit money. There are no regular business hours. The transactions relate to every full moon day except that of *Ashwin* (September-October). Clearance is effected by monthly meetings when quantities purchased and sold are adjusted and the difference paid for on the basis of the price ruling on that day. Out of the total transactions of about 1 lakh of *pallas*, about 25,000 *pallas* to 30,000 *pallas* are actually delivered, the balance being adjusted by settlements. At Sangli, the transactions are carried on at the Chamber's premises, between 2-30 and 4-30 P.M., the unit of transaction being 25 candies, and the dates of delivery 15th day of *Chaitra* and 15th day of *Shravan*. *Adat* at 1 per cent has to be paid to the merchant and deposit money at Rs. 4 per candy to the seller. It is estimated that the quantities delivered are nearly one-fourth of the total transactions. At Kapadvanj, the trading is done by 30 to 40 merchants and brokers from whom no regular deposit is taken. The transactions are for every month, the unit being 100 bags. About 20,000 bags are estimated to be delivered annually.

Central Provinces.—Trading in groundnuts "futures" is not carried on in the Central Provinces, although groundnut oil "futures" are treated in through *dalals* at Akola, Khamgaon, Malkapur and Burhanpur. The unit of transaction is five *tankies* (374 lb.) at Khamgaon and one *tanki* (4½ maunds) at other places. Settlements of contracts take place on the *Purnima* (full moon) day.

Hyderabad.—Unorganised trading in "futures" is carried on at Latur. The brokers settle the transactions between buyers and sellers. The contracts for February delivery are entered into from the month of September-October of the previous year and continue till the end of January. The trading for May "futures" begins in February. It is reported that in 1935, "futures" sales in Latur market amounted to 168,000 maunds, of which 80 per cent are estimated to have been delivered and 20 per cent settled on the basis of the price on *Purnima* (full moon) day.

Kathiawar.—"Futures" trading in groundnuts is carried on at Jamnagar (Nawanagar State) and at Dhoraji (Gondal State). The Jamnagar Seed and Oil Merchants' Association operates both "futures" and "ready" transactions. "Futures" trading relates only to nuts in shell and amounts to about 60,000 to 100,000

candies per year. The unit of transaction is 10 candies of 20 local maunds of 40 lb. A member is not allowed to have contracts for more than 5,000 candies at a time. There are four delivery months, *Pous*, *Baisakh*, *Asarh* and *Bhadon*, of which *Pous* is the more important with regard to amount of transactions. Settlement is made fortnightly. Only the bold produce of Kathiawar is tenderable. The produce from which big nuts are selected for Europe quality (HPS nuts) cannot be tendered.

At Dhoraji, the Merchants' Association works on similar terms as the Jamnagar Association with 4 delivery months, the settlement taking place fortnightly. The unit of transactions is 25 candies.

In North India the trade in groundnuts is usually in the hands of *kirana* merchants, i.e., merchants dealing in spices, etc. There are *kirana* merchants' associations at a number of centres, for instance Cawnpore, Amritsar and Delhi. These associations regulate the local trade in groundnuts along with that in other spices, dry fruits, etc.

G.—Retail distribution and price margins.

The retail trade is almost entirely for edible use and is carried on by, (i) grocers dealing in a large variety of lines such as spices, copra, dry fruits, etc., (ii) retail merchants selling food grains, rice, pulses, etc., (iii) retail fruit merchants selling dry fruits such as almonds, dates, etc., along with fresh fruits, (iv) *bhadbhunjas*, who do roasting of groundnuts, rice gram, etc., (v) hawkers and itinerant vendors who sell groundnuts alone or along with other parched grains, and (vi) confectioners and food stuff vendors. In the villages in producing areas, cultivators and village merchants sell small quantities for edible use at *shundies* and *hats*. The nuts sold retail by cultivators in Bombay are commonly green pods. The upper plate facing page 175 shows a petty retailer selling groundnuts along with other food grains, while the lower plate on the same page shows two fruit shops in a town where groundnuts are sold along with other fruits. In North India, the sales are almost all as nuts while in South India nuts and kernels both are sold.

The grocers and retail merchants get their requirements from wholesale merchants, buying 1 to 10 bags at a time, for which payment is made in 3 to 60 days depending on the custom of the market, financial position of the buyer and business relations between the parties. They usually sell raw nuts to *bhadbhunjas* and hawkers and also to consumers. The fruit merchants however, usually sell roasted nuts. The *bhadbhunjas* do roasting of nuts for others and also sell roasted nuts on their own account. The charges for roasting, as has been mentioned in an earlier chapter, vary from 2 pies to 6 pies per seer or 6 annas to 1 rupee per maund, the nuts losing 10 to 20 per cent in weight by roasting. The hawkers or itinerant vendors usually buy a few seers of raw nuts at a time from retail merchants, get them roasted and sell them by hawking round the streets in towns, railway stations, cinemas, fairs, parks and other places where people collect for business or amusement. They sometimes sell salted kernels packed in paper envelopes. In several cases hawkers have to obtain licences, while for sales at railway stations,

permits have to be obtained from railway authorities. Confectioners and food stuff vendors usually sell fried groundnut kernels along with other fried kernels, fruits and seeds. The consumers buy from a *chhatak* or less to a few seers at a time. When bought unroasted, the nuts and kernels are usually roasted before being eaten.

The retail sales are usually brisk in winter and the nuts are invariably cleaned and roughly sorted according to size, the bigger nuts fetching a higher price. The handpicked selected nuts and kernels prepared at several centres in Bombay, Kathiawar and Hyderabad do not appear in the retail trade in India.

The margin between wholesale and retail prices varies depending on the season, place of sale, quantity sold retail, and whether sold raw or roasted. In Madras, groundnuts bought at Rs. 4 a maund from a wholesale merchant are sold to petty tradesmen or itinerant vendors at about 3 annas a viss or nearly 2 Madras measures, *i.e.*, nearly Rs. 5 a maund, *i.e.*, with a margin of nearly 25 per cent for the retailer. The itinerant dealers sell the nuts by weight or count after getting them roasted, and realise about Rs. 8 per maund. Allowing for the cost of decortication and loss in weight, the itinerant dealer's margin comes to nearly 40 per cent.

✓ In Bombay, the retailer's margin is reported to vary from 15 to 25 per cent. In the United Provinces and the Punjab, the prices realised by retailers are about 25 per cent higher than wholesale prices, while those obtained by hawkers are about 50 per cent higher than retailers' prices. In Bengal also, the retail prices are 20 to 30 per cent higher than wholesale prices, but in Bahawalpur State and in the Punjab, the retail prices are reported to be 40 per cent higher.

H.—Distribution in Burma.

It has been mentioned in an earlier chapter that groundnuts in Burma are used either for crushing or for edible purposes. The trade is almost all in the form of nuts in shell, in which form the mills also make their purchases, decorticating them in their own decorticators as and when required for crushing.

The big oil mills up-country make their purchases through their mill brokers, with whom they enter into contracts for supply of specified quantities of groundnuts at a fixed price and for delivery at mill by a specified date. The price fixed for one broker is usually not communicated to others. Advances from one-eighth to full value of the produce purchased against the contract are made to mill brokers and full settlement is made when the quantity named in the contract is completed. Small expeller mills up-country buy their requirements at collecting centres or from local merchants either direct or through brokers, who are paid a commission of about Rs. 2 for every 100 baskets. Mills in Rangoon buy nuts from Chinese traders, who have their agents at collecting centres.

[Distribution.]

INTER-CHAPTER SIX.

Cultivators may take part in distribution by making sales to exporters' agencies and oil mills at assembling centres apart from direct sales to *chekkus* in villages. A number of other agencies, *viz.*, wholesale merchants, commission agents, decorticating factories, oil mills and exporters, however, form the principal channels, through which the produce reaches the consumers.

The costs of distribution vary widely in different cases depending on the extent of movement and the agencies concerned at different stages. (When a producer sells direct to a *chekku* in the village, the distribution costs are negligible); when he sells to a decorticating factory, oil mill or exporter at an assembling centre, the costs increase by transport and handling charges but when the produce is sent to distant consuming markets or crushing centres, the distribution costs include railway freight besides handling and other market charges both at the despatching station and destination. When selling his produce to an oil mill at an assembling centre, a producer may get as much as 14 annas out of every rupee paid by the mill but when the produce is finally retailed in a distant consuming centre, the producer's share may be less than 7 annas. (On an average, cultivators do not receive much more than 10 annas of the wholesale price in consuming centres and 7½ annas of the retail price or of the c. i. f. London price)

The finance for distribution is provided mainly by *adutyas* and exporters, who generally advance 70 to 80 per cent of the value of produce sold or delivered to them. Banks also give advances against pledged stocks but their activities are confined only to large trade centres. The formalities are fewer and conditions of

security less strict when advances are given by *shroffs*, although the rates of interest are somewhat higher. Establishment of grades, standardisation of contracts, storage facilities and organised "futures" markets would make it possible for banks to take a more active part in financing the distribution of groundnuts.

The crop having developed as an export commodity, the organisation of the trade also developed largely to meet exporters' requirements, so that their buying agencies at different centres formed the vital part of the whole organisation. In recent years, the consumption in India has rapidly increased but the organisation of the internal trade has progressed but little with the large increase in the internal consumption. There are no organised trade bodies to look after the interests of the producers at assembling centres or even to regulate the trade or look after the interests of the sellers at the various crushing centres and terminal markets. Madras, which is the most important groundnut producing province, has no organised trade bodies. Bombay is perhaps the only exception in having well-organised trade bodies to regulate the trade in groundnuts. A few associations, which exist in some up-country markets, are generally not well-organised and exercise little control on the trade.

Burma.—The trade, unlike India, is almost all in the form of nuts in shell. Mill brokers, responsible for supplying the groundnut requirements of the mills, wholesale merchants and mills' agents at collecting centres, form the pivots of assembling and distribution.

CHAPTER VII.—GRADING AND STANDARDISATION.

A.—Present system of classification.

(1) INTERNAL TRADE.

It was stated in Chapter I that groundnuts produced in India, although they fall under four main varieties, are marketed under a number of trade names in different parts of India, and that in some cases, the same variety is known by different names in different places. The various trade names are either derived from the names of localities where the nuts are grown or traded in, or refer to the size of nuts or colour of kernels. For example, "Coromandel" indicates a variety largely grown in Madras, the export trade in which is largely from the ports on Coromandel coast, while "Khandesh" variety refers to groundnuts grown in West Khandesh and East Khandesh districts of Bombay. "Bold" variety is so-called because the nuts and kernels are comparatively large in size while "Red Natal" owes its name to the red colour of the thin skin (*testa*) covering the kernels.

There are no specifications for varieties represented by different trade names, although the nuts and kernels traded in under various trade names have some differences in respect of shape, size and colour as may be seen from plates facing pages 16 to 19, which show nuts and kernels of common trade varieties. The main characteristics of the different varieties have already been given on pages 16 and 17.

In Madras, the two most commonly known trade varieties are Coromandel and Peanuts. Coromandel is sometimes referred to as Mozambique or Mauritius while Peanuts are also known as Spanish or Natal. The kernels of Coromandel variety and to a smaller extent Peanuts are further differentiated in trade as "Machine Decorticated" or "Machined" and "Hand Decorticated" or "Ordinary". Kernels obtained by decorticating nuts with the use of machinery are known as "Machine Decorticated", while those shelled by the process of "hand shelling", referred to in Chapter IV (see page 125), are known as "Ordinary" or "Hand Decorticated". "Ordinary" kernels usually have more dirt and moisture and a higher percentage of damaged and bruised kernels. The other trade variety known in Madras, which has round kernels of medium size covered with deep red coloured *testa* and is grown mainly in Pollachi *taluk* of Coimbatore district (and parts of Madura district), is called "Pollachi Red". Other produce of Pollachi area, which does not have kernels covered with deep red coloured skin and is not different from Coromandel variety, is sometimes called "Pollachi Rose" and "Pollachi White".

† In Bombay, the different varieties are known by a number of trade names. Madras is the name applied at Bombay to Coromandels, while Khandesh and Khandesh Quality refer to nuts with small round kernels grown respectively in Khandesh districts proper and areas adjoining Khandesh districts. They belong to the same variety as Peanuts in Madras, although as a result of soil and climatic conditions, they are somewhat bigger in size and higher in oil content. Bold is the term applied to nuts owing their origin to Big Japan seed

and having large long kernels, while Red Natal or Lal Boria are nuts with round medium sized kernels covered with deep red coloured skin. They are very similar to Pollachi Red in Madras. Karad, which is between Bold and Coromandel in size and appearance and is sometimes called Pondicherry, is the name given to the produce of Karad taluk in Satara district.

In Kathiawar States, the common trade varieties are Bold and Peanuts but nuts of Bold variety are larger in size and have a tougher, cleaner and more whitish shell. These are called Kathiawar Bold or Superior Bold.

In Hyderabad, Bold, Coromandel and Peanuts are referred to in vernacular as *mota* (literally fat) *jawar* and *ghungru* (indicating round) respectively. In the Central Provinces, Small Japan or *lal dana* (literally red seed) is the name given to nuts with round kernels covered with deep red-coloured skin while Peanuts are sometimes referred to as *gulabi dana* (literally rose colour seed). In other areas, where the trade is largely in nuts, the nuts are often designated according to the source from which they hail or as *bara dana* (big seed) or *chhota dana* (small seed) according to whether the nuts are large or small in size. The following are some of the commonly known qualities.

Khandwa quality.—These are nuts of Bold variety grown in Central India. They are large in size and are considered specially suitable for edible use.

Gangapur quality.—These are also of Bold variety grown in Jaipur State of Rajputana. The nuts are smaller than Khandwa quality.

Malwi quality.—These are nuts of indigenous variety grown in Malwa tract of Gwalior State. The nuts are irregular in shape and the bulk of nuts contain 3 kernels each.

Poorbi quality.—These are also nuts of indigenous variety grown in some of the districts of the United Provinces. The nuts are comparatively small in size and of irregular shape.

Khanma quality.—This name is applied to groundnuts grown in Ludhiana district of the Punjab, which are considered very inferior in quality.

(2) EXPORT TRADE.

It has already been stated that exports are mostly as kernels, for which the following varieties are recognised in export markets :—

- (i) Coromandel groundnut kernels.
- (ii) Khandesh groundnut kernels.
- (iii) Bombay groundnut kernels.
- (iv) Pollachi Red groundnut kernels.
- (v) Red Natal groundnut kernels.
- (vi) Superior Bold groundnut kernels.

Coromandel groundnut kernels in export trade are supposed to be machine decorticated kernels from nuts of Coromandel

(Mozambique) variety, while Khandesh groundnut kernels include kernels from Peanuts grown in Madras as well as similar nuts grown in Khandesh districts of Bombay and adjoining areas. In recent years, a quality—Superior Khandesh—has been recognised apart from Khandesh. Superior Khandesh refers to kernels from Khandesh districts which have a higher oil content as compared with Khandesh which has become a general term for kernels of Peanuts variety grown in any part of India. Bombay groundnut kernels include kernels of Bold variety only. Pollachi Red and Red Natal are both kernels with deep red coloured skin exported usually from Calicut and Bombay respectively. Superior Bold groundnut kernels refer to specially large kernels of Bold variety exported from Kathiawar. A considerable proportion of Superior Bold kernels is exported in the form of handpicked selected kernels for edible use.

It may be mentioned that the exports are on the basis of the Incorporated Oil Seed Association contract or Marseilles contract. The Incorporated Oil Seed Association has one contract for export of Coromandel kernels to the United Kingdom, so that other varieties exported to the United Kingdom are also sold under this contract. The Association has two contracts for exports to the Continent, one for Coromandel kernels and the other for Bombay kernels. The handpicked selected nuts in shell and kernels from India are exported to the United Kingdom on the Associations' contract for handpicked selected Chinese or Manchurian nuts in shell and kernels. The terms of these contracts will be referred to in a later section.

B.—Practice regarding sales.

(1) SALES AFTER INSPECTION OF GOODS.

As already indicated in an earlier chapter, the sales by producers at the village or farm to village merchants and other assembling agents, as also most of the sales at assembling centres are made after inspection and a rough and ready examination of the goods by the buyers. In the case of nuts, the buyer, besides judging the nuts by their appearance and visualising the impurities present, examines a handful to see if they feel moist or otherwise and breaks open a few nuts to see the maturity and condition of the kernels. In the case of kernels, besides judging the impurities and making a rough estimate of the moisture by feeling and squeezing a handful of kernel, their condition is examined by cutting through or splitting a few kernels or biting a few between the teeth. The buyer takes all the factors into consideration when offering his price. It should be noted, however, that although the amount of impurities and the condition of nuts and kernels is taken into consideration before the price is agreed, in many cases the seller has to submit to some deductions sanctioned by local usages or pay some allowances for impurities declared by the buyer to be in excess of the usual. The exporters' buying agencies also make some purchases after inspection of the goods, such transactions being referred to as on *tale quale* basis.

(2) SALES ON SAMPLES.

In some assembling markets, instead of the produce, samples from the produce are inspected by the buyers. When carts are

parked at a distance from the place of sale, the samples are brought by commission agents or brokers and displayed or shown individually to different buyers. Samples of kernels are often taken by sellers or brokers to exporters' agencies and offices. In secondary and terminal markets, buyers when making purchases from wholesale merchants, often see samples of goods in their stock. The sales on samples are largely confined to local transactions, the sample forming the basis for the buyer to offer his price. In only a few cases a sample is sent to another station. If a transaction is completed on the basis of a sample sent, the same is retained and the goods when received are compared with the sample for quality.

(3) SALES ON FAIR AVERAGE QUALITY.

In the export trade, the kernels and nuts are sold on the basis of fair average quality, which is decided by the standard average of the Incorporated Oil Seed Association, for the month in which the kernels are shipped.

In the internal trade, however, sales on fair average quality are not very common. In some of the markets in Hyderabad State, *e.g.*, Raichur and Latur, the price of groundnuts for fair average quality is fixed by auction every morning. When different lots are weighed over to buyers and any particular lot is considered below the fair average quality, the matter is settled between the buyer and the seller by the latter usually agreeing to a reduction in price or agreeing to an allowance. When two different varieties are offered for sale, prices are fixed separately for each variety.

In the Central Provinces, the practice in some markets, when arrivals are heavy, is to auction 10 to 15 per cent only of the arrivals, the remaining lots being sold by negotiations on the basis of prices obtained at the auction. Under these conditions, *adatyas* sometimes group their clients' carts in lots according to quality and settle a flat rate for each lot on the basis of prices fetched at the auction. The rate thus fixed is, however, subject to revision at the time of weighing and delivery.

(4) SALES ON SPECIFIED PROPORTION OF KERNELS.

The system of sales on specified proportion of kernels in nuts does not appear to be in vogue except at a few markets. For instance, in the United Provinces, the prices offered by mills at Cawnpore for their purchases in the local market are on the basis of 65 per cent kernels. A small weighed quantity of nuts is shelled and the kernels weighed. A higher or lower price than the rate agreed to is paid according as whether the weight of kernels is found to exceed or fall short of 65 per cent of the weight of nuts in shell.

(5) SALES ON SPECIFIED BASIS OF ADMIXTURE.

The purchases by some mills and by exporters generally are made on a specified basis of admixture, *i.e.*, the amount of impurities, damaged seeds, etc., which may be accepted with the goods, are distinctly specified. Written contracts invariably pass between the parties for such sales; the basis of admixture and the allowances payable for excess admixture usually form part of the contract terms.

The basis of admixture and scales of allowances vary with different buyers and at different markets but it may be stated that the usual basis of admixture allowed in contracts for groundnut kernels in Madras is foreign matter 2 per cent mutual, and damaged seeds 2 per cent non-mutual. On the other hand, business at Bombay is usually transacted on 4 per cent mutual refraction basis, refraction meaning the total of foreign matter *plus* such proportions of damaged seeds, nooks, etc., as are taken as dirt.

Sales to foreign countries are made either on pure basis or 2 per cent impurities, the former usually to the United Kingdom and the latter to Marseilles in France.

C.—Quality factors.

Apart from the comparatively small proportion of groundnut production utilised for edible purposes, the main use groundnuts are put to is for expression of oil. The most important factor, therefore, in judging the quality of groundnuts is the quantity and quality of oil that can be obtained. The factors which, besides the inherent oil content of the kernels, affect the yield of oil, are moisture content, impurities and in the case of nuts, proportion of kernels and shell in nuts. The quality of oil is considerably influenced by the condition of kernels, of which the percentage of free fatty acids provides a fair index.

An accurate determination of oil content, amount of moisture or percentage of free fatty acids, however, involves chemical analysis. These tests are not, therefore, usually resorted to by the trade in India and the value of nuts and kernels is judged instead by the variety indicated by the size and shape of nuts or kernels, the place of production, determination of the impurities and a rough indication of moisture content by physical examination and estimation of the condition of kernels by finding out the proportion of split, damaged, slightly damaged, shrivelled and immature kernels and nooks. But these factors are not always all taken into consideration and the exact method for judging quality depends to some extent on the system under which sales are made. When nuts in shell or kernels are bought after inspection of goods or samples, they are, as already stated, subjected only to a cursory examination with a view to ascertain mainly the impurities and moisture. On the other hand, when kernels are sold on a specified basis of admixture, a representative sample is drawn and analysed for different components. These are, as will be shown in a subsequent section, valued differently by different buyers.

In the export trade, the quality of shipments is judged against a standard of fair average quality prepared for each month's shipment, which is tested for the percentage of admixture, the percentage of free fatty acids and oil content.

In order to examine the variations in different quality factors in the produce from different areas and of different varieties, a large number of samples of nuts in shell and kernels was collected from different parts of India during the survey and analysed. The

proportion of kernels and shells in nuts has already been discussed in Chapter I (see page 20) and the quality factors for kernels are discussed in the following pages. The samples have been grouped under four main heads, *viz.*, (i) Peanuts including Khandesh and Khandesh Quality, (ii) Coromandel including Karad, (iii) Red Natal including Pollachi Red and Small Japan, and (iv) Bold.

(1) OIL CONTENT.

The results of analysis summarised in Appendix XXXV, show that the oil content which differs in different varieties and in the produce from different areas, generally varies between 49 and 52 per cent, calculated on the basis of dry weight of clean kernels. Considering the average for all the samples of the different varieties from different producing areas, Peanuts (including Khandesh) have the highest oil content while Bold variety ranks last as far as richness in oil is concerned. Peanuts, however, show considerable variations in oil content in the samples from different areas. (Khandesh kernels grown in the Central Provinces and Bombay have a much higher oil content than Peanuts grown in Madras and Hyderabad. A sample from Khandesh district of Bombay was found to contain 55.5 per cent while another from the Central Provinces had 54.6 per cent oil. The average for Bombay samples worked out to 52.0 per cent. In contrast with this, the samples of Peanuts from Madras and Hyderabad averaged 50.2 per cent only.

Coromandel kernels from Madras varied from 43.6 per cent oil content found in a sample from Kurnool district to 56.9 per cent in a sample from Vizagapatam district. The average for the province worked out to 50.7 per cent. The samples collected at Bombay varied from 51.8 to 54.9 per cent oil, averaging 53.5 per cent but the average for the province came down to 50.5 per cent by the inclusion of samples from Satara district (Karad), the oil content in which averaged 47.4 per cent only. Hyderabad samples averaged 50.9 per cent, while a sample from Mysore had only 45.5 per cent oil.

In Red Natal variety, a sample of Small Japan from the Central Provinces had 54 per cent oil but a sample of Red Natal from Bombay had only 51.5 per cent and samples of Pollachi Red from Madras averaged 48.8 per cent. In Bold variety, Bombay samples averaged 49.1 per cent and Hyderabad samples 50.0 per cent oil. It is interesting to note here that Khandesh variety, which on account of its oil content is of the highest value to the oil miller in India, is usually sold at a discount as compared with Coromandel in export markets. Bold, which ranks low from an oil miller's point of view, is considered superior to other varieties for edible purposes.

The oil content of kernels is also affected by seasonal conditions, so that the same variety grown in the same area may show some fluctuations from year to year. The figures of average percentages of oil in shipments of groundnut kernels from India, given on page 65 show that the average oil content (on the basis of pure produce) of different varieties, varied within the following limits during the period 1930-31 to 1939-40.

Percentage of oil in shipments of groundnut kernels from India in different years.

Variety.	Oil content.	Average
Khandesh	47·87% (1932-33) to 48·92% (1936-37)	48·40%
Coromandel	48·04% (1938-39) to 48·86% (1932-33)	48·28%
Red Natal	46·71% (1932-33) to 48·70% (1934-35)	47·51%
Bold	46·42% (1936-37) to 47·65% (1934-35)	46·91%

(2) MOISTURE.

The percentage of moisture in different commercial samples (see Appendix XXXV) varied from a minimum of 3·3 per cent to a maximum of as much as nearly 20 per cent but most of the samples showed 4½ to 5½ per cent moisture. The inherent moisture in groundnut kernels is about 5 per cent so that kernels containing about 5 per cent moisture do not feel moist and are considered dry for trade purposes. It would, therefore, appear that most of the samples were fairly dry, but it must be noted that samples collected at ports and markets were in many cases from lots which had been subjected to sun-drying and also that some time elapsed between the collection of samples at different places and their examination at Coimbatore, with the result that the moisture content found on analysis was influenced by weather and storage conditions during the interval. It will be clearly seen from a perusal of Appendix XXXVII that the kernels continue to gain and lose moisture with the changes in weather conditions.

The kernels taken out from samples collected as nuts in shell show considerably more moisture, being in many cases between 6 and 12 per cent.

Of the different varieties, Red Natal shows the highest average for moisture followed by Peanuts, while Bold variety shows the lowest average. Madras samples generally show more moisture than those from Bombay and Hyderabad. The moisture in export samples of Coromandel kernels collected at Madras averaged 4·5 per cent as compared with an average of 5·1 per cent in samples collected in South Arcot district and 6·0 per cent and 6·4 per cent in samples from Coimbatore and Madura districts respectively. This is accounted for by the drying of the kernels, where necessary, before preparing consignments for export.

In Bombay, samples of Khandesh variety from Khandesh districts had an average moisture of 4·8 per cent as compared with an average of 5·4 per cent in samples from Dharwar district. In other areas also, the moisture content appears to vary from sample to sample, from district to district and for different varieties.

(3) FREE FATTY ACIDS.

The free fatty acids in different samples (see Appendix XXXV) were found to vary from a minimum of ·07 per cent to a maximum of 7·10 per cent, most of the samples showing less than 2 per cent free fatty acids. Samples of Pollachi Red from Coimbatore district of Madras, having a comparatively higher percentage of moisture showed the highest free fatty acids. This is largely due to the fact

that in Coimbatore district rains almost coincide with or closely follow the harvesting so that nuts are not sufficiently dry before being marketed. The kernels, as a consequence, develop free fatty acids more rapidly. The average for Pollachi Red samples was 3.84 per cent as compared with 2.8 per cent found in a sample of Red Natal from Bombay and .34 per cent found in a sample of Small Japan from the Central Provinces. Samples of Coromandel kernels from Madras averaged 1.35 per cent as compared with an average of 0.89 per cent for Bombay samples and 1.25 per cent free fatty acids for Hyderabad samples. Of the various districts of Madras, the maximum free fatty acids amounting to more than 7 per cent in one sample and an average of over 3 per cent were found in samples from South Arcot district, where the practice of hand-shelling and wetting the kernels appears to be most prevalent. The free fatty acids are seen to be higher in samples from southern districts of Tanjore, Trichinopoly and Coimbatore as compared with those from Anantapur, Bellary and Kurnool. The export samples collected at Madras showed higher free fatty acids as compared with those from several producing areas. For instance, samples of Coromandel collected at Madras averaged 2.38 per cent free fatty acids as compared with 1.18 per cent in samples from Chittoor district. Similarly samples of Peanuts at Madras had an average of 1.53 per cent free fatty acids as compared with 0.57 per cent in samples from Kurnool district. The free fatty acids thus tend to increase during the movement of the crop from producing areas to ports.

In the case of exports abroad, there is further development of free fatty acids during the voyage so that the free fatty acids on arrival at destination are appreciably higher. The average percentage of free fatty acids in shipments of groundnut kernels between 1930-31 and 1939-40, as will be seen from the figures given on page 65, varied between the following limits for different varieties.

Percentage of free fatty acids in shipments of groundnut kernels from India in different years.

Variety.	Free fatty acids.	Average
Khandesh	2.05% (1938-39) to 5.23% (1932-33)	3.60%
Coromandel	3.39% (1930-31) to 5.29% (1933-34)	4.38%
Red Natal	2.45% (1937-38) to 3.40% (1932-33)	4.57%
Bold	1.89% (1930-31) to 5.63% (1937-38)	3.36%

The development of free fatty acids during the voyage when goods are stored in the holds of steamers, is accelerated when goods become wet before being loaded into steamers. Experiments made to examine the rate of development of free fatty acids, results of which are summarised in Appendix XXXVII show that the development of free fatty acids is mainly influenced by the proportion of damaged kernels, split kernels and nooks, damaged kernels and nooks developing free fatty acids much more and considerably faster than sound whole kernels.

(4) DAMAGED AND SLIGHTLY DAMAGED KERNELS.

Kernels, which become internally discoloured, are known in trade as damaged kernels, while those that are discoloured only exter-

nally or partly are termed slightly damaged or touched. The weather conditions immediately before and after the harvesting of nuts, the drying given to the nuts prior to being marketed or stored, method of decortication and storage conditions largely influence the amount of damaged and slightly damaged kernels.

The damaged kernels in the samples collected from different parts of India (see Appendix XXXVI) varied from nil to 15.8 per cent and slightly damaged kernels from nil to 12.7 per cent. The maximum damaged and slightly damaged kernels appear in samples of Pollachi Red from Coimbatore district of Madras (included under Red Natal) followed by Coromandel, while the minimum damaged and slightly damaged kernels occur in samples of Bold variety. In the case of Coromandel variety, the samples from different districts of Madras differ appreciably in respect of damaged and slightly damaged kernels. For instance, samples from South Arcot district show an average of 3.6 per cent damaged and 4.19 per cent slightly damaged as compared with .45 per cent damaged and .20 per cent slightly damaged in samples from Bellary district. As was noticed in the case of free fatty acids, the damaged and slightly damaged kernels also are seen to be higher in southern districts of Tanjore, Trichinopoly and Coimbatore. The following figures, giving the averages of damaged and slightly damaged kernels found in samples of Coromandel kernels collected from some of the districts of Madras, will clearly show the difference between the produce from different districts in respect of damaged and slightly damaged kernels.

Damaged and slightly damaged kernels in samples of Coromandel kernels from different districts of Madras.

	Damaged.		Slightly damaged.		Total.	
	Per cent.		Per cent.		Per cent.	
Anantpur	1.50		0.83		2.33	
Bellary	0.45		0.20		0.65	
Chittoor	0.72		0.92		1.64	
Cuddapah	0.90		0.78		1.68	
Coimbatore	2.06		1.95		4.01	
South Arcot	3.60		4.19		7.79	
Tanjore	3.20		1.80		5.00	
Trichinopoly	1.94		1.56		3.50	

The export samples of Coromandel variety collected at Madras showed an average of 1.46 per cent damaged and 1.2 per cent slightly damaged.

In Peanuts, the maximum damaged and slightly damaged kernels were found in the samples from Hyderabad while samples of Khandesh variety from Bombay generally showed more damaged and slightly damaged kernels than samples of Peanuts from Madras.

It has already been stated that damaged and slightly damaged kernels develop free fatty acids faster than whole kernels. As such, the proportion of damaged and slightly damaged kernels is a factor of great importance from the point of view of keeping qualities of groundnut kernels and the quality of oil obtainable from them.

(5) SHRIVELLED AND IMMATURE KERNELS.

The shrivelled and immature kernels are smaller in size and generally contain more free fatty acids and less oil than fully developed kernels*. As their presence is largely due to seasonal conditions, the proportion of shrivelled and immature kernels in the produce from different districts varies in different years. The proportion is also more when the crop is harvested somewhat earlier because of cultivators' need for cash or to take advantage of rains or for fear of land becoming hard and making harvesting difficult.

The shrivelled and immature kernels in samples collected from 1935-36 crop varied from nil to as much as 20.0 per cent in different samples (see Appendix XXXVI). Madras generally showed the highest proportion of shrivelled and immature kernels, the average for Peanuts and Coromandel being 6.0 per cent, and 5.6 per cent respectively. Bombay samples showed a higher percentage of shrivelled kernels in Coromandel than in Khandesh variety, the average for the samples of the two varieties being 4.4 per cent and 3.5 per cent respectively.

(6) SPLIT AND BROKEN KERNELS.

Split and broken kernels result from breakage during decortication and handling. It was stated in Chapter IV that more split and broken kernels result when the nuts are dry and the decorticators are run at a high speed and that nuts are often moistened with the object of reducing the proportion of split and broken kernels.

The proportion of broken and split kernels in the different samples examined was found to vary from nil to over 70 per cent (see Appendix XXXVI). The highest percentage of splits and brokens was found in the samples of Peanuts from Hyderabad, where a sample from Aurangabad had as much as 69.6 per cent brokens and splits and the average for samples from all the districts worked out at 42 per cent. Samples of Khandesh variety from Bombay and Peanuts from Madras averaged 25.6 and 11.6 per cent respectively. Coromandel samples from Madras contained on an average only 16 per cent brokens and splits although a sample from Cuddapah district had 70.5 per cent brokens and splits. The export samples collected at Madras averaged 24 per cent splits and brokens. It may be noted that the proportion of splits and brokens in the samples from South Arcot district, where hand shelling is also practised, was not higher than in most of the other districts. Samples of Coromandel from Bombay contained on an average 23.8 per cent brokens and splits. Hyderabad, which showed a very high percentage of splits and brokens in the samples of Peanuts had an average of only 12.8 per cent brokens and splits in Coromandel samples.

(7) NOOKS.

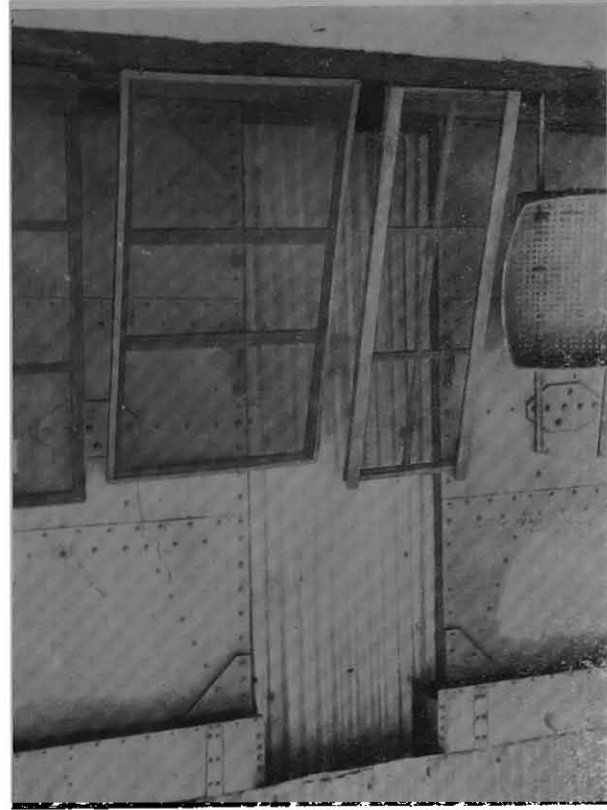
Nooks are very small pieces of groundnut kernels, which like brokens and splits, result during decortication. The percentage of nooks in the samples tested varied from nil to over 10 per cent (see Appendix XXXVI). The maximum proportion of nooks amounting

*See page 122.

†May be defined as $\frac{1}{4}$ th or less than $\frac{1}{4}$ th of a whole kernel.



**BREAKING CLODS OF CLAY FOR MIXING WITH
GROUNDNUT KERNELS.**



**SET OF SIEVES USED FOR PREPARATION OF CLAY
PIECES FOR BEING MIXED WITH GROUNDNUT
KERNELS.**



COOLIES WITH TRAYS FULL OF CLAY PIECES
READY TO SPRINKLE THEM ON GROUNDNUT
KERNELS.



SPRINKLING CLAY PIECES OVER GROUNDNUT
KERNELS.

to 10.5 per cent was found in a sample of Coromandel from Anantapur district of Madras. This was closely followed by a sample of Peanuts from Warangal district of Hyderabad with 10.2 per cent nooks and a sample of Bold from Sholapur district of Bombay with 9.5 per cent nooks. Considering the averages of samples of different varieties from different areas, 1.8 per cent nooks were found in samples of Red Natal and 1.7 per cent in samples of Bold from Bombay. Coromandel samples from Madras and Bombay showed on an average 1.5 per cent and 1.4 per cent nooks respectively.

(8) IMPURITIES.

The impurities found with groundnut kernels generally consist of pieces of stone and clay, sand, stalks, shell and unshelled nuts (from which only the shell separated is reckoned as an impurity). These find their way with the kernels by accidental mixing during decortication and subsequent handling, weighing, packing, etc., or in some cases are deliberately mixed at different stages of marketing.

The impurities found in different samples were found to vary from nothing to over 12 per cent (see Appendix XXXVI). The samples from Bombay generally have a higher percentage of impurities than those from Madras. For instance, the impurities found in samples of Coromandels at Bombay averaged 3.2 per cent and only 1.4 per cent in Madras samples. This is accounted for by the cultivation of groundnuts in Bombay Presidency being done mostly in heavy soils, so that particles of clay stick to the nuts and get mixed with the kernels.

Of the different varieties, considering the average of all the samples from different areas, Peanuts appear to have the maximum impurities. The impurities found in export samples are not lower than those found in samples from most of the producing areas showing that groundnut kernels receive little cleaning as they move after decortication from assembling centres to ports or consuming centres. Even at ports, they at times are given an addition of clay.

Clay, for the purpose, is in some cases actually bought and the clods broken to the size of kernels. The two plates facing page 192 show female coolies busy breaking clods of clay and a set of sieves which were seen in operation at one of the ports for sieving the broken pieces of clay. The prepared pieces of clay are mixed with the kernels, as will be seen in the plates facing this page, by coolies sprinkling them over layers of groundnut kernels by walking backwards and forwards with trays full of clay particles. The plate on the left shows a row of coolies with trays full of pieces of clay ready to start on the process while the plate on the right shows them actually engaged on distributing clay over groundnut kernels.

The amount of impurities found in shipments of groundnut kernels on arrival in foreign countries do not appear to be anything less than the impurities found in samples of kernels collected from different producing areas. The figures of percentages of average admixture in shipments of groundnut kernels, given on page 66 show that the admixture in shipments of different varieties varied between the following limits between 1930-31 and 1939-40.

Percentage of admixture in shipments of groundnut kernels from India in different years.

Variety.	Admixture.	Average
Khandeah	1.83% (1936-37) to 2.33% (1930-31)	2.00%
Coromandel	1.69% (1938-39) to 2.12% (1935-36)	1.90%
Red Natal	1.09% (1939-40) to 2.03% (1930-31)	1.55%
Bold	2.09% (1937-38) to 2.43% (1935-36)	2.23%

It is gratifying to note that the average impurities in shipments of Coromandel, which form the bulk of exports, have been steadily coming down since 1935-36—the average impurities in 1936-36 were 2.12 per cent as compared with 1.91 per cent in 1936-37, 1.69 per cent in 1937-38 and 1.63 per cent in 1939-40. Efforts are, however, necessary to further reduce the amount of impurities in shipments—a reduction of $\frac{1}{2}$ per cent in average impurities means a saving of at least Rs. 50,000 on sea freight alone.

(9) CASTOR SEED.

Another impurity, sometimes found with Indian groundnut kernels is castor seed. The presence of this seed is very objectionable as it is likely to make the cake unfit for use as cattle food. Groundnut cake even with traces of castor seed or husk is very heavily penalised in export markets, and to keep a good name for Indian oil cakes in foreign markets, it is of utmost importance to prevent admixture of castor seed. Enquiries show that castor seed is never deliberately added to groundnut kernels but a few castor seeds at times find their way with groundnut kernels by the use of old bags and storage in godowns where both castor and groundnuts are stored. Castor being a very important crop in Hyderabad, it is not surprising that the admixture is often in the produce from Hyderabad. The problem is of such importance that it calls for a close examination from the State authorities.

(10) ADMIXTURE WITH OTHER VARIETIES.

The admixture of other varieties with a particular variety is generally penalised by the trade, if it is over a certain limit because such admixture may affect the variety adversely. For instance, the admixture of Coromandel variety with Bold, although the former may be more suitable for oil extraction, makes the Bold kernels unfit for edible trade, where uniformity in size is one of the factors desired. Similarly, the admixture of Red Natal with Peanuts may, besides affecting the appearance of kernels, affect the colour of the oil and so appreciably lower the quality of oil produced. The limits allowed by trade for admixture of different varieties will be discussed later in the section on contracts.

(11) SIZE AND WEIGHT OF KERNELS.

It has already been stated that kernels of different varieties have more or less their characteristic size, shape and colour. The samples collected from different parts of India were examined to see if the weight of kernels or the size (represented by bushel weight) could form a basis for the classification of different varieties.

The weight of 100 sound kernels from different samples was determined and after an examination of these results as also of some

experiments carried by two important trade associations and an oil mill, it was suggested to the trade that the different varieties could be classified as under :—

Khandesh (Peanuts).—Small round kernels having a count of less than 77 kernels per ounce.

Coromandel.—Medium long kernels smaller than Bold.

Bold.—Large long kernels having a count of not more than 60 kernels per ounce.

Red Natal.—Round kernels with deep red coloured skin.

Similarly, the bushel weights of different samples were examined with the following results.

Bushel weights of samples of groundnut kernels.

	Minimum.	Maximum.	Average.
Khandesh (Peanuts)	51.1	55.0	53.1
Coromandel	47.0	54.1	51.3
Red Natal	52.7	56.3	54.1
Bold	47.7	52.3	50.1

The results and suggestions were examined and discussed at three informal conferences between the Central Marketing Staff and representatives of associations and mills dealing in groundnuts, and it was considered that the basis of weight of kernels or bushel weight would not be suitable as the characteristics of different types overlapped and were subject to variation from crop to crop. Further, the distinctive nature of the different types was obvious to the eye and needed no definition.

(12) TOTAL IMPURITIES, DAMAGED SEEDS AND NOOKS, ETC.

It will be clear from what has already been stated that the trade in India, besides taking into consideration the variety and examining whether the kernels are dry or otherwise, assess the quality of kernels by the proportion of all or some of the following items.

- (i) Impurities (foreign matter).
- (ii) Damaged kernels.
- (iii) Slightly damaged kernels.
- (iv) Shrivelled and immature kernels.
- (v) Nooks.
- (vi) Split and broken kernels.

The results obtained in respect of these items by analysing a large number of samples of different varieties collected from different parts of India have already been discussed and are summarised in Appendix XXXVI. The totals of the average proportion of the above-mentioned six items given in the last column of the Appendix referred to, show that considering the samples from all the main groundnut producing areas, the total is highest (35.3 per cent) in the case of Peanuts, followed by Coromandel (27.7 per cent). It will be observed that the total amounts to as much as 53.5 per cent in the case of samples of Peanuts from Hyderabad and as little as 15.8 per cent in the sample of Red Natal from the Central Provinces. The high figure for Hyderabad Peanut samples is due to the exceptionally high proportion of brokens and splits. If brokens and

splits are not taken into consideration, the total of impurities, damaged, slightly damaged, shrivelled, and nooks, as may be seen from the diagram facing this page, is highest (12.1 per cent) and lowest (1.1 per cent) in the case of Red Natal samples from Madras and the Central Provinces respectively.

It should, however, be noted that the different items are not added as such for assessing quality or fixing allowances but are computed by different buyers according to their own scale of allowances. These will be discussed later and may be seen in Appendix XXXVIII. According to the terms of the proposed All-India Standard Contract to be referred to later (see page 204), impurities are considered as all dirt, damaged and slightly damaged kernels (over 2 per cent up to 10 per cent) as $\frac{1}{4}$ th to $\frac{1}{2}$ dirt, shrivelled and immature kernels (over 2 per cent) as $\frac{1}{4}$ th dirt, nooks (over 5 per cent) as $\frac{1}{4}$ th dirt, broken kernels (over 10 per cent) as $\frac{1}{4}$ th dirt and splits (over 25 per cent) as $\frac{1}{16}$ th dirt. The amount of dirt calculated as above is totalled and a proportionate allowance or premium is arrived at according as whether the total exceeds or is less than 4 per cent.

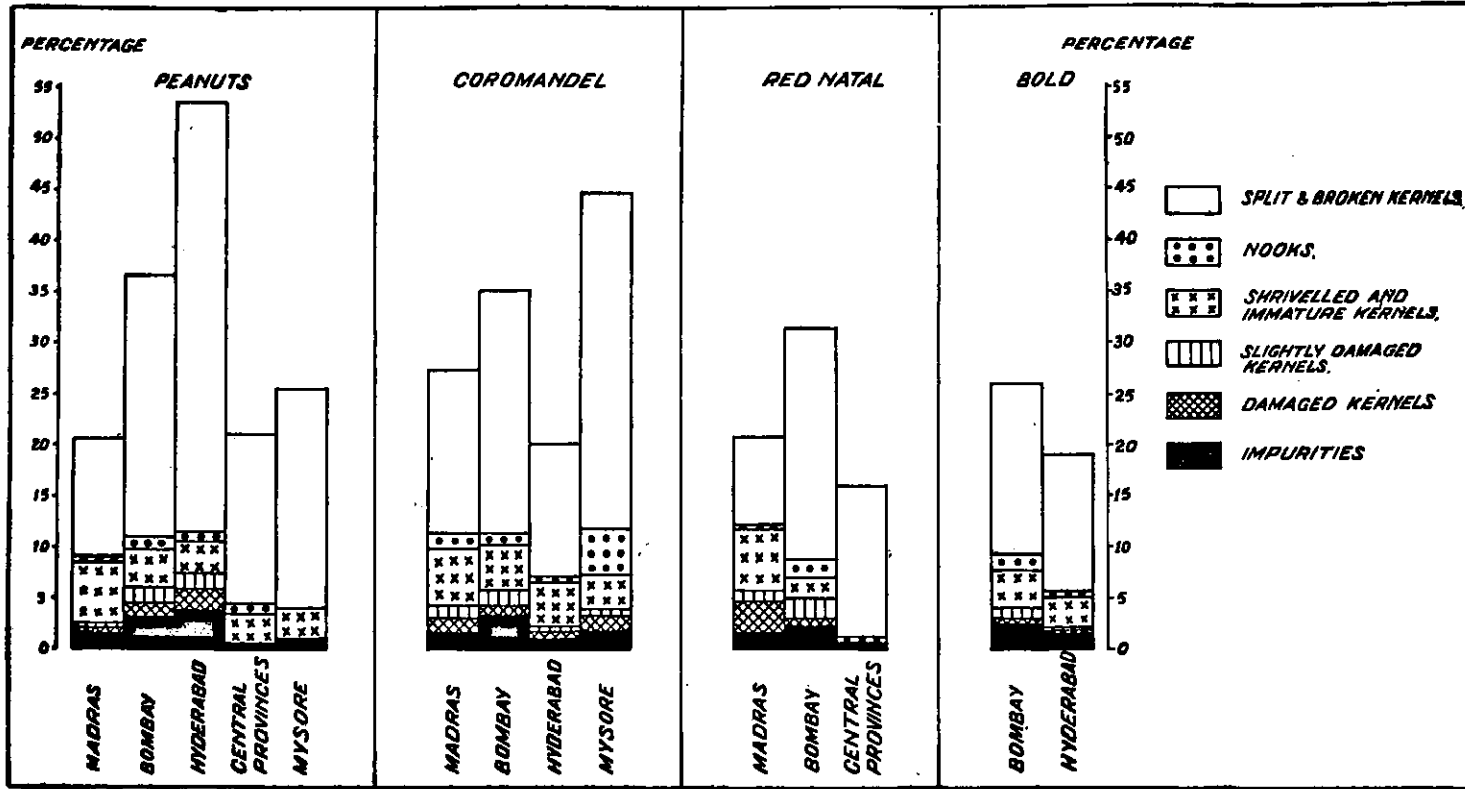
D.—Quality of kernels exported from India.

The quality of groundnut kernels exported from India, the bulk of which as discussed earlier is of Coromandel variety, has often been the subject of adverse comment, the main factor complained of being the high percentage of free fatty acids, particularly in shipments from ports south of Madras.

The ports south of Madras concerned in the exports of groundnuts are mainly Pondicherry, Cuddalore and Negapatam. These three ports together with the port of Madras exported on an average 316,000 tons annually during the period 1933-34 to 1937-38, as compared with 484,000 tons exported from all Madras ports taken together and 774,000 tons exported from India during the same period. The four ports, named above, thus handled 65 per cent of the exports from Madras ports and about 40 per cent of India's total exports. In 1938-39 the exports from these 4 ports amounted to 409,000 tons, i.e., nearly 55 per cent of the exports from Madras ports (754,000 tons) and 35 per cent of the total exports from India (1,177,000 tons). The exports consist largely of Coromandel variety.

It has already been observed that the percentage of free fatty acids found by the Incorporated Oil Seed Association, London, in shipments of Coromandel kernels varied between an average of 3.39 per cent and 5.29 per cent in different years during the period 1930-31 to 1939-40. The percentage of free fatty acids in the shipments of individual months, however, varied between a much wider range, being as high as 7.55 per cent in May 1937 shipment and as low as 2.38 per cent in February 1931 shipment. An examination of figures for 10 seasons shows that shipments in 12 months only (out of 120) had free fatty acids below 3 per cent. 31 shipments had between 3 per cent and 4 per cent free fatty acids, 37 had between 4 per cent and 5 per cent, 29 had between 5 per cent and 6 per cent and 11 had more than 6 per cent free fatty acids. Thus most of the shipments had between 3 per cent and 6 per cent fatty acids. The figures for different months do not show any definite periodicity

PROPORTION OF IMPURITIES, DAMAGED, SLIGHTLY DAMAGED, SHRIVELLED AND IMMATURE KERNELS, NOOKS AND SPLIT AND BROKEN KERNELS IN SAMPLES OF GROUNDNUT KERNELS.



Facing page 197.]



ARRANGEMENT OF BAGS FOR DRAWING SAMPLES OF GROUNDNUT KERNELS
AT BOMBAY.

but shipments between December and March generally show lower free fatty acids as compared with those between May and August.

Separate figures are not available for shipments from different ports but as an examination of the samples collected in 1935-36 from different districts showed the free fatty acids to be generally higher in areas which form the hinterland of these ports (see page 191), it is reasonable to assume that the free fatty acids were somewhat higher in the shipments from ports south of Madras as compared with those from other ports on the East Coast, viz., Masulipatam, Coconada and Vizagapatam.

The causes for the high percentage of free fatty acids are several and diverse. In the first place, the development of free fatty acids, as stated before, is largely brought about by the presence of damaged kernels, nooks, splits and shrivelled and immature kernels. When kernels with a high percentage of damaged kernels, etc., and free fatty acids, as were noticed in the samples from South Arcot, Tanjore, Trichinopoly and Coimbatore districts are loaded into steamers, the high temperature in the holds accelerates the increase during voyage.

Secondly when goods are carried from shore to ships in lighters, some bags may get wet or moist by waves splashing on the lighters or during the process of loading, *i.e.*, slinging the bags on to the ship from the lighters or by rain. Moist goods help the development of free fatty acids, specially with the heat in the holds. Such damage is more in shipments made during monsoon months when seas are high. The higher free fatty acids found in shipments between May and August are partly accounted for by this factor.

Thirdly, the free fatty acids tend to increase during storage of goods, the extent of increase depending on the length of storage and the condition of goods at the time of storage. The rate of development is slow first and becomes faster as the period of storage increases. The humid atmosphere at the ports is conducive to this increase. This factor accounts for the relatively lower percentage of free fatty acids in shipments made between December and March.

Again when nuts are moistened or wetted before decortication, the moisture helps to set in the development of free fatty acids in kernels, so that after some storage the kernels show a high percentage of damaged kernels and free fatty acids.

The excessive handling of goods is yet another factor. The handling at the decorticating factories, at different stages of the movement of the produce from assembling centres to ports and that attendant to changing of bags used in packing and manipulation of goods at ports tend to increase the proportion of broken kernels and nooks and thus contribute to the development of free fatty acids.

The remedy against high free fatty acids appears, therefore, to lie in (i) the harvesting of nuts only when fully mature in order to reduce the proportion of immature kernels, (ii) drying the nuts at the farm or village before sale to reduce moisture and minimise chances of fermentation, (iii) careful decortication with properly

adjusted decorticators to minimise the proportion of brokens, splits and nooks and drying of kernels at decorticating factories before packing in bags, (iv) improving the conditions of storage to reduce damaged kernels, etc., and reducing the length of storage in the form of kernels, specially in the humid atmosphere at ports, (v) reducing the interval between decortication and shipment to a minimum, (vi) avoiding unnecessary handling, and (vii) reducing or making special provisions regarding the shipments from open ports, where ships anchor at a distance from the shore, specially in monsoon months.

Besides the free fatty acids, the other factor in connection with the quality of kernels exported is the percentage of admixture, i.e., the amount of impurities. As already stated, the percentage of admixture found by the Incorporated Oil Seed Association, London, in shipments of Coromandel kernels, varied between 1.69 per cent and 2.12 per cent in different years during the period 1930-31 to 1939-40. The extreme range in the shipment of individual months was between 1.26 per cent in December 1932 and 2.41 per cent in March 1931. As in the case of free fatty acids, shipments in the first few months of the season show less impurities than those in the latter part of the year. An examination of the figures for percentages of admixture in shipments made in 10 seasons shows that there has been an improvement in the quality of kernels in respect of this factor in recent years. The admixture during 3 seasons 1930-31 to 1932-33 averaged 2.01 per cent which came down to an average of 1.97 per cent during the seasons 1933-34 to 1935-36, 1.73 per cent during the seasons 1936-37 to 1938-39 and only 1.63 per cent in 1939-40. The position is, however, capable of considerable further improvement—more so when the practice of adding clay still continues. The adoption of contract terms on a mutual basis should go a long way to bring about the desired improvement.

E.—Methods of sampling and analysis.

The methods adopted for sampling vary in different places and also according to the system under which sales are made. When sales are made on inspection of goods or samples, a handful or two taken out from one or more bags at random form the sample. On the other hand, when sales are made on written contracts specifying the basis of admixture, sampling usually involves a more elaborate procedure. A method common with some of the exporters in Madras, is to select 10 bags at random out of the lot to be sampled. These are opened and the contents of each bag piled in separate heaps. A small quantity is then taken out by an exporter's employee with a scoop from 3 different parts of each heap. The quantity so obtained from different bags is put in a basket and taken to the analysis room. About 1,000 grammes (a little over 2 lb.) are weighed out from the basket for analysis.

Another system in vogue at Bombay is that, after 10 bags have been selected—usually by buyer—they are arranged in a row, so that the first bag stands upright, the next on its side, the third upright, the fourth on its side and so on. The arrangement of bags may be seen in the plate facing page 197. The seams of bags are cut open

and a handful is drawn from each bag by inserting the hand into the contents. The sample so obtained is usually divided into 3 parts, the first being retained by the seller, the second by the buyer and the third for the arbitrator or surveyor in the event of any dispute. Other systems found in vogue for sampling provide for selection of 2 per cent to 5 per cent bags from a lot, the contents of which are spread out on the floor. The sample is made up by drawing several scoopsful from different parts.

For the purpose of analysis, about 1,000 grammes are taken at Madras. The impurities, *i.e.*, foreign matter including dirt, sand, pieces of stone, shells, etc., are separated by means of a set of sieves. Unshelled nuts, if any, are picked by hand and the shell removed and added to the impurities, which are then weighed and divided by the weight of kernels to arrive at the percentage of kernels. 100 grammes of kernels are then taken by means of a scoop and funnel and damaged kernels, slightly damaged kernels, immature and shrivelled kernels, nooks and kernels of other varieties are separated and weighed. The procedure for examining the condition of kernels, *i.e.*, to ascertain whether they are sound or wholly or slightly damaged, varies with different buyers. In some cases, the kernels are cut lengthwise while in others a cut is made across the circumference. The percentages of different components are noted and the allowance chargeable from the seller calculated. Appendix XXXIX gives a copy of a form used by a firm of exporters for recording results of analysis and weighment of bags.

At Bombay, the sample taken for analysis is 100 tolas. The procedure adopted for analysis is similar to that at Madras.

The different methods in vogue for the sampling of groundnut kernels were examined at an informal conference of some representatives of associations and mills dealing in groundnuts with the Central and Provincial Marketing Staffs held at Bombay in September 1937 and the method of sampling and analysis given below was recommended to the trade.

Method of sampling groundnut kernels.—“ For drawing a sample from a consignment, 10 per cent bags should be picked out with a minimum of 5 bags and a maximum of 10 bags. These bags should be laid horizontally and their seams cut open. From the contents of each bag 3 scoops should be taken out—one from the bottom, another from the middle and a third from the top. The quantities so taken from the different bags should be put in one container and this quantity should form the basis of the sample to be analysed. The whole sample should be cleaned for dirt and for further analysis hundred tolas should be taken with small scoops from the cleaned sample. From these 100 tolas, damaged kernels, slightly damaged kernels, splits, broken and nooks should be separated and weighed ”.

Subsequently, two other methods, embodying slight modifications in the method agreed to at the Bombay conference, were suggested by two chambers of commerce. The relative merits of the three methods were examined by arranging for a number of samples to be drawn by each of the three methods and having them analysed

for various items of refraction. The results were examined statistically to ascertain as to which of the three methods gave the most consistent results. Details about this experiment and the conclusions drawn are given in Appendix XL. It will be observed that the method agreed to at the Bombay conference was found to give the most consistent results. This method is, therefore, recommended to the trade.

The methods adopted for drawing samples of handpicked selected nuts in shell and kernels are somewhat different. For nuts in shell, the impurities are usually separated from one full bag. After the impurities have been separated a sample of 100 oz. is drawn, from which discoloured and damaged nuts are picked and weighed and the number of nuts per ounce determined. In the case of handpicked selected kernels also, the impurities are separated from one bag. A sample of about 40 oz. is drawn from the cleaned kernels and from this a smaller sample of about 10 oz. is drawn. The count per ounce is determined from this sample.

The methods of sampling and analysis in the handpicked selected trade were examined at two conferences between the Central Marketing Staff and interests concerned with the preparation of and trade in handpicked selected kernels and nuts in shell and the following are the details of the methods recommended.

Method of sampling handpicked selected nuts in shell.—The buyers shall keep aside 10 per cent sound bags with a minimum of 5 bags from a consignment. From the bags so kept the buyer and seller shall each select one bag. The contents of the two bags shall be mixed and one bag prepared. The impurities (stems, dirt, stones and other foreign matter) and shells from empty and broken pods shall be separated by hand and quantities separated weighed.

After the impurities and empty and broken nuts have been separated the contents of the bag shall be heaped and a sample of about 100 oz. drawn by the buyer or his representative by taking 10 oz. with a scoop 10 times from different parts of the heap on all sides. The discoloured and damaged nuts will be picked up from this sample and weighed to determine their percentage.

After the discoloured and damaged nuts have been separated from the sample, it shall be spread out and a smaller sample of about 50 ounces taken out and put in one of the pans of the scale by taking about 5 ounces with a shallow scoop ten times from different places. The exact weight of the nuts in shell in the pan shall be determined and their number counted. The count per ounce shall be calculated by dividing the number by the weight in oz. and rounding the result to the nearest quarter nut.

Method of sampling handpicked selected kernels.—The buyers shall set aside 10 per cent sound bags with a minimum of 5 bags from a consignment. From the bags so kept, the buyer and seller shall each select one bag. The buyer's bag shall be taken for analysis. The impurities and broken, skinned and damaged kernels shall then be separated by handpicking and the quantities separated weighed, and allowance calculated at the rates specified in the contract. After

the impurities, broken, skinned and damaged kernels have been separated, the contents of the bag shall be heaped and a sample of about 100 *tolas* (40 oz.) drawn in a tin with a scoop having a capacity of at least 10 *tolas* (4 oz.) by both buyer and seller taking 5 scoops each from different parts of the heap on all sides. The contents of the tin shall be spread out and a smaller sample of about 25 *tolas* (10 oz.) drawn by both buyer and seller taking 5 scoops each with a shallow scoop having a capacity of $2\frac{1}{2}$ *tolas* (1 oz.). This sample shall be weighed and the number of kernels counted. The count per ounce shall be calculated by dividing the number by the weight in ounces. In case of dispute, the bag selected by the seller shall be similarly analysed and an average of the two results taken.

F.—Contracts used in groundnut trade.

The contracts used in groundnut trade fall under the following categories.

- (1) Exporters' selling contracts.
- (2) Exporters' purchasing contracts.
- (3) Mills' and trade associations' contracts.
- (4) "Futures" contracts.

(1) EXPORTERS' SELLING CONTRACTS.

The contracts used by exporters when selling groundnut kernels abroad are the contracts of the Incorporated Oil Seed Association, London, and the Marseilles contract.

The Incorporated Oil Seed Association has three forms of contract for Indian groundnut kernels, *viz.*, (i) Coromandel groundnut kernels for the United Kingdom, (ii) Coromandel groundnut kernels for the Continental ports and (iii) Bombay groundnut kernels for the Continental ports. There is no separate contract for Bombay groundnut kernels for the United Kingdom and all groundnut kernels to the United Kingdom are shipped on the Coromandel contract. The contracts for Coromandel kernels provide for shipment from a port or ports on the Coromandel coast and/or Bombay while that for Bombay groundnut kernels stipulates shipment from Bombay with an option to sellers to ship from Marmugao. The other terms and conditions embodied in the three contracts are essentially the same with the exception of some minor differences regarding the terms of payment. Extracts from the contract for Coromandel kernels for the United Kingdom are given in Appendix XLI. It will be observed that the contract besides stating the quantity sold and the rate at which sold, specifies that the kernels should be of fair average quality of their description to be decided by the standard of the Incorporated Oil Seed Association for the month in which the kernels are shipped. The basis is pure groundnut kernels and the buyer receives an allowance equal to the percentage of admixture, and when the allowance exceeds 3 per cent, the excess over 3 per cent is doubled. The contract also lays down that the kernels are to be packed in $2\frac{1}{2}$ lb. B. Twill bags but the

seller has the option to use 2½ lb. Heavy C bags paying the buyer an allowance of one half penny per bag. The terms of payment, the method to be followed for sampling and analysis and the procedure for arbitration for settlement of disputes are also included in the contract.

Besides the three contracts referred to above for the export of groundnut kernels (for crushing) the Association's contract for handpicked selected Chinese and/or Manchurian groundnuts in shell/groundnut kernels is used for handpicked selected nuts in shell and kernels exported from India. The terms and conditions of the above contract are similar to those for groundnut kernels for crushing with the difference that there is no provision for the buyer to receive an allowance equal to the percentage of admixture. The goods are sold on the basis of fair average quality of their description at the time and place of shipment and if inferior, a fair allowance (settled by arbitration) is made. The description of handpicked selected nuts and kernels received from different sources is as under :—

Handpicked selected Chinese in shell fair average quality sound delivered 13/14 to the ounce.

Handpicked selected Bombay Bold in shell fair average quality sound delivered 13/14 to the ounce.

Handpicked selected South African in shell.

Handpicked selected Chinese 32/34 fair average quality kernels.

Handpicked selected Chinese 38/40 fair average quality kernels.

Handpicked selected Toeban kernels fair average quality.

Handpicked selected Indian kernels 38/40 fair average quality sound delivered.

Handpicked selected Indian kernels 40/42 fair average quality sound delivered.

Handpicked selected Indian Java type (Toeban) sound delivered.

The Marseilles contract is used only for exports to Marseilles and its main point of difference from the Incorporated Oil Seed Association contract is that the basis is not pure but 2 per cent impurities non-mutual.

(2) EXPORTERS' PURCHASING CONTRACTS.

The contracts used by different exporters for their purchases in India are similar in all fundamentals and differ only in some points of detail. Besides indicating the variety and quantity of groundnut kernels, the terms and conditions include the crop year, the delivery period, the point of delivery, the type of packing, the basis and scale of allowances, the terms of payment and the buyers' options in the case of non-delivery or short delivery or rejection of goods. The quality of goods is usually stipulated to be fully dried to the satisfaction of buyers, fair average quality of the season, free from stones and unshelled nuts. The basis is generally 2 per cent foreign matter* (including dirt, sand, shells, etc.), mutual and 2 per cent damaged (and/or slightly damaged and touched) seeds non-mutual but at Bombay, where the trade is governed by the rules

*The free tolerance in certain cases, e.g., in Bellary district of Madras and Kathiawar is 3 per cent.

of the Grain Merchants' Association, the basis is 4 per cent refraction. New B. Twill bags are generally supplied by the buyers and the terms of payment invariably provide for a portion to be paid on delivery of goods or railway receipt and the balance on completion of the contracted quantity and analysis of relevant sample or samples. Some other conditions found in almost all the exporters' purchasing contracts are (i) that the sellers agree to abide by the results found by the buyers in all respects whether sellers or their representatives are present or not at the time of examination of goods, (ii) that the buyers have the option of rejecting or accepting with an allowance fixed by them any goods not found up to the quality specified and (iii) that buyers may reject goods in case any castor beans are detected.

The points of difference are minor, being small variations in the scales of allowances for damaged kernels, nooks, etc., as will be clearly seen from Appendix XXXVIII, where the basis and scales of allowances found in different contracts are compared.

The exporters' purchasing contracts fall under two classes, *viz.*, fixed contracts and unfixed contracts.

(a) *Fixed contracts.*—These refer to purchases, the rate for which is settled between the parties prior to or at the time of entering into the contract. A copy of an exporter's contract used in Madras may be seen in Appendix XLII. These contracts may be made on "Agency Pass" or "Port Pass" basis. In the former, the goods are sampled at the exporter's agency where the goods are purchased and final payment made on the basis of results of analysis at the agency. When a contract is made on "Port Pass" basis, the goods are sampled on arrival at the exporter's godown at the port, where a sample is drawn. Payment is made on the basis of the analysis of this sample drawn at the port.

(b) *Unfixed contracts.*—These refer to purchases, the rate for which is not settled at the time of entering into the contract but is fixed at a later date. A copy of such a contract may be seen in Appendix XLIII. It will be observed that the seller has to fix a price in writing within a fixed number of days (generally 60) from the date of contract. This price is to be the limit which the buyer's agency have on that day and applies only to such quantities as buyer's agency has instructions to buy on that day. The form used for fixing the price may be seen at the end of Appendix XLIII. If the seller does not fix the price within the specified number of days, the buyer's limit on the next day (generally 61st day) is fixed as the price under the contract. The other conditions about the basis and allowances are the same as under fixed contracts.

(3) MILLS' AND TRADE ASSOCIATIONS' CONTRACTS.

Only a few big oil mills enter into written contracts for their purchases. The terms and conditions of such contracts are similar to those of exporters' purchasing contracts. A typical contract used by an oil mill for purchasing groundnut kernels is reproduced in Appendix XLIV.

In some cases, oil mills and other buyers adopt the contract form of a particular association for purchases of their groundnuts. Such contracts are subject to the rules and regulations of the associations concerned. For instance, at Bombay where the transactions take place subject to the rules of the Grain Merchants' Association, the Association's contract form is used by different buyers including oil mills. The Association has 2 contracts, (i) rail or delivery terms and (ii) bazar terms. A copy of these two contracts with terms applicable for groundnut kernels may be seen in Appendices XLV and XLVI. Under rail or delivery term contracts, the goods are delivered at buyer's godown, 90 per cent of the value is paid on delivery of goods or presentation of railway receipt and 10 per cent of the bags are weighed. The net weight of the goods is paid for. The bazar term contract stipulates delivery at seller's godown, payment within 24 hours of weighing, the gross weight of the goods being paid for. The basis of refraction in both cases is 4 per cent refraction. Damaged kernels, slightly damaged kernels, nooks, etc., are valued according to a scale of allowances, which differs from that adopted by exporters in Madras.

(4) "FUTURES" CONTRACTS.

The trading in "futures" is generally carried on under the auspices of trade associations. At Bombay, which is the most important centre for "futures" trading in groundnuts, the transactions take place under the auspices of the Seed Traders' Association, although the Grain Merchants' Association also has a "futures" contract, a copy of which is given in Appendix XLVII. The basis of quotation in the contracts of both the associations is 4 per cent mutual, as in the case of delivery contracts, but there are slight differences between the contracts of the two associations in respect of the scale of allowances as may be seen from Appendix XXXVIII.

G.—Standardisation.

(1) ALL-INDIA STANDARD CONTRACT FOR GROUNDNUTS (KERNELS FOR CRUSHING).

It will be clear from what has already been said in this chapter that there is no uniformity in the trade regarding the nomenclature or the terms of contracts in different markets. The same variety is traded under different names in different markets and the basis of admixture often varies in the same market with different buyers. A comparison of the contract terms of Incorporated Oil Seed Association, London, three exporters and two Bombay trade associations, in respect of the basis of admixture and scale of allowances is made in Appendix XXXVIII. It will be obvious that the same lot may be subjected to different allowances according to the scales in different contracts. For instance, a lot containing 3 per cent impurities and 7 per cent damaged seed will be subject to an allowance of $2\frac{1}{2}$ per cent according to the contract of exporter A, while it will be subjected to an allowance of only $\frac{3}{4}$ per cent according to the terms of Grain Merchants' Association contract. With these anomalies, it is impossible to compare prices ruling in different markets and the seller

is more often than not in the dark about the net return, which he will get from the sale of his nuts and kernels. The moisture percentage, which is such an important factor in the case of this commodity, is invariably defined in vague terms such as "dried to the satisfaction of buyers". With a view to eliminate these differences and establish a more uniform system of contracts, informal conferences were held between the representatives of associations and mills dealing in groundnuts and the Central Marketing Staff and the following terms were agreed to for an All-India Standard Contract for groundnut kernels for crushing.

Terms of All-India Standard Contract for groundnut kernels.

I. Types.—

Standard contract terms for groundnuts shall apply to the following six types :—

- | | | |
|--------------------------------|----|---|
| 1. Khandesh .. | .. | Consisting of small round kernels grown in East and West Khandesh districts. |
| 2. Khandesh Quality (Peanuts). | | Consisting of small round kernels grown in any part of India other than East and West Khandesh districts. |
| 3. Bold .. | .. | Consisting of large long kernels grown in any part of India other than Kathiawar. |
| 4. Kathiawar Bold | .. | Consisting of large long kernels grown in Kathiawar. |
| 5. Coromandel | .. | Consisting of medium long kernels. |
| 6. Red Natal .. | .. | Consisting of round thick red kernels. |

II. Description.—

The kernels shall be fair average quality of the season, true to type.

III. Condition.—

The groundnuts shall be in a thoroughly dry condition. Goods showing signs of moisture shall be dried and the loss in weight and expenses incurred in drying shall be borne by the seller.

When the drriage cannot be amicably settled, the following procedure shall be adopted.

A representative sample of the kernels shall be exposed to the sun for an hour in single layers in trays made of material which is a non-conductor of heat. The loss in weight due to drying shall be borne by sellers and when the loss in weight exceeds $1\frac{1}{4}$ per cent, an additional reconditioning charge at Rs. 3-8-0 per 100 bags shall also be payable by sellers.

IV. Refraction and allowances.—

- | | | |
|------------------|----|--|
| *Refraction .. | .. | Basis 4 per cent with mutual allowances. Over 4 to 8 per cent proportionate allowance at full value to buyer. Over 8 per cent proportionate allowance at full value plus cleaning charges at Rs. 3-8-0 per 100 bags. |
| Nuts in shell .. | .. | Nothing free. Up to 10 per cent by weight of nuts in shell, the amount of shell present shall be calculated and reckoned as dirt. Over 10 per cent by weight of nuts in shell, rejection at buyers' option. |

*NOTE.—Refraction includes dirt, stones, shell, other seeds, foreign matter plus such proportions of nuts in shell, damaged kernels, splits, broken kernels, nooks and shrivelled kernels as are reckoned as "dirt".

*Damaged kernels	..	2 per cent free. Over 2 per cent to 4 per cent, the whole to be reckoned as one-fourth dirt. Over 4 per cent to 10 per cent, the whole to be reckoned as half dirt. Over 10 per cent, rejection at buyer's option.
†Splits	..	25 per cent free. Excess over 25 per cent to be reckoned as one-sixteenth dirt.
‡Broken kernels	..	10 per cent free. Excess over 10 per cent to be reckoned as one-eighth dirt.
§Nooks	..	5 per cent free. Excess over 5 per cent to be reckoned as one-fourth dirt. Over 10 per cent, rejection at buyer's option.
Shrivelled kernels (dead seeds)	..	2 per cent free. Excess over 2 per cent to be reckoned as one-fourth dirt.
Admixture of different types :—		
Red Natal in any other type	..	1 per cent free. Excess over 1 per cent up to 5 per cent to be reckoned as one-eighth dirt. Over 5 per cent rejection at buyer's option.
Any type (except Red Natal) in any other type	..	5 per cent free. Excess over 5 per cent up to 10 per cent to be reckoned as one-eighth dirt. Over 10 per cent, rejection at buyer's option.
Presence of castor seed	..	Nothing free. The presence of traces of castor seed or husk will give the buyer option to clean at seller's expense subject to a maximum cleaning charge for handpicking at two annas per bag.

Rejection conditions :—

- (a) When nuts in shell exceed 10 per cent.
- (b) When damaged kernels exceed 10 per cent.
- (c) When nooks exceed 10 per cent.
- (d) When Red Natal in any other type exceeds 5 per cent.
- (e) When the admixture of any type with any other type exceeds 10 per cent.

V. Miscellaneous.—

Unit of quotation.—Maund (82 $\frac{2}{7}$ lb.).

Month of delivery for "futures".—February, May, August and November.

Minimum unit of transaction for "futures".—500 maunds.

Gunnies.—New B. Twill bags.

It will be observed that the different varieties are grouped under 6 classes and a definite procedure for the estimation of moisture is included. The basis being mutual, an incentive is provided to the seller to clean his produce.

The standard contract terms have been adopted by some mills for their purchases and ratified by several associations and chambers of commerce. The revised terms of the Grain Merchants' Association Contract closely resemble the terms of the All-India Standard Contract as will be seen from Appendix XXXVIII.

* Damaged includes kernels internally damaged and slightly damaged.

† Kernels broken lengthwise in two halves only.

‡ Kernels smaller than splits but bigger than nooks.

§ Pieces $\frac{1}{4}$ th or less than $\frac{1}{4}$ th of a whole kernel.

(2) ALL-INDIA STANDARD CONTRACT FOR HANDPICKED SELECTED GROUNDNUTS (KERNELS AND NUTS IN SHELL).

The trade in handpicked selected nuts and kernels was of comparatively small dimensions till 1935-36 (only 3,500 tons having been exported in that year) and transactions between sellers and buyers used to take place without any generally accepted basis or scale of allowances.

The possibilities of development of this trade having been observed during the course of the survey, the attention of the trade was drawn to the necessity of organising this trade (which developed to an export of 17,000 tons in 1938-39). After discussions at an informal conference between the Central Marketing Staff and interests concerned with the preparation of and trade in handpicked selected groundnuts (kernels and nuts in shell) held at Bombay in January 1939, terms of a standard contract for handpicked selected groundnuts were drawn and circulated to the trade interests concerned. These terms were examined at a second informal conference held in August 1940 and the following terms have been approved of for a standard contract for handpicked selected groundnuts (kernels and nuts in shell). It was anticipated that these would be adopted by all sections of the trade with effect from 1940-41 season.

Terms of Standard Contract for handpicked selected groundnuts (kernels and nuts in shell).

KERNELS.

Definition.—Handpicked selected groundnut kernels shall be dry and reasonably uniform in size.

Grades.—Handpicked selected kernels :—

Special Bold No. 1	..	Having a count of 32/34 kernels per ounce.
Special Bold No. 2	..	Having a count of 34/36 kernels per ounce.
Special Bold No. 3	..	Having a count of 36/38 kernels per ounce.
Special Bold No. 4	..	Having a count of 38/40 kernels per ounce.
Special Bold No. 5	..	Having a count of 40/42 kernels per ounce.
Ordinary Bold No. 1	..	Having a count of 42/45 kernels per ounce.
Ordinary Bold No. 2	..	Having a count of 45/48 kernels per ounce.
Ordinary Bold No. 3	..	Having a count of 48/50 kernels per ounce.
Peanuts (Java type) No. 1		Having a count of 70/75 kernels per ounce.
Peanuts (Java type) No. 2		Having a count of 75/80 kernels per ounce.

Allowances.—

Excess kernels per ounce :—

Special Bold.—For every kernel in excess of the lower size limit fixed for the grade, allowance at 4 annas per cwt. Buyer's option to reject if the kernels exceed the lower limit by more than 2.

Ordinary Bold.—For every kernel in excess of the lower size limit fixed for the grade, allowance at 2 annas per cwt. Buyer's option to reject if the kernels exceed the lower limit by more than 3.

Peanuts (Java type).—For every kernel in excess of the lower size limit fixed for the grade, allowance at 1 anna per cwt. Buyer's option to reject if the kernels exceed the lower limit by 5.

Impurities.—

Up to 1 oz. in a bag.—No allowance.

Over 1 oz. to 2½ oz. in a bag.—Cleaning charge* at 1½ annas per bag.

Over 2½ oz. in a bag.—Buyer's option to reject.

Damaged† and slightly damaged kernels.—

Up to 1 oz. in a bag.—No allowance.

Over 1 oz. to 2 oz. in a bag.—Excess over 1 oz. to be reckoned of no value.

Over 2 oz. to 4 oz. in a bag.—Cleaning charge* at 1½ anna per bag.

Over 4 oz. in a bag.—Buyer's option to reject.

Skinned‡ kernels.—

Up to 5 oz. in a bag.—Free.

Over 5 oz. in a bag.—Cleaning charge* at 1½ annas per bag.

Broken (including split) kernels.—

Up to 1 oz. in a bag.—No allowance.

Over 1 oz. to 2 oz. in a bag.—Cleaning charge* at 1½ annas per bag.

Over 2 oz. in a bag.—Buyer's option to reject.

*Packing.—*New B. Twill bags containing 177 to 185 lb. net each.

If packed in any other bags, the bags shall be returned to the seller, who shall supply or pay the cost of New B. Twill bags together with a repacking charge at 1 anna per bag.

*Unit of quotation.—*Hundredweight.**NUTS IN SHELL.**

*Definition.—*Handpicked selected groundnuts in shell shall be dry and reasonably uniform in size with outwardly two well defined sections in each nut. The shell shall be clean, bright and of whitish colour.

*Grades.—*Handpicked selected groundnuts in shell :—

Bold	..	..	Having a count of 13|14 nuts in shell per ounce.
Small	..	..	Having a count of 17|19 nuts in shell per ounce.

*Allowances.—**Excess nuts per ounce :—*

Bold	..	..	For every nut in excess of the lower limit, allowance at 4 annas per maund calculated to the nearest one-fourth of a nut. Buyer entitled to reject, if the nuts exceed the lower limit by more than 1.
Small	..	..	For every nut in excess of the lower limit, allowance at 2 annas per maund calculated to the nearest one-fourth of a nut. Buyer entitled to reject, if the nuts exceed the lower limit by more than 1.

* The buyer shall be entitled to only one cleaning charge.

† For ascertaining "damaged" kernels, the buyer shall break only those kernels which are drawn out by him.

‡ Kernels which have lost the thin red skin covering.

Impurities.—

- Up to 2 oz. in a bag of 72 lb. net in case of
 Bold and 82 lb. in case of
 Small Free.
- Over 2 oz. Seller to clean or pay cleaning charge at 2 annas per bag at seller's option.

Empty and broken nuts in shell.—

- Shell from empty and broken nuts up to $\frac{1}{2}$ oz. in a bag Free.
- Over $\frac{1}{2}$ oz. to 2 oz. in a bag Excess over $\frac{1}{2}$ oz. reckoned at half value.
- Over 2 oz. to 4 oz. in a bag Excess over 2 oz. reckoned of no value.
- Over 4 oz. in a bag .. Rejection at buyer's option.

Discoloured and damaged nuts in shell.—

- Up to 1 per cent .. Free.
- Over 1 to 2 per cent .. Excess over 1 per cent reckoned at half value.
- Over 2 to 5 per cent .. Excess over 2 per cent reckoned of no value.
- Over 5 per cent .. Rejection at buyer's option.

Note.—The discoloured nuts shall include nuts which have excess of adhering earth. The damaged nuts shall include nuts mechanically damaged and nuts damaged by insects.

Packing.—

- Bold Clean sound gunny bags 72 lb net.
- Small Clean sound gunny bags 82 lb. net.

Unit of quotation.—Hundredweight.

H.—Grading of handpicked selected groundnuts (kernels and nuts in shell) under the Agricultural Produce (Grading and Marking) Act, 1937.

The informal conference between the Central Marketing Staff and the interests concerned in the preparation of and trade in hand-picked selected groundnuts, already referred to, besides drawing up terms of a standard contract, recommended that rules be framed for applying the AGMARK to the higher counts of handpicked selected kernels and nuts in shell. Handpicked Selected Groundnuts Grading and Marking Rules—which may be seen in Appendix XLVIII—were promulgated in 1939 and the following grades and grade specifications were laid down for kernels and nuts in shell under these rules.

Grades and grade specifications for handpicked selected groundnut kernels.

Grades.	Specifications.		Condition.
	Number of kernels per ounce.	Broken, skinned and damaged kernels.	
Special Bold No. 1	32/34	Not more than 1 oz. (2·43 tolas) in a bag.	Handpicked selected groundnut kernels shall be dry and reasonably uniform in size, free from dirt, stones, nuts in shell or other foreign matter.
„ „ No. 2	34/36		
„ „ No. 3	36/38		
„ Bold No. 1	38/40		
„ No. 2	40/42		

Grades and grade specifications for handpicked selected groundnuts in shell.

Grades.	Specifications.		Condition.
	Number of nuts per ounce.	Discoloured, damaged, empty and broken nuts.	
Bold	13/14	Not more than one per cent by weight.	Handpicked selected groundnuts in shell shall be dry and reasonably uniform in size with outwardly two well-defined sections in each nut, free from stones, dirt or other foreign matter. The shell shall be clean, bright and of whitish colour.

An experimental grading station was started at Kolhapur in December 1939. The consignments prepared according to AGMARK specifications were well received by buyers and secured a substantial premium. Samples of AGMARK kernels were sent to the United Kingdom and were very favourably commented upon.

The second conference held in August 1940 recommended that some trial lots of AGMARK consignments should be sent to the United Kingdom during 1940-41 season. It is hoped that this will help to put the trade in Indian handpicked selected nuts and kernels on a sound footing.

It may be recalled that the increase in the exports of handpicked selected nuts and kernels from India (from 3,500 tons in 1935-36 to 17,000 tons in 1938-39) is largely due to disturbed conditions in China and the bigger off-take of the United Kingdom. Enquiries in London, however, show that although larger supplies have been drawn from India, Indian kernels are not considered *on par* with Chinese kernels, the latter being preferred on account of regularity in size, and quality. On that account a large manufacturer in the United Kingdom definitely stated that he would revert to Chinese nuts and kernels, when they became available despite higher prices.

The complaint against Indian handpicked selected groundnuts has been excess count, irregularity in size and presence of damaged and weevilled kernels specially later in the season in the case of kernels and excess of small nuts in the case of nuts in shell. The samples of AGMARK kernels, however, were considered entirely satisfactory in the United Kingdom both as regards regularity and quality and were pronounced as "perfect". An opinion was expressed that the grading as suggested will confer a very great boon on the trade and would eventually result in ousting Chinese kernels from the market.

I.—Grading in Burma.

It has been stated in an earlier chapter that the trade in groundnuts in Burma is almost entirely in the form of nuts in shell. The main quality factor, in which the nuts produced in different districts

are found to vary, is the percentage of shell in the nut. Nuts from Magwe district and further south have a higher percentage of kernels than those from areas north of Magwe. The weight of a basket is another factor which is taken into consideration for assessing quality. If the weight of basket is found to be less than what is usual at the place of sale, the buyer makes an allowance. On the other hand, if the basket weighs more, no premium is paid for the extra weight. As the size of basket differs in different places, the weight reckoned for a basketful of groundnuts is different, varying from 19 lb. to 42 lb.

At collecting centres, the nuts are cleaned and winnowed at the time of measurement. The impurities in nuts delivered to mills average $1\frac{1}{2}$ to 2 per cent, being composed mostly of dirt, small stones and sand. If a lot is considered to have more than 2 per cent impurities, 4 to 5 bags are taken out from the lot, cleaned and impurities weighed. The percentage of impurities for the whole lot is worked on this basis. If nuts contain less impurities, no premium is given.

It is thus obvious that the seller would be doing harm to himself if he cleaned his nuts down to less than nearly 2 per cent impurities. In order to encourage the marketing of clean produce and a price commensurate with oil content the first step appears to be that buyers should offer their prices on the basis of pure groundnuts and a specified proportion of kernels in nuts. If the proportion of kernels exceeds the specified percentage, the seller gets a premium while if kernels fall short of the specified figure, the buyer may claim an allowance.

Grading and standardisation.]

INTER-CHAPTER SEVEN.

The multiplicity of trade names does not add to the efficiency of the groundnut trade. For example what is called "Coromandel" in the export markets and at Madras is called "Madras" at Bombay and what is called "Khandesh" in Bombay must be called "Peanuts" in Madras. The different varieties grown in India fall into four main groups, *viz.*, Khandesh, Coromandel, Bold and Red Natal. But as there is appreciable variation between the oil content of kernels of Khandesh variety grown in Khandesh districts and other areas, and in the size and suitability for edible requirements of Bold nuts grown in Kathiawar and elsewhere, these two varieties may be sub-divided into Khandesh and Khandesh quality and Kathiawar Bold (or Superior Bold) and Bold respectively. These six varieties can be easily distinguished by the shape and size of their kernels or the colour of the testa covering the kernels and they fully cover all commercial varieties. If these terms were accepted by the trade in general, much of the present confusion would be avoided.

The value of kernels for crushing naturally depends on the oil content but the percentage of free fatty acids present has an important bearing on the quality of oil produced. The quality of Indian kernels has often been the subject of adverse comment on account of the high percentage of free fatty acids. This factor alone, for example, has been responsible for "Khandesh", in spite of its higher oil content, being accepted in the export trade at a discount. When a marked improvement became evident in the percentage of free fatty acids in the shipments of Khandesh variety made after November 1936, the export trade accepted it without a discount. The causes for the high percentage of free fatty acids are several and diverse. Samples drawn

at ports and terminal markets as well as those drawn later in the season show higher free fatty acids than samples from producing areas or in the beginning of the season. (Free fatty acids obviously tend to increase during the movement and storage of the crop. The practice of wetting the nuts before decortication or hand-shelling accelerate the development of free fatty acids. Again, free fatty acids develop more and faster in damaged kernels, broken, nooks and split kernels than in sound whole kernels. Shrivelled and immature kernels also contain more free fatty acids than fully developed kernels. If bags of kernels get wet before being stored in the holds of steamers—as may happen when lightering the produce out to the ships at open ports—they generally develop high free fatty acids during the voyage. (The remedy against free fatty acids, therefore, lies in the direction of harvesting mature nuts, drying the produce properly, careful decortication so as to avoid damp or breakage, better storage and avoiding of unnecessary handling)

Another factor, which counts in judging the quality of kernels in the export trade, is the percentage of admixture, *i.e.*, impurities which in the shipments made under the "Incorporated Oil Seed Association Contract" during the last 10 seasons, varied from a minimum of 1.49 to a maximum of 3.44 per cent for different varieties. Shipments of Bold variety generally show more impurities than those of other varieties. It is noteworthy that the basis in the Incorporated Oil Seed Association Contract is "pure" so that the weight of impurities is not paid for, although the sea freight is paid for just the same as for goods. There appears to be some improvement in recent years but the need for persistent efforts to reduce the percentage of impurities will be realised from the fact that a half per cent reduction in the average would mean a saving of at least half a lakh of rupees on steamer freight alone.

The position is obviously worse in shipments made under the Marseilles Contract which has a free non-mutual tolerance of 2 per cent. This leads to deliberate addition of clay when preparing export consignments at ports. It may be argued that it would be stupid of exporters not to mix clay and to send goods of higher quality than what they are paid for, but there is no evidence to show that any attempt has been made to get the terms of Marseilles Contract modified. When world conditions begin to return to normal, this is a matter to which the appropriate Trade Commissioner might well direct his attention.

The admixture of castor seed with groundnuts specially in the produce from Hyderabad is also a problem of importance. This is not done deliberately, but occurs through the use of second-hand bags and by accidental mixing in markets and godowns. Bags which have been used for castor seed should be properly cleaned before re-sale and arrangements should be made for keeping castor seed separate in the markets and godowns.

In the internal trade the quality of kernels and nuts is judged by a visual examination of the goods except in sales under contracts in which case it is usual to determine the proportion of damaged kernels, nooks, broken and split kernels and percentage of foreign matter besides making a rough estimation of moisture content. The different components are valued differently in different contracts but the last factor is one in which the greatest amount of ambiguity seems to exist as contracts usually specify the goods to be "dry" or "dried to buyer's satisfaction" without any indication of how the moisture is to be determined. The basis of contracts is generally 2 per cent foreign matter mutual and 2 per cent damaged seeds non-mutual in Madras and 4 per cent refraction mutual in Bombay. There is little uniformity in the terms as also the methods of sampling

and analysis laid down in the contracts of different associations and of buyers at various centres. The adoption of a standard contract with a mutual basis in respect of impurities, etc., appears to be an urgent step to improve both the trading conditions and the quality of groundnuts. Steps in this direction have already been taken by the Central Marketing Staff and as a result of Conferences with representatives of trade associations and mills, terms of a standard contract have been drawn up and ratified by a number of the leading trade bodies.

Apart from ordinary contracts and those for trading in "futures" a peculiar feature of the groundnuts trade is the system of "unfixed" contracts, under which the rate for purchase of groundnut kernels by exporters is not fixed at the time of entering a contract but is fixed at a later date. The cultivators and other sellers are attracted into entering these contracts as they get an advance on their goods without the necessity of having to arrange for their storage or risk storage losses. The buyers are assured of supplies for their commitments but the system undoubtedly involves a large speculative element which more often than not is against the sellers.

The main quality factors for edible nuts and kernels besides cleanliness are size and uniformity as well as freedom from damaged nuts or kernels. Nuts and kernels of Bold variety (which have a low oil content) without admixture of other varieties are, therefore, most suitable for this trade. In the export trade these nuts and kernels are styled "handpicked selected groundnuts in shell" or "handpicked selected groundnut kernels". This trade, being of comparatively recent origin, appears to have hitherto been carried on in a somewhat haphazard manner but discussions and conferences held at the initiative of the Marketing Staff with

the interests concerned have already resulted in a standard contract as well as in the grading and marking of high quality nuts and kernels under the Agricultural Produce (Grading and Marking) Act. Samples of kernels prepared according to AGMARK specifications were favourably received in the United Kingdom, and provided the standard of quality is maintained, there is no reason why India should not be able to secure this business which hitherto has been largely monopolised by China.

Burma.—The nuts grown in different districts vary somewhat in respect of the yield of kernels ; the weight of nuts contained in a basket is taken as an indication of this factor. If the weight is found less than usual, an allowance is made but if it is more, no premium is paid. Similarly, although allowances are made, if impurities are more than about 2 per cent, no premiums are paid if they are less. In the absence of mutual allowances there is, therefore, little inducement to market clean produce. In order to encourage this, the buyers should offer their prices on the basis of net yield of kernels and commensurate with oil content.

CHAPTER VIII.—CONSERVATION

A.—Methods of storage.

The methods used for storage as well as the length and the cost of storage vary depending on whether the goods are stored in the form of nuts in shell or kernels—the former are more bulky but less liable to deterioration as compared with kernels.

(1) IN VILLAGES.

(a) *By cultivators.*—Cultivators usually dispose of their groundnuts—apart from quantities retained by them for seed and edible use—within three or four weeks after harvesting, although some well-to-do producers sometimes store nuts for longer periods extending upto three or four months. Nuts to be used for sowing have to be stored for seven to eight months while some of the nuts for edible purposes may be kept till the beginning of next harvesting season.

The storage is invariably in the form of unshelled nuts. Nuts for sowing requirements are generally stored in earthen pots, mud bins or in bamboo or other wicker work receptacles, which are often plastered with mud and cow dung. One such receptacle seen in a State in Kathiawar may be seen in the upper plate facing page 218. Gunny bags are also sometimes used, usually when quantities to be stored are small. After the receptacles have been filled with nuts, their mouths are not sealed as in the case of many other grains and seeds. When bags are used, their mouths are stitched and they are piled in a corner of the cultivator's dwelling. Nuts kept in bags are more liable to damage by damp, rats and other vermin as compared with those kept in bins and pots. The nuts intended for sale may be left on the threshing floor for a few days or stored loose—seldom in bags—in a corner of a room in the cultivator's house or sometimes in a small godown near the house. No cover is usually provided. The floors of rooms in which the produce is stored are generally made of hardened mud and sometimes of cement or stone slabs. The loss is mainly through drriage.

(b) *By village merchants.*—Village merchants and other agencies collecting nuts from cultivators in villages sometimes store these for a few months in anticipation of better prices or stock them for subsequent sale as seed or for edible use. The nuts for sale are generally kept loose in their houses or godowns, while those for subsequent sale as seed or for edible use are usually kept in bags.

Kernels are not generally stored in the villages either by producers or by village merchants.

(2) IN MARKETS.

In the assembling markets, wholesale merchants and commission agents generally store groundnuts in godowns. These godowns are usually permanent structures with brick-laid, stone-paved, hardened mud or cemented floors, brick or corrugated iron sheet walls and corrugated iron, tiled or masonry roofs supported on wooden or iron beams and rafters. If the floors of godowns are not sufficiently damp-proof, as is the case specially with hardened mud floors, a layer

of sand or groundnut shells is spread on the floor. These godowns sometimes form a part of the residences of owners.

The storage of nuts in these godowns is both in bulk and in bags. When stored loose, a common method employed is to make an enclosure inside the godown by piling up bags of nuts to form two or three sides of a rectangle, the remaining side or sides being formed by the walls of the godown, and then fill the enclosed space with nuts. The heaps are sometimes covered with mats.

The period of storage of nuts in markets varies widely. The nuts may be stored for a very short period, say, for about a week, before being decorticated and sent to terminal markets or mills, or may be stored for several months in anticipation of better prices.

Besides storage in godowns, nuts are often heaped loose or stacked in bags in the open, in places where the rainfall is not heavy and in seasons when there is little danger of rain. The stacks are covered with tarpaulins. Heaps are sometimes covered with corrugated iron sheets on the top and sides.

As kernels are more susceptible to damage, nuts are decorticated only a week or two before they are to be consigned to ports for export or to mills for crushing. The kernels, therefore, remain stored for comparatively short periods in assembling markets and the total quantity of kernels held in stock in assembling markets is much less than nuts.

In the terminal markets of South India, apart from port markets, the storage is in the form of kernels, which are almost always packed in bags. Bulk storage of kernels is rarely met with. The pile of bags is kept four to five feet below the roof to allow full circulation of air and matting is sometimes spread on the floor to prevent damage from damp. In the terminal markets of North India, where groundnuts are, to a large extent, used for edible purposes the storage is usually in the form of nuts. With the increase of production and crushing, the practice of storing kernels is finding favour at some markets in the Central Provinces and the United Provinces.

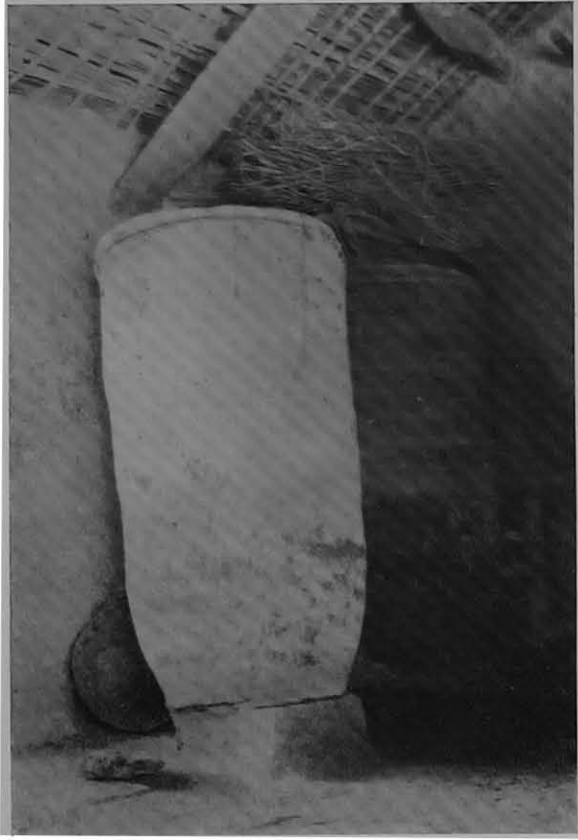
(3) AT DECORTICATING FACTORIES.

Large quantities of nuts are stored in the godowns and compounds of decortivating factories, which, as already stated, are often owned by wholesale merchants. The construction of the godowns and the methods of storage are similar to those described in the previous section. When arrivals are heavy, storage in open is largely resorted to. The lower plate facing this page shows a heap of groundnuts in the compound of a decortivating factory. The practice of storing in the open appears to be more common in decortivating factories than in markets. When stored in the open, the nuts are sometimes covered with tarpaulins or mats.

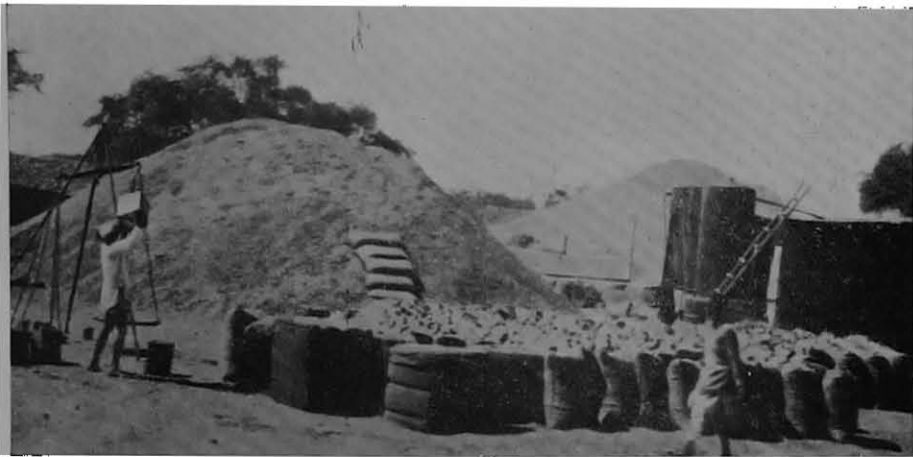
Kernels are not generally stored in decortivating factories, being packed in bags and despatched to markets or mills soon after decortication.

(4) AT OIL MILLS.

Factories crushing groundnuts usually have decortivating machinery also and stock nuts for their crushing requirements.

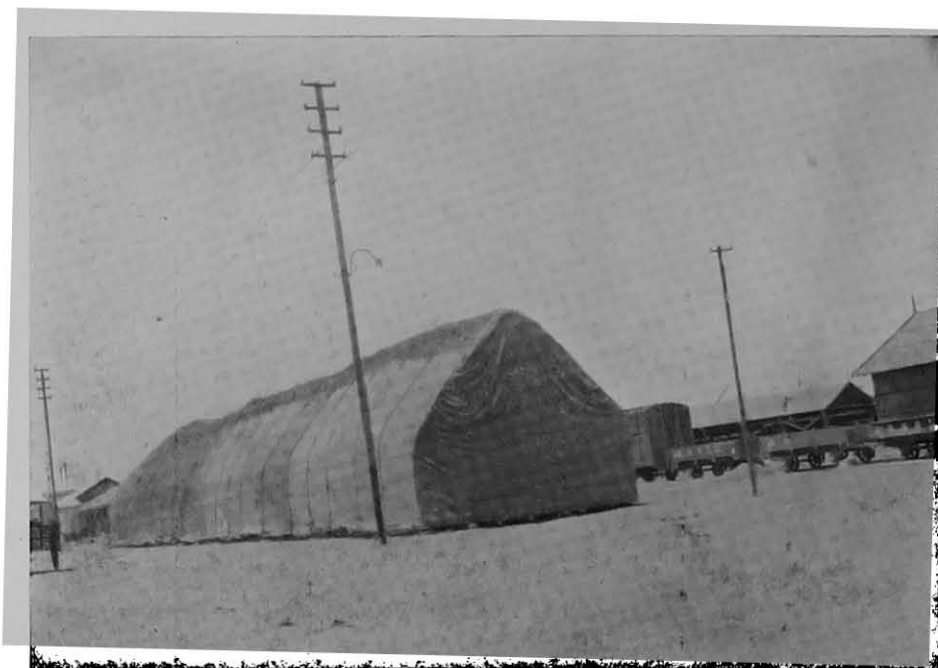


**A MUD BIN USED FOR STORAGE OF GROUNDNUTS
IN SHELL.**



A HEAP OF GROUNDNUTS IN THE COMPOUND OF A DECORTICATING FACTORY.

Facing page 219.]



A STACK OF BAGS OF GROUNDNUT KERNELS COVERED WITH A TARPULIN.



STORAGE OF GROUNDNUT KERNELS IN THE OPEN.

usually in their own godowns, the methods adopted for storage being similar to those followed in decorticating establishments. The mills also buy kernels, specially in Madras, Bombay and Hyderabad, storing them mostly in bags inside godowns.

(5) AT PORTS.

The storage of groundnuts at ports is mainly in the form of kernels except at some of the Kathiawar ports where stocks of nuts in shell are also carried. The kernels arrive in bags from the producing areas and are generally stored as such, the period of storage of individual lots in most cases not exceeding one or two months. When there is scarcity of gunnies, the kernels are sometimes heaped loose in a godown with a barricade of bags of kernels on sides. The godowns at ports generally have masonry or corrugated iron or asbestos cement roofs and concrete or cement floors.

Bags, specially those ready for shipment, are also sometimes stacked in the open, the stacks being covered by tarpaulins, as will be seen in the upper plate facing this page. The bags are usually piled 8 to 12 feet high in godowns and 15 to 20 feet high in the open.

At Madras, the warehouse accommodation covers nearly 80,000 square yards and consists of five transit sheds for storage of goods in transit between ship and shore, and a number of warehouses and sheds, which are leased to exporters. These have a capacity of approximately 45,000 tons and are largely made use of by exporting firms for storing groundnuts. The open space near the warehouses is available for purposes of drying, cleaning and packing, required for preparing export consignments of groundnuts.

At the minor Madras ports, of which Cuddalore, Coconada, Masulipatam, Negapatam, Calicut, and Vizagapatam are important for groundnuts trade, the storage of kernels is generally in bags in godowns owned by important exporting firms. At Cuddalore, Coconada and Masulipatam, the godowns have corrugated iron roofing and a layer of 6 in. to 8 in. thick dry sand on floors. At Coconada, there is also a large shed at the railway station near the wharves and this is used for storage of goods awaiting shipment. At Vizagapatam, there are a number of government-owned sheds, with a floor area of nearly 20,000 square yards. Space in these sheds as well as open spaces near the sheds is rented out to exporters and merchants.

At Bombay, there are a large number of sheds and warehouses near Prince's Dock, Victoria Dock and Alexandra Dock, the total floor area of all the warehouses and sheds exceeding 330,000 square yards. In addition to these, there are a number of sheds and godowns with a total floor area of over 100,000 square yards on Port Trust lands and these are leased to exporters and merchants for storing different commodities. Groundnuts for export trade, along with other seeds and grains, are mainly stored in the sheds at the Grain Depot, Mazgaon, which have a godown area of over 85,000 square yards with a capacity of more than 150,000 tons. There are parallel rows of sheds, which are 500 feet to 1,000 feet long and 110 feet wide, railway sidings running along the rows of sheds. Besides the Grain Depot, groundnuts and kernels are also stored at

the Ryan Grain Depot or Danabunder, from where the requirements of mills and internal trade are largely met. There are also a number of privately owned godowns in this area, which are utilised for storage of various commodities including groundnuts. The storage in these godowns is mostly in the form of kernels in bags.

At Kathiawar ports, of which Veerawal, Porbandar, Bhavnagar and Bedi port figure in groundnuts trade, the storage is both in the form of kernels and nuts in shell. Godown accommodation in the port area is provided at most of these ports at cheap rates by port authorities. Stacks of bags are often made in the open. The lower plate facing page 219 shows a stack of groundnut bags awaiting shipment at one of the Kathiawar ports. When a stack has to be kept for sometime, the top of the stack is covered with a tarpaulin and the sides are protected by a special type of matting, obtained from Karachi, which effectively prevents water getting to the bags. Two bags of shell are put under the bags and mud placed against the lower portion of sides outside to make the water run out.

At the Portuguese port, Marmugao, most of the storage sheds in the port area are owned by the railway.

(6) COMPARISON OF BULK AND BAG STORAGE.

Nuts in shell, because of their volume and comparative immunity from insect and fungus attack, are generally stored in bulk in villages and markets and at decorticating factories. Bulk storage is cheaper than bag storage as more can be put within a given space and the depreciation on gunnies is avoided while bag storage provides ease in handling and estimation of stocks. As in the major producing areas, most of the groundnuts are decorticated before moving to consuming markets and nuts do not suffer much damage by handling, storage in bulk appears suitable in the case of nuts stocked in villages and assembling markets.

In the case of kernels, on the other hand, storage in bags facilitates handling at various stages between assembling centres and final destinations, while handling in bulk adversely affects the quality by increasing the percentage of splits and nocks. Moreover, the period of storage at each stage is comparatively short. For these reasons, kernels are usually packed in bags immediately after decortication and subsequent handling and storage takes place in bags.

B.—Cost of storage.

(1) IN VILLAGES.

It has already been stated that producers and village merchants usually store nuts in their own houses either loose or in receptacles, which are generally home made. The cost of storage under these conditions is nominal. Space usually involves no charge and the receptacles are prepared at very little cost. For example, in Madras, a basket to hold about a quarter of a ton of nuts costs about Rs. 2-8-0 to Rs. 3. The receptacles are sometimes used for storing more than one commodity in a year and with occasional repairs give service for several years.

(2) IN ASSEMBLING MARKETS.

Wholesale merchants and commission agents store groundnuts in their own or hired godowns. The cost of storage varies in different markets and also according to the size of the godown and whether the space is fully utilised.

At Barsi market in Bombay, a godown with a capacity of about 5,000 bags was reported to be hired at Rs. 20 per month, which assuming the capacity to be fully utilised, works out to 0.768 pies per bag per month. Allowing some margin for idle space, the godown rent may be estimated at about 1 pie per bag per month. On this basis, the cost of storage space may be reckoned as 1 pie per maund per month for nuts and $\frac{1}{2}$ pie per maund per month for kernels.

In the Central Provinces, the cost of storage space is reported to vary from 1 to 3 pies per bag per month, i.e., roughly 1 to 3 pies per maund of nuts and $\frac{1}{2}$ to $1\frac{1}{2}$ pies per maund of kernels. In Hyderabad, the rent of a godown having a capacity of about 600 maunds of nuts in bulk is nearly Rs. 7 per month, which works to a little over 2 pies per maund per month. In Madhoganj market in the United Provinces, a godown with a capacity of 14,000 bags was rented at Rs. 60 per month, which amounts to less than 1 pie per bag per month, i.e., 1 pie per maund of nuts and $\frac{1}{2}$ pie per maund of kernels.

The cost of storage in terminal markets, which are usually important crushing or trade centres, is somewhat higher than in the smaller assembling markets. The average cost of storage space in markets may, therefore, be reckoned as 2 pies per maund per month for nuts in shell and 1 pie per maund per month for kernels.

(3) AT DECORTICATING ESTABLISHMENTS AND OIL MILLS.

As the storage of nuts and kernels at decorticating factories and oil mills is usually in their own sheds, godowns and compounds, separate charges for storage are not incurred. When godowns are rented for storage, the costs are similar to those in assembling markets.

(4) AT PORTS.

It was stated earlier that at some of the ports, storage accommodation is leased to exporters and merchants. At Madras, the port authorities have two systems of letting out storage space, viz., "under lease" and "under permit". In the former, covered or open space is leased out to an exporter for 1 to 5 years, while in the latter he is permitted to use a certain space for short periods of a month or more. The rent charged "under lease" system for space in warehouses varies from Rs. 3-12-0 to Rs. 4-8-0 per month per 100 square feet, depending on the situation of the warehouse. For space in open sided sheds, the rent is Rs. 2 per 100 square feet per month. The lessee is permitted to use open space adjacent to the warehouse for drying and rebagging groundnuts, while the rent for other open space "on lease" is Rs. 200 per acre, i.e., about Re. 0-7-4 per month per 100 square feet. The rent "under permit" is Rs. 5 per month

per 100 square feet for covered accommodation and Rs. 4 per 1,000 square feet, *i.e.*, Re. 0-6-5 per month per 100 square feet for open space.

It will be observed that the rents for covered accommodation are lower "under lease" as compared with those "under permit", while reverse is the case for open space.

The charge of storage space on the basis of rents given above, and taking 168 bags stacked 14 high in 100 square feet space, works to between 2 and 2.6 pies per maund of kernels per month in warehouses, 1 pie per maund in open sided sheds and less than a quarter pie per maund per month in open spaces.

At Vizagapatam, the space in godowns in port area is let out at Rs. 410 to Rs. 420 per annum per 1,000 square feet, while open space near the godown costs Rs. 2-8-0 per 100 square feet per month. On this basis, the cost per maund of kernels kept in godowns works to less than 2 pies per month.

At Bombay, the Bombay Port Trust charges ground rent at Rs. 75 per month per 500 square feet for storage in docks' storage sheds, other than transit sheds*, and Rs. 45 per month per 500 square feet in open yards and sheds, but as has been stated earlier, groundnuts are stored mostly in the godowns at Grain Depot and Ryan Grain Market. At Grain Depot, space in godowns is let out at Rs. 68-9-3 per month (less 10 per cent for punctual payment) per bay, measuring 110 ft. \times 14 ft. 3 in., *i.e.*, nearly 174 square yards, which works to about Rs. 4-6-0 per month per 100 square feet. Open space at the Depot is also used in busy season for storing groundnuts, the rent being 3 annas per square yard, *i.e.*, Rs. 2-1-3 per 100 square feet per month. In Ryan Grain Market, the rents are higher, 1,000 square feet space costing Rs. 100, *i.e.*, Rs. 10 per 100 square feet. The charges for storage space, on the basis of 168 bags stacked 14 high in 100 square feet space, works to about 2.3 pies per maund of kernels per month at Grain Depot and 5.3 pies per maund per month at Ryan Grain Market. The charges in privately owned godowns are similar to those in Port Trust's rented godowns.

At Kathiawar ports, godown accommodation is generally cheaper than that at Bombay. In some cases, the port authorities let out accommodation at nominal cost and offer other facilities to attract traffic to a particular port. For instance, at one of the Kathiawar ports, a godown capable of accommodating nearly 4,000 tons groundnuts was let out to a firm of exporters at a nominal rent of Rs. 10 per month, which works to nearly 0.02 pies per maund per month.

C.—Effect of storage on quality.

Groundnuts in India are not generally stored for more than a year, the carry-over from one year's crop to the next season being usually very small. The extent of deterioration in quality and loss in quantity by storage varies in different cases, depending on the

* These are intended only for storage of goods in transit between shore and ship. 10 days' storage in open and 7 days' in sheds is free for goods for shipment, after which the charge is 12 annas per ton for every 3 days' or part thereof.

condition of the goods at the time of storage, whether they are stored in the form of nuts in shell or kernels, and the conditions of storage. As a rule, kernels deteriorate in quality more quickly than nuts in shell, since the shells provide a protective covering to the kernels inside. The deterioration, both in the case of nuts in shell and kernels is accelerated if the goods are stored damp or in places where they are exposed to moisture or rain.

Nuts in shell.—Unshelled nuts, if they are stored after proper drying, can be kept for a year—which however is not usual—without much damage, but for some discolouration of shells which usually takes place after about six months' storage. Discoloured nuts are valued from 3 to 5 per cent lower in places such as the United Provinces, the Punjab and Delhi, where the trade is mostly in the form of nuts. On the other hand, when nuts are stored without proper drying or get wet, moulds develop on the shell within a short period giving it a yellowish black appearance and the kernels inside also get affected soon after.

The depredations of rats and other vermin and the driage account for the quantitative loss in the storage of nuts in shell. The driage loss depends mainly on the percentage of moisture in the nuts at the time of storage, while the damage by rats, etc., depends on the containers, if any, used and the construction and condition of the storage godowns.

The nuts immediately after being harvested, contain considerable moisture. The subsequent drying in the sun considerably reduces the percentage of moisture in the nuts (see page 121), but in many cases the nuts are not thoroughly dry at the time of being stored and continue to lose moisture somewhat rapidly for the first one or two months and slowly in later months. If the nuts remain stored through the humid weather during the rainy season, for instance, from June to October in Madras, which is not usual, they gain moisture although the gain is not as fast or as much as the loss due to driage.

Godowns in markets are rarely constructed rat proof and stored nuts invariably suffer some loss through rats, which is variously estimated in different provinces and States as between 1 and 5 per cent. It may be estimated that the loss on account of rats, during storage of nuts for about 8 months, is on an average about 2 per cent.

Kernels.—It has already been stated that kernels do not stand storage so well as nuts. The colour of the testa or thin skin covering the kernels darkens with age, the change taking place more quickly in Bold variety, in which case the light red colour of the testa changes to deep red in 2 or 3 months' storage. An appreciable deterioration in quality by an increase of free fatty acids, however, does not take place for two or three months, when the kernels have been thoroughly dried (moisture less than 5 per cent) before being stored and if the amount of splits and nooks is not increased through rough handling. Moist kernels develop free fatty acidity and rancidity more quickly and the oil from such kernels is reddish in colour with an unpleasant flavour. The rate of increase of free fatty acids is much faster in

nooks and damaged kernels than in whole kernels. This will be seen from Appendix XXXVII, which gives the results of experiments carried out at Madras and Bombay to investigate the rate of development of free fatty acids in whole kernels, immature, damaged and split kernels and nooks. The keeping qualities of Peanuts (and Khandesh), which have a thin testa which is detached easily, are inferior to those of Coromandel and Bold varieties. The damage by rats is similar to that in the case of nuts in shell but vermin and insects do more damage to kernels, which after 6 to 8 months' storage under commercial conditions show considerable damage by beetles and weevils.

Kernels also lose or gain in weight during storage due to loss or absorption of moisture with varying weather conditions. As a rule, there is gain in weight in moist weather and loss in dry weather.

D.—Stocks and storage accommodation.

(1) ESTIMATION OF STOCKS AND CARRY-OVERS.

No regular records of stocks or carry-overs are usually kept at the markets or even at the ports. Arrangements for recording stocks have, however, recently been inaugurated in several markets in Hyderabad State, while in the Central Provinces, the records of stocks at some of the chief markets are being maintained by the Marketing Section since September, 1939. The chief groundnut exporting firms keep records of their own stocks—mostly kernels—at different ports, as well as make estimates of stocks held in producing areas and probable carry-overs. These estimates are for their private use and are usually made on the basis of reports made by their agencies regarding production, less exports and estimated consumption in India. Some big mills and decorticating factories keep regular records of their stocks but these are also for their private use. Moreover, most of the small mills and *chekkus* do not maintain any records of stocks. The merchants and *arhatiyas*, both at assembling and terminal markets, make estimates of local stocks on the basis of arrivals, despatches and quantities locally crushed—if any—or otherwise used.

There is no agency, however, which co-ordinates the estimates of stocks at different markets or the quantities stored at various mills and factories. The disjointed estimates made by various agencies serve little useful purpose for the trade in general.

The weekly arrivals and despatches at a number of important trade centres are published in the Indian Trade Journal and if arrangements could be made for returns of quantities crushed by mills at these places, it should be possible to make fair estimates of stocks at these centres. In the present conditions, it is difficult to make even an approximate estimation of carry-overs, or quantities available for export from time to time.

The following figures give an exporting firm's estimates of quantities available for purchase by exporters (after deducting purchases already made by the exporters and reserving for estimated consumption) of groundnut kernels in Madras Presidency at the end of each month in 1939-40.

Estimated exportable surplus of groundnut kernels in Madras Presidency.

(Thousand tons.)

	Winter crop.	Summer crop.	Total.
<i>1939—</i>			
April	92	59	151
May	53	55	108
June	38	40	78
July	28	80	108
August	18	59	77
September	14	24	38
October	559	11	570
November	599	2	601
December	451	↓	452
<i>1940—</i>			
January	341	..	341
February	264	..	264
March	178	..	178

(2) STOCKS AT SOME PORTS, MARKETS AND MILLS.

The stocks of groundnut kernels held by four important firms of exporters at the various ports in Madras Presidency since April, 1939, are reported as under :—

Stocks of groundnut kernels with the exporters at the ports in Madras Presidency.

(Thousand tons.)

<i>1939-40—</i>							
April .. .. .	..	..	..	..	..	..	152.0
May .. .. .	..	..	..	..	..	..	93.2
June .. .. .	..	..	..	..	..	..	38.1
July .. .. .	..	..	..	..	..	..	31.7
August .. .. .	..	..	..	..	..	..	23.7
September .. .. .	..	..	..	..	..	..	24.0
October .. .. .	..	..	..	..	..	..	29.7
November .. .. .	..	..	..	..	..	..	45.5
December .. .. .	..	..	..	..	..	..	96.9
January .. .. .	..	..	..	..	..	..	137.3
February .. .. .	..	..	..	..	..	..	120.8
March .. .. .	..	..	..	..	..	..	95.6
<i>1940-41—</i>							
April .. .. .	..	..	..	..	..	..	86.7
May .. .. .	..	..	..	..	..	..	72.7
June .. .. .	..	..	..	..	..	..	65.4
July .. .. .	..	..	..	..	..	..	51.2

It will be observed that stocks of kernels held by the exporters at Madras ports at different times during 1939-40 varied from 24,000

tons to 152,000 tons or in terms of nuts in shell from nearly 34,000 to 217,000 tons.

At Bombay, the stocks during 1939-40 were as low as under 3,000 tons in October, 1939 and as much as over 78,000 tons in February, 1940. In other years also, they varied between 2,000 and 83,000 tons, as will be seen from the following table giving estimates of stocks in Bombay market from the records of a leading oilseed broker.

Estimates of stocks of groundnuts in Bombay market on the first Saturday of every month.

(Thousand tons.)

Month.	1936-37.	1937-38.	1938-39.	1939-40.	Average.
August	15.7	19.0	39.0	23.2	24.2
September	14.0	11.8	21.0	6.9	13.4
October	11.5	3.8	14.0	2.8	8.0
November	11.2	1.6	2.1	4.5	4.9
December	8.5	2.0	9.5	10.0	7.5
January	17.2	10.5	48.0	51.0	31.7
February	44.0	30.7	71.0	78.4	56.0
March	44.7	37.8	81.5	77.5	60.4
April	42.2	46.0	83.5	76.0	61.9
May	37.2	50.8	78.0	69.7	58.9
June	33.0	48.8	74.2	60.0	54.0
July	28.0	40.5	62.2	43.1	43.5
Average	25.6	25.3	48.7	41.9	35.4

NOTE.—Figures include stocks held by local mills and quantities sold but not exported.

The average stocks were about 26,000 tons in 1936-37 and 1937-38, 49,000 tons in 1938-39 and 42,000 tons in 1939-40. The stocks at three markets in the Central Provinces and two markets in

Hyderabad, given in the table below also show that the stocks at different markets and in the same market at different periods vary considerably.

Average monthly stocks of groundnuts in shell at some markets in the Central Provinces and Hyderabad.

(Thousand tons.)

Months.	Akola.	Kham- gaon.	Malka- pur.	Latur.		Warangal.	
	1939-40.	1939-40.	1939-40.	1937-38.	1938-39.	1937-38.	1938-39.
September ..	1.6	0.6	0.4	2.4	15.4	0.2	0.1
October ..	1.7	1.0	1.0	1.8	12.5	0.7	..
November ..	1.7	1.5	1.7	1.5	11.6	3.3	0.8
December ..	5.1	1.1	1.3	15.1	11.6	2.6	0.4
January ..	5.3	0.9	1.2	10.2	22.8	2.5	0.5
February ..	2.4	0.7	1.2	7.4	36.6	..	0.4
March ..	1.7	0.7	1.0	12.7	38.9	..	0.3
April ..	1.3	0.6	0.9	15.5	39.0	..	0.2
May ..	1.3	0.6	0.9	15.3	38.2	0.5	0.2
June ..	1.3	0.5	0.9	18.8	36.9	0.5	..
July ..	..	..	..	16.7	35.7	0.3	..
August ..	..	..	..	18.3	34.3	0.2	..

The stocks carried by mills vary in different cases, depending on the capacity of the plant, the location of the factory and whether the mills crush groundnuts only or other oilseeds also. The quantities crushed by the same mill may often vary considerably in different years depending on the prices of groundnut oil relative to other oils. The following table gives the stocks of groundnuts in shell at two mills in the Central Provinces from which it will be observed that the average stocks during 2 years varied between 1,140 and 1,740 tons.

Average monthly stocks of groundnuts in shell at two oil mills in the Central Provinces.

(Thousand tons.)

Months.	1937-38.	1938-39.	1939-40.	Average.
April ..	1.4	1.5	1.9	1.60
May ..	1.2	1.7	2.1	1.67
June ..	1.1	1.6	1.5	1.40
July ..	0.6	1.6	1.3	1.17
August ..	0.3	1.3	1.1	0.90
September ..	0.2	1.0	1.0	0.73
October ..	1.2	1.7	1.2	1.37
November ..	1.8	2.4	1.4	1.87
December ..	1.4	2.1	1.2	1.57
January ..	1.5	2.0	0.9	1.47
February ..	1.5	2.1	0.7	1.43
March ..	1.5	1.9	0.7	1.37
Average ..	1.14	1.74	1.25	1.36

(3) TOTAL STORAGE ACCOMMODATION.

The total storage accommodation in villages and assembling markets is extremely elastic. As has already been stated, groundnuts in villages are often stored at cultivators' and village merchants' dwelling houses while at assembling centres groundnuts are stored both in sheds and godowns and in the open. As the sheds and godowns vary from temporary thatches to well built godowns including accommodation in residential buildings and the decortivating factories generally have big compounds, where groundnuts are stored in the open, there is seldom any lack of storage accommodation. The conditions of storage in many markets are, however, far from satisfactory.

As regards the ports, Madras and Bombay provide ample storage accommodation, but the same cannot be said of all the other ports in Madras Presidency. At some of these ports, stacks have sometimes to be kept in the open for several days on account of lack of covered accommodation. While stacking in the open may not do much damage in the case of nuts, the humid atmosphere at the ports may start development of free fatty acids, which further increase during the voyage.

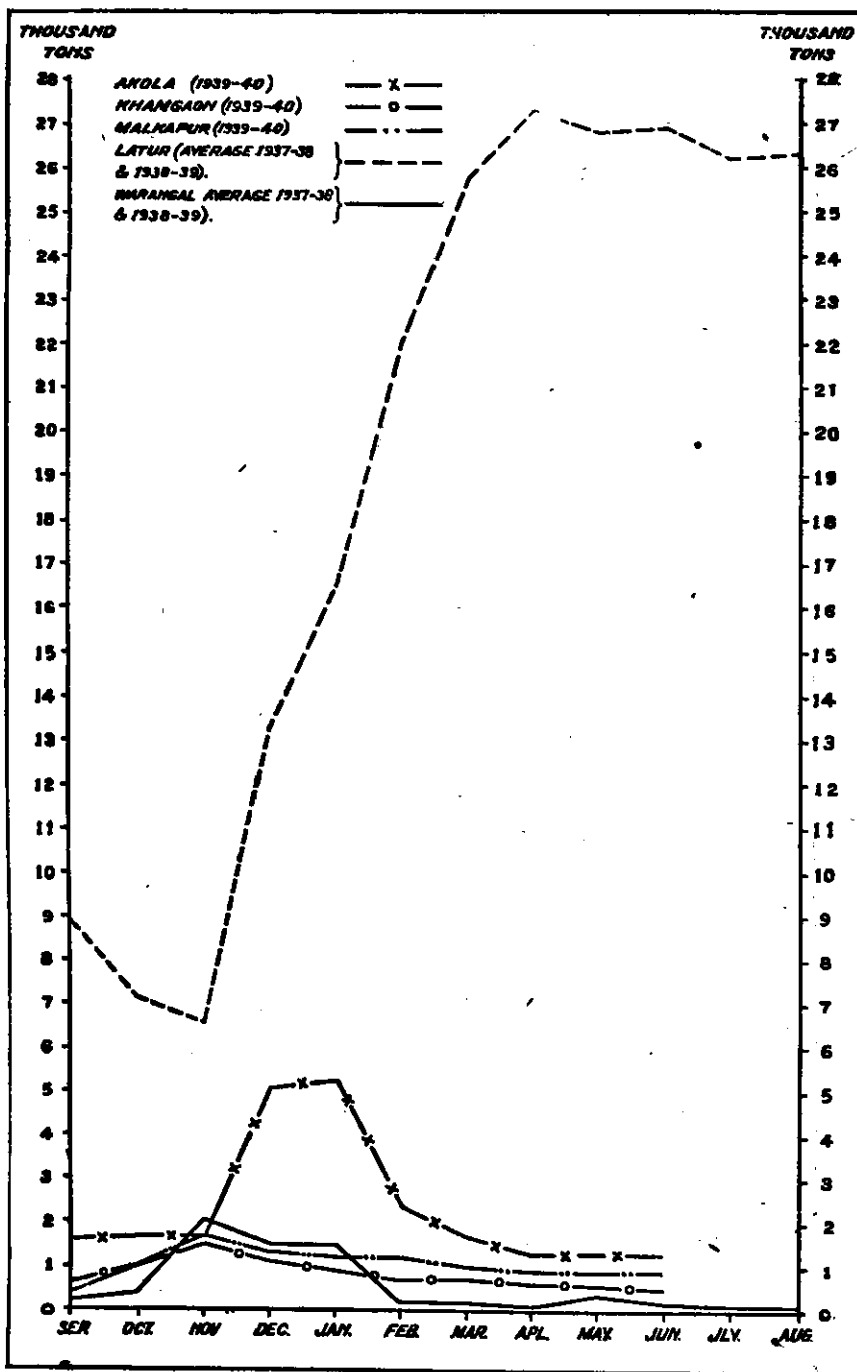
E.—Seasonal variations in stocks.**(1) IN VILLAGES.**

In villages, stocks are highest just after harvest, *i.e.*, between the end of September and December, depending on whether an early or late maturing variety is grown. It was stated in an earlier chapter that very little groundnuts, besides those required for seed and edible purposes, are retained in the villages for any considerable period, there being a rush to the market during three months following the harvest. Stocks in villages, therefore, get low by about the end of January when they seldom exceed a third of the production. After this, up to the time of sowing the next crop, further quantities move slowly to the markets and are utilised in villages for crushing or for eating. The stocks gradually get lower. After sowings have been completed in July or August, the remaining quantities, if any, are taken to markets so that the stocks in villages are negligible between the end of sowing period and arrival of the new crop, *i.e.*, from about July to October. In Madras, in places where a summer crop is grown, the stocks increase for sometime about June-July.

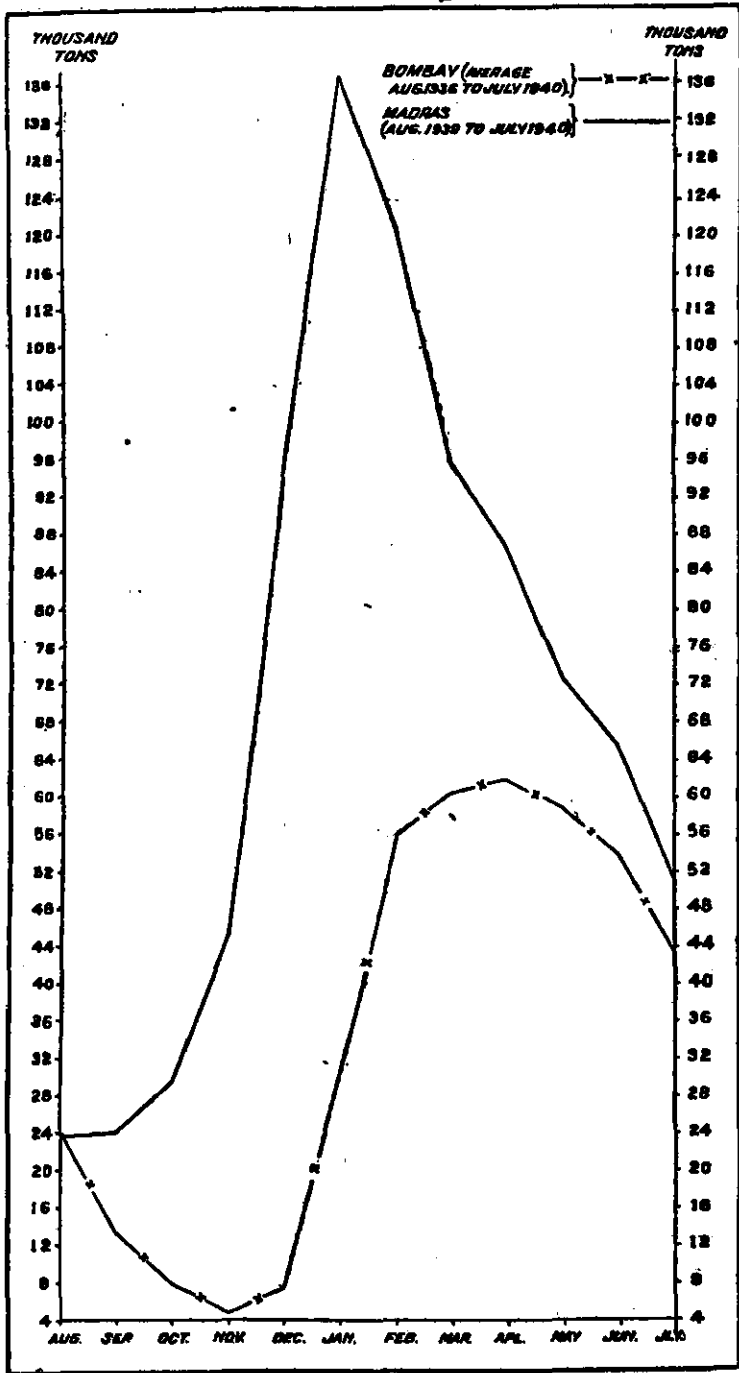
(2) IN ASSEMBLING MARKETS AND DECORTICATING FACTORIES.

In wholesale assembling markets and at decortivating factories, stocks begin to increase from October (from November at Latur) and reach a peak sometime between November and January, as will be seen from the graph facing this page, which shows the stocks at three markets in the Central Provinces and two markets in Hyderabad. At Latur, the stocks appear to accumulate upto April, after which the arrivals begin to fall off and the stocks show a decline. This is probably explained by the fact that Latur being directly connected with the trade at Bombay, the trend of stocks remains similar to that at Bombay (see page 98). In areas such as the Punjab, the United Provinces, Delhi, etc., where the

AVERAGE MONTHLY STOCKS OF GROUNDNUTS IN SHELL AT SOME MARKETS
IN THE CENTRAL PROVINCES AND HYDERABAD.



STOCKS OF GROUNDNUT KERNELS WITH EXPORTERS AT BOMBAY AND MADRAS PORTS.



demand is for edible use, and is confined mostly to winter months, the stocks begin to increase from November and get depleted by March. The stocks are highest usually in December.

(3) AT OIL MILLS.

Stocks at mills from the limited data available appear to be lowest in September and highest in November and December. The mills make considerable purchases at the season when arrivals in markets are heavy and later according to their commitments for oil and cake, for which reason the seasonal variations in stocks differ in different years. For instance, the figures of stocks at two mills in the Central Provinces given in the table on page 227, show that in 1937-38 and 1938-39, the stocks were lowest in September, while in 1939-40 they were low in January and February. Again the stocks were highest in November in 1937-38 and 1938-39 but in 1939-40 they were highest in May.

(4) AT PORTS.

The stocks at different ports show somewhat different seasonal variations, although the arrivals from interior markets remain at a high level at almost all the ports from November to March (see page 23).

At Madras ports, the exports begin to increase from November, but as the arrivals are well in excess of exports, stocks generally remain at a high level from December to March, being highest in January or February. The stocks begin to show a decline from April* onwards as will be seen from the diagram facing this page, which shows the stocks at Madras ports with four firms of groundnut exporters from August 1939 to July 1940.

At Bombay, unlike Madras, the exports are at a comparatively low level between November and March, so that the arrivals during this period are much more than the quantities exported and consumed by mills. The stocks, therefore, tend to accumulate, and it is only after March or April, when arrivals fall off, that the stocks begin to decline. The fall in stocks becomes more rapid after August when exports reach high levels (see diagram facing page 34).

F.—Storage costs in relation to seasonal variations in prices.

It was stated in Chapter III (see page 106) that the prices of groundnuts in shell and kernels are subject to considerable seasonal variations and after a pronounced harvest fall, generally show a rise in January and August (sometimes June or July). How far the rise in prices in these months covers or fails to cover the cost of carrying stocks, will be clearly seen from Appendices XLIX to L, which show the approximate returns after different periods of storage on stocks of groundnut kernels at the two most important port markets, *viz.*, Madras and Bombay and on stocks of kernels and

* In the table given on page 225 the stocks in April, 1939, appear higher than those in January and February, 1940. These are not comparable. The figures for January and February, 1940, should be compared with those of April, 1940.

nuts in shell at several assembling markets in different provinces and States.

When groundnut kernels or nuts in shell are stored, charges or rent have to be paid for the space occupied, interest has to be incurred on the money locked up, the produce gains or loses weight depending on weather conditions, there is deterioration in quality and damage by rats and vermin, and some gunnies are damaged and have to be replaced. The charges incurred under different items and losses sustained through different causes vary in different places and under different conditions so that the cost of carrying varies considerably in different markets and at different times. Average figures for godown rent, deterioration in quality, etc., discussed in the earlier sections of the chapter, have been used for calculating the costs of carrying given in the appendices, and the gain or loss as a result of storage upto January, February, May and August is calculated by comparing the costs of carrying up to these months with the premium (positive or negative) obtained in the respective months over November price.

At Madras, the prices had an almost continuous downward trend from November, 1933 and recovered only in August, 1934. There was, therefore, considerable loss in carrying stocks up to January, February or May 1934 (see Appendix XLIX) but in August 1934, the loss was reduced to only 1 per cent. In the next season, the prices had an upward trend, improving from Rs. 4-4-10 per maund in November to as much as Rs. 5-12-7 in January, Rs. 6-5-6 in February and Rs. 6-7-2 in May. The gain in carrying stocks up to January was over 32 per cent, which further increased to over 43 per cent in February and May. The fall in prices in August reduced the gain to nearly 32 per cent. In 1935-36, there was a gain in January and August and a loss in February and May. In 1936-37, the carrying of stocks was profitable up to January 1937, but did not remain so in subsequent months owing to a drop in prices after January 1937. The prices continued on a downward course after November 1937 and stocking of groundnuts in 1938 was a losing proposition. The average of the five seasons—which is, however, largely influenced by the big gain in 1934-35—shows a small gain in storing groundnuts, the maximum profit being by storage up to January, when the prices are usually highest.

Similarly, at Bombay, storing of groundnuts was not profitable between November 1933 and August 1934, but the reverse was the case between November 1934 and August 1935. The position in other years was similar to that at Madras and the average shows a small gain (except a very small loss in case of May), the maximum profit, as at Madras, being by holding stocks up to January. Storage of groundnut kernels up to January shows a profit in three out of five years both at Madras and Bombay. On the other hand, holding stocks for another month up to February shows a loss in four out of five years at Madras, and three out of five years at Bombay. Storage up to May is profitable in only one out of five years both at Madras and Bombay, but in August holding stocks becomes profitable in two out of five years at both the ports. It may, therefore, be said

that the costs of carrying have little influence on the course of prices at ports, which are influenced by other factors such as production, exports, etc.

In the assembling markets in producing areas, where godown rents are lower than at ports carrying stocks of kernels appears to be profitable (see Appendix L) at Cuddapah (Madras) and Gulbarga (Hyderabad) but not so at Barsi* (Bombay), where the costs of carrying exceed the premiums except in August. In the case of nuts in shell, storage of nuts appears to be profitable up to January at Dhulia (Bombay) and up to February at Raichur (Hyderabad), but in subsequent months, the cost of carrying exceeds the premiums resulting in a net loss. At Malkapur, however, where the purchases of groundnuts are largely by oil mills and for edible purposes and are not directly affected by export prices, storage remains profitable up to August. Allowing for the differences seen in the markets referred to above, it would be reasonable to expect that, as at ports, the costs of conservation are only covered by rising prices up to January. It would, as a rule, therefore, be a risky proceeding for, say, a producer's co-operative society to hold on to stocks beyond that time.

G.—Methods and cost of storage in Burma.

The storage of groundnuts produced in Burma is in the form of nuts in shell. The only kernels stored are those imported from India.

Cultivators store the nuts after harvesting—seldom for any length of time—under thatch cover in bamboo containers, holding 1,000 to 3,600 lb. each. Village traders sometimes hold stocks for several months. The driage from November-December to March-April amounts to 5 to 10 per cent in volume and 20 to 25 per cent in weight. Rats also do some damage.

After the nuts arrive at collecting centres they are usually bagged after measurement and stored in godowns, which are generally built with corrugated iron roofing and walling. The floor, which may be made of mud, cement or concrete, is often covered with a bamboo matting. At Magwe, the rent of a godown with a capacity of 2,000-2,500 bags is about Rs. 20 per month which works to 1.53 to 1.92 pies per bag per month. At mills also the nuts are stored in godowns which are usually insured against fire. The stocks at mills are heavy after December and begin to fall from June onwards.

The nuts during the rains gain as much as 5 per cent in weight. The loss in storage is mainly due to weevil attack to which kernels are more susceptible. The loss in the case of kernels may at times be as much as 10 per cent in six months. Sprinkling the floor with chlorate of lime solution is reported to have been found effective by some mills in preventing weevil attack.

*It may, however, be noted that the data used for different markets do not relate to identical periods, the prices given for different months being averages of prices in those months in three to five different years.

Conservation.]

INTER-CHAPTER EIGHT.

Groundnuts are stored both under cover and in the open. In villages and assembling markets, storage is usually in the form of nuts in shell in bulk, while at ports and in crushing centres it is more usual to find stocks of kernels in bags. The storage accommodation in villages and markets is extremely elastic and an open space is freely utilised specially at decorticating factories for heaping groundnuts in bulk. At Madras and Bombay, there is ample storage accommodation but the position at the minor ports is not so satisfactory. Even at ports, stacks of bags of kernels are made in the open during the rush period. This is far from satisfactory from the point of view of quality of groundnut kernels exported as kernels are particularly liable to damage specially in the humid atmosphere at ports.

(Provided they are properly dried before storage, nuts in shell suffer little deterioration in quality by a year's storage beyond some discolourisation of the shells. Nuts not properly dried or which get wet develop moulds and the quality of the kernels is seriously affected.) Kernels also deteriorate in quality more rapidly if they are moist or exposed to damp, the increase of free fatty acids adversely affecting the quality of oil produced.

(Groundnuts are seldom stored for more than a year and carry-overs to the next season are usually small. Statistics about stocks are, however, sadly lacking. Estimates of stocks are made by exporters and for local markets by merchants, but there is no agency to co-ordinate these disjointed estimates and it is impossible to know the exportable surplus at any time or the carry-overs from one year to another. The arrivals and despatches at a number of important centres are recorded and if arrangements for obtaining data about quantities

crushed could be made, it would be possible to form fairly accurate estimates of the stocks available in the country from time to time.

The cost of storage is higher at ports and terminal markets than in villages and assembling markets in producing areas. It is obviously desirable, therefore, not only from the point of view of minimising storage costs but also with a view to preserving the quality of kernels that the practice of carrying stocks in the form of nuts in shell at assembling markets should be encouraged. These could be sent after being decorticated to ports and crushing centres as required obviating the necessity of carrying large stocks of kernels at ports. This will necessarily involve better organisation at assembling markets, but this is desirable not only from the point of view of storage costs and quality but also with a view to providing more even distribution of quantities handled by decortivating factories and traffic on railways.

The storage of groundnuts is attended with considerable risks. The nuts unless properly dried lose weight rapidly in the beginning of the season and may later continue to gain or lose moisture depending on weather conditions. Owing to the seasonal rise in prices, the storage of kernels at Madras and Bombay is apparently profitable up to January in three out of five years, but holding stocks for another month resulted in a loss in four out of five years at Madras and in three out of five years at Bombay. Storage up to May was profitable only in one out of five years. In up-country markets also storage after January appears risky. This is a matter of some importance when considering the development of groundnuts. (Co-operative decortivating and sale societies appear to make no attempt to secure for producers the benefits of the seasonal rise in prices.)

Burma.—Storage is usually in the form of nuts in shell, which during the rains may gain as much as 5 per cent in weight.

CHAPTER IX.—HANDLING AND TRANSPORTATION.

A.—Handling.

(1) ON THE FARM.

It was stated in an earlier chapter (see page 121) that groundnuts, after being harvested, are usually dried in the sun, the operation being done on the field (see upper plate facing page 115), on the threshing floor (see lower plate facing page 115) or in cultivators' dwellings. The handling involved in spreading the nuts for drying and subsequent collection is generally all done by the cultivator and his family or servants.

The nuts when ready for sale are disposed of at the farm or threshing floor or are taken by the cultivator and his family—for subsequent sale in the village or an assembling centre—to their home in headloads or carts, depending upon the quantity and the distance. Sometimes the nuts are carried straight from the threshing floor to the market and only that portion, which is to be stored for subsequent use as seed and for edible purposes, is taken to the farmer's house. Nuts, which are to be stored are often given another thorough drying at the farmer's dwelling by spreading them in a thin layer in the court-yard or on the roof. Handling incidental to storing and drying is usually done by the cultivator and his family.

When nuts are sold at the farm or the village, the produce after weighment is either put in buyer's bags or carried by him loose in bullock carts to assembling centres. Buyers usually bring their own weights and measures and the weighing, measuring, filling, etc., are done by the buyer and his men with the help of the cultivator. When the produce is taken by a cultivator himself to an assembling centre, it is generally carted loose. When groundnuts are carried loose, carts are loaded usually by means of baskets. When, in a few cases, nuts are put in bags for being taken to the market, old bags of all kinds are put into service. The filling and stitching of the bags, and loading on carts are done by the cultivator and his family. In Madras, producers often measure their produce before filling the bags which helps them to estimate the approximate weight of the produce. The handling of nuts on the farms, therefore, generally involves no cash expenditure.

In certain areas of Madras, where hand-shelling is in vogue, producers offer kernels for sale. The methods and costs of shelling, etc., have been detailed in Chapter IV and the handling, weighment, filling of bags, stitching, loading of carts, etc., is similar to that described above in respect of nuts, the kernels being usually transported in bags and not loose.

(2) AT MARKETS.

It has been already stated that groundnuts, on arrival at an assembling market, are heaped, if loose, or stacked, if in bags, in the market place or in front of a commission agent's shop. In some markets, the nuts are allowed to remain in carts. Buyers

make their offers and after the bargain is settled, the produce, if in the form of nuts, may be taken to a decorticating factory in the cart itself or by headloads. If the buyer wishes to store the nuts for sometime, he may get them filled in his own bags or may get them transported in bulk to his godown. If the produce is already in bags, it is transferred from seller's bags to those of the buyer, if the latter wishes to store it in bags. If nuts are fairly wet and it is intended to store them, they are dried, but if they are to be immediately shelled, drying is not considered essential. The loading and unloading is done by *palledars* and *hamals*, already referred to in Chapter V, and the produce is usually weighed by professional weighmen. The charges for handling in markets have also been given in detail in Chapter V.

Kernels received in the secondary and terminal markets are almost invariably in bags. They are unloaded from railway wagons and carried by carts and lorries to markets or godowns, where they are, as at assembling markets, unloaded and stacked by *palledars* or *hamals*, who usually work on daily wages or piece work system. When the bags are packed with a uniform weight of kernels, the weight of a consignment is generally determined by weighing 5 to 10 per cent of the bags.

(3) AT DECORTICATING ESTABLISHMENTS.

Nuts in shell, on arrival at decorticating factories, are piled loose or stacked in bags in their compounds. Lots belonging to different owners or of different varieties are kept separately. When a factory is owned by a commission agent and the nuts have been brought by producers or village merchants for sale through him, the nuts are either decorticated soon after arrival and the kernels sold, or the nuts are left at the factory for subsequent decortication and sale. The heaps of nuts to be decorticated are sometimes sprinkled with water the night before in order to facilitate decortication and reduce breakage. When a factory is owned by a wholesale merchant, his purchases of nuts are piled in the factory, and such quantities as are required from time to time for despatch or delivery of kernels to oil mills, exporters' agencies or other buyers, are decorticated. When goods contain excessive moisture, they are often dried in the sun by spreading in the compound, before being stored. When nuts are brought to a factory for decorticating on hire, the nuts are passed through the decorticator and the kernels delivered to the owners. The shells are usually left at the factory, in addition to which a charge in cash may or may not have to be paid depending on the demand for shells.

The operations connected with putting the nuts in decorticating machines and subsequent handling of kernels are done by labourers employed by the factory on monthly wages or piece work system. The kernels coming out of decorticators are packed in bags after removing pieces of stones, shell, etc. The bags are packed with a uniform weight of kernels—usually 177 lb. in Madras and 168 lb. in Bombay—and the mouth stitched with twine.

(4) AT RAILWAY STATIONS.

Groundnuts, both nuts in shell and kernels, generally arrive at rail-head in bullock carts, or motor lorries and are always packed in bags. The bags are unloaded in the railway shed by cartmen or consignor's labourers, the subsequent loading from the shed into the wagon being done by railway labour. The charges for this service as well as unloading from wagon to railway shed at destination are ordinarily covered by railway freight. The railway provides labour for loading and unloading goods by employing a number of men, depending on the volume of traffic at each station. They are either employed on monthly wages by the railway or are engaged by a contractor, to whom the railway gives—usually for a fee—the right to load and unload at a particular station.

In the case of groundnuts, several railway administrations quote a lower freight rate for full wagon loads and one of the conditions of this concession generally is that loading into and unloading from railway wagons is done by the sender and the consignee respectively. In such cases, a consignor, when he wants to send a consignment, asks the railway for a wagon or wagons of the requisite capacity and sends his goods to the railway yard after receiving advice about the wagon being placed. The bags on arrival are loaded into the wagon direct by consignor's labourers, 9 light hours being allowed for the purpose by the railway. Demurrage according to the carrying capacity of the wagon is charged if the time allowed is exceeded. The cost of loading into wagons varies from Re. 1 to Rs. 3 per 100 bags. If the consignor wants the railway to do the loading on his behalf, a charge of 4 pies per maund has to be paid.

Before the bags are accepted for despatch, the consignor has to tender a forwarding note giving details about number of packages, weight, destination and consignee and execute the necessary risk note. Form "A" has to be filled in when the goods tendered for despatch are in bad condition or defectively packed while Form "B" is necessary for carriage of goods at a reduced rate or at owner's risk instead of at the higher "railway risk" rate. Goods are accepted without the execution of risk note form A only when they are not liable to damage or loss through defective packing. The reduced freights for groundnuts, which will be referred to in a subsequent section, are on the basis of booking at owner's risk and the bulk of groundnuts are despatched by rail at owner's risk.

The weight of the consignment, mentioned in the forwarding note, is verified by weighing the whole consignment—generally in case of small lots—or by weighing a few bags, say, 10 per cent and calculating the weight of the entire consignment therefrom. A certain number of bags are marked with a distinguishing mark for the consignment and the name of despatching station in code. At stations, where weighbridges are available, the whole wagon is weighed after being loaded. The consignor is then granted a railway

receipt showing the goods despatched and the amount of freight paid or payable at destination. The goods are subject to reweighment at destination and any charges paid short at the despatching station are realised before delivery of goods at destination.

On arrival of the goods at destination, they are unloaded into the sheds by railway labour, from where they are removed by the consignees after tendering the railway receipt and paying the charges, if any. The railways allow the goods to remain in these sheds for a certain time (generally 48 hours from the midnight of day of arrival) after which wharfage is charged. In case of full wagon loads booked on the condition that the unloading is to be done by consignees, the consignee, on arrival of the wagon, arranges to have the wagon unloaded by his labour, 9 light hours being allowed for the purpose. Demurrage has to be paid for any period in excess of the time allowed. If the consignee wants to employ railway labour, a charge of 4 pies per maund, as in the case of loading, has to be paid to the railway. As consignors and consignees are usually able to arrange for loading and unloading at less than 4 pies per maund, requests for using railway labour are not often made.

Hooks are prohibited by the railways to be used for loading and unloading bags lest they damage the bags and cause leakage of contents. The bulk of groundnut kernels are, however, booked in full wagon loads and loading and unloading is done by sender and consignee's labourers, who are free to use hooks.

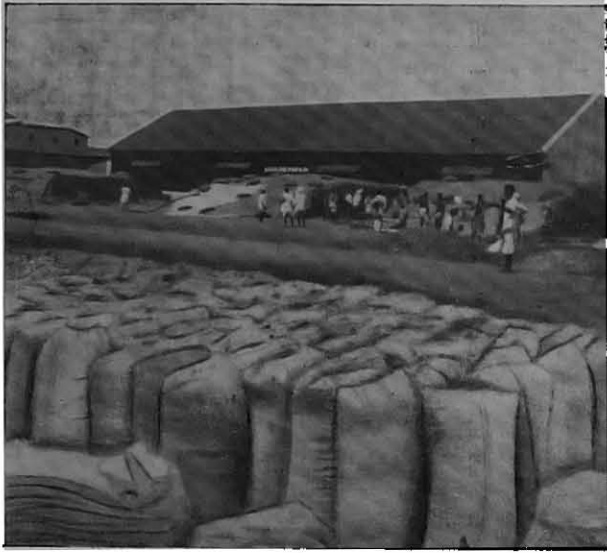
The loading and clearing of consignments at railway stations are usually arranged for and supervised by persons called "station *dalals*" or "hundekaris" or "marfatias", who in return for a small remuneration, go through the formalities of booking and taking delivery, pay octroi, terminal tax, etc., and supervise the loading and unloading of carts and transport of goods from consignor's godowns to station or station to consignee's premises. The remuneration paid to "station *dalals*" may be 4 annas to 8 annas per railway receipt handled exclusive of handling and transport charges or may be anything from Re. 1 to Rs. 5 per 100 bags inclusive of handling and transport charges and railway *mamools*.*

(5) AT PORTS.

It has already been stated in Chapter I that Madras, Pondicherry and several other ports on the East Coast, Bombay, Marmugao and Calicut on the West Coast and Veerawal, Bhavnagar, Bedi port and Porbandar in Kathiawar are concerned in the export trade in groundnuts. Some of these ports, specially Bombay, are important crushing centres and terminal markets for the internal trade. Karachi and Calcutta, which figure only in the coastal trade besides being crushing centres, also serve as distribution markets. The handling for the internal trade at these centres is on the same lines as at other markets.

* Customary un-official charges incurred at railway stations.

[Facing page 238.]

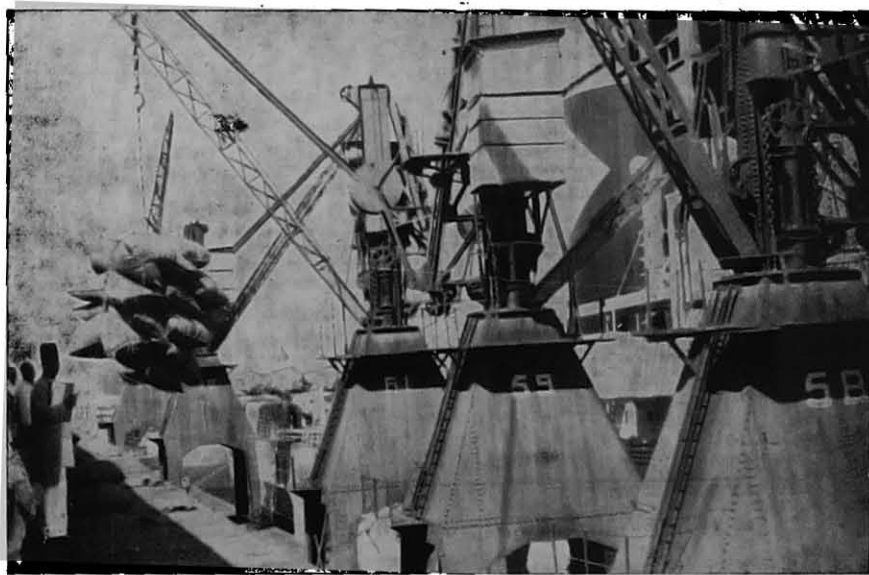


VIEW OF AN EXPORTER'S GODOWN AT MASULIPATAM.



PREPARING A CONSIGNMENT OF GROUNDNUT
KERNELS FOR EXPORT.

Facing page 239.]



LOADING BAGS OF GROUNDNUT KERNELS AT BOMBAY DOCKS.



BOATS CARRYING GROUNDNUT KERNELS FROM SHORE TO STEAMERS AT COCONADA,

For the export trade, the chief exporters have, at almost all the ports, their own or hired godowns near the docks area and groundnut kernels (or nuts in shell) for export railed (or sent by motor lorries) from up-country markets are brought into these godowns—an exporter's godown at Masulipatam may be seen in the upper plate facing page 238, which also shows the manipulation of goods for preparation of export consignments and the bags filled after manipulation. Hardly any consignment from up-country markets is sent direct to steamers or leaves the ports in the same condition as it is received.

In most cases the godowns have railway sidings running in front of or close to them and the bags are carried by labourers from the railway wagons to the godowns. When a godown is at some distance, carts or lorries are used to carry the goods from rail-head to the godown. The cost of unloading and carrying from wagons to godowns is usually from Re. 1 to Rs. 2 per 100 bags.

On arrival of a consignment at a godown, it is either stacked separately awaiting sampling and weighing or a certain percentage of bags—usually 10 per cent—are kept aside for weighing and sampling and the remaining bags stored. A sample is drawn by the exporter's employee and 10 bags are weighed. Consignments, after sampling and weighing, are stored together in big stacks. If any lot contains excessive moisture, the goods are dried by being spread in the godown or adjoining open space. For preparing export consignments, several lots (of the same variety) from different sources and containing varying amounts of refraction are mixed and piled together (see lower plate facing page 238). The refraction is tested by drawing a sample and adjusted to the required percentage by cleaning or mixing impurities, "damaged" kernels, "nooks", etc. If the percentage of refraction is to be increased, small pieces of earth, specially prepared or "nooks" are added. Plates facing page 193 show coolies distributing pieces of clay over a pile of groundnut kernels. On the other hand, if the percentage of refraction is to be reduced, pieces of stone, shell and damaged kernels are separated by sieving and picking. It has been already stated that cleaning is usually necessary for consignments to be exported to London while addition of earth, etc., is resorted to for shipments to Marseilles. After this manipulation, the goods are packed in bags with a uniform weight and stitched with twine. The cost of this manipulation is reckoned at about 12 annas per ton so that on an average over 5 lakh rupees are spent annually on the manipulation of goods at ports.

When a consignment is ready and steamer space is arranged, the bags are sent by rail, lorries or coolies to wharves. At Bombay, the goods are railed from Grain Depot godowns to wharves at Rs. 14 per wagon (20 tons), while in Madras the haulage from godowns to wharves costs Re. 0-4-6 per ton. At Marmugao, the cost works to about 6 annas per ton, while at Vizagapatam it is about 3 annas per ton.

The facilities available for loading the bags into steamers vary at different ports. The ports of Bombay and Madras* with their deep water harbours provide ample shelter for shipping throughout the year and the loading into steamers is done direct from wharves by cranes, as may be seen in the upper plate facing page 239 which shows a dockside scene at Bombay. The charges for handling groundnut kernels at Madras from exporters' godowns up to the time they are put into the slings of cranes vary from Rs. 5 to Rs. 10 per 100 bags (177 lb. each) according to the juxtaposition of the different exporters' godowns and the charges paid to contractors. The charges for subsequent operations such as hoisting and stowing in the holds of steamers are included in steamer freight.

Vizagapatam and Marmugao are two other ports where loading into steamers may be done direct from wharves. The former now has a quay with accommodation for 3 vessels while the latter has 5 berths alongside the quay wall. The loading of bags into steamers is done by cranes as at Bombay and Madras. At Marmugao loading and unloading of all ships is done by stevedores, railway wagons coming alongside the quay.

At other ports, steamers anchor at some distance from the shore and the goods are transported by lighters. The distances over which lighters have to carry goods vary at different ports. At Pondicherry, steamers can anchor within two or three hundred yards of the pier, which is fitted with cranes and railway lines. Loading of bags is done mostly from shore in country boats. At Coconada and Masulipatam, on the other hand, large steamers anchor about 6 miles from shore and service is maintained with lighters which take and land cargo at harbour wharves. At Cuddalore, steamers anchor about a mile off shore and railway sidings run up to the wharves. At Negapatam, anchorage for steamers is found within 2 miles and the harbour is equipped with wharves. At Bimlipatam, the harbour is an open roadstead and ships lie about a mile off the shore. The port of Calicut, where steamers lie about 3 miles off the shore, is practically closed from the end of May until August. The Kathiawar ports (with the exception of Okha port) usually accommodate small coasting steamers within the harbour while facilities are provided for anchorage of large vessels some distance away from the shore.

The lighters carrying the cargo from shore to steamers vary in capacity from 10 to 80 tons at various ports. The lower plate facing page 239 shows some boats used between the shore and steamers at Coconada. The cost of transport (and handling) from the shore to the steamer, which does not form part of steamer freight, varies at different ports, depending on the distance and the season. At Masulipatam the charges are about Rs. 3 per 100 bags while at Bimlipatam, where there are no wharves, they work to Rs. 10 to Rs. 15 per 100 bags. At Calicut, the boat charges are about Rs. 7-8-0 per 100 bags while at Coconada the charges are Rs. 7 per 100 bags. These charges are considerably increased when the

* Also Karachi and Calcutta, which figure only in the coastal trade of groundnuts.

weather is not fair, on account of the longer time necessary to cover the distance and bigger risks. When the sea is rough, waves splash on the lighters and some bags, in spite of being covered with tarpaulins, get wet. Such bags are usually returned by the steamer, where the goods, as they arrive, are usually examined. But when large number of bags are hoisted by steamer cranes, it is reported that some wet or slightly wet bags escape unnoticed and these stored in the holds of steamers help in the quick development of free fatty acids. When the wet bags are returned to shore their contents are emptied out, dried and then repacked but during the operations, the access of moisture and humid atmosphere at the ports helps to bring about an increase in the free fatty acids.

B.—Transportation.

Road, rail and water transport all figure in the movement of groundnuts and the cost of transport is the main factor accounting for the difference in prices ruling at different ports and at various markets. The expenses incurred in transport of groundnuts vary in different places and at different times as they depend on a number of factors such as means of transport, quantities involved, condition of road, season and whether only one or alternative methods of transport are available.

(1) BY ROAD.

Bullock carts and motor trucks form the usual means of conveyance for road transport, the former being the more usual when the distance to be covered is small, the quantity to be transported is not large or the road is *kachcha*. The goods are transported either loose or packed in bags. Carts drawn by animals other than bullocks such as camels appear to be little used for groundnuts. Small quantities of nuts from farms to cultivators' dwellings or to *hats* and in retail trade are sometimes taken as headloads.

(a) *Bullock carts*.—The two-wheeled bullock cart drawn by one or two bullocks (in some cases buffaloes) is the most common type of vehicle met with in the main groundnut producing tracts in India. Plates facing page 242 show three of the various types of bullock carts seen in different parts of India. The one-bullock cart is a slightly smaller vehicle. The carrying capacity of a cart may be anything from 12 to 30 maunds in different parts of India depending on the condition of the road and the size and number of animals.

In Madras and Bombay, a two-bullock cart generally carries 12 to 13 maunds but when it has to traverse over long stretches of *kachcha* road the load may be somewhat decreased to compensate for the greater draught. A slightly larger quantity, *viz.*, about 14 to 15 maunds is usually loaded in Northern India, but in the Punjab as much as 30 maunds may be carried on a cart. In Calcutta, a cart drawn by two bullocks usually carries 15 maunds while one drawn by two buffaloes carries 30 maunds.

When the goods are transported in bulk, a rough hand-woven cloth of cotton or jute called *bhovar*, *gona* or *palli* in different parts of India is spread in the cart to prevent the nuts from falling out,

A cart loaded with loose groundnuts may be seen in the lower plate facing this page. In Kathiawar, a receptacle is sometimes formed on the cart with bamboo matting, as will be seen in the cart shown on the right upper portion of plates opposite.

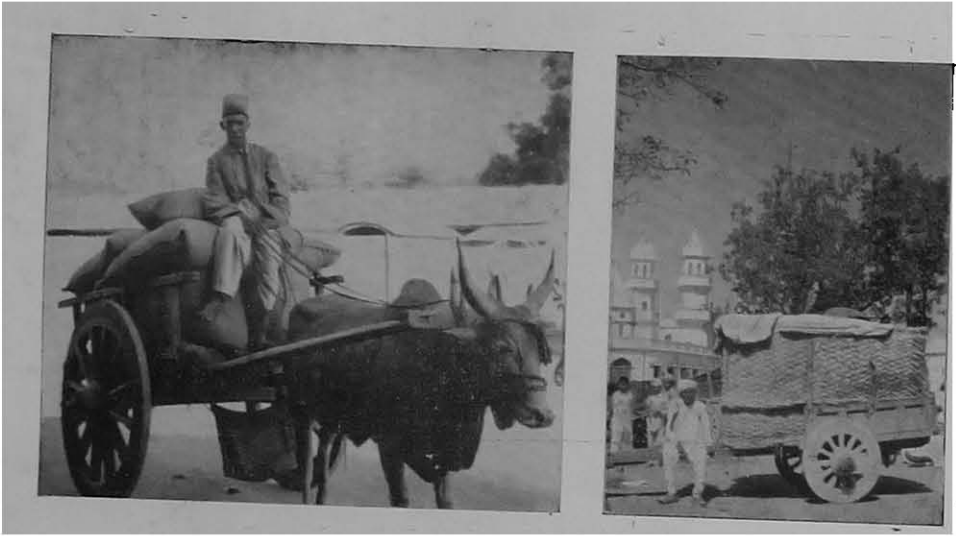
The carts, on account of their slow speed, usually operate upto a distance not exceeding 30 or 40 miles. The cartage charges vary considerably in different areas. Forty-four representative instances of cartage charges from eleven provinces and States were analysed and the average cartage charges may be classified as under :—

Distance.	Cost of cartage per maund per mile.
	(Pies.)
1. Up to 3 miles	3-54
2. More than 3 miles up to 10 miles..	2-26
3. „ „ 10 „ „ 25 miles..	1-65
4. „ „ 25 „ „ 50 miles..	1-38

The distance between markets or decorticating factories and railway stations in most places generally varies from a few hundred yards to about three miles. The cost of transport per maund for this distance usually varies from one to about 6 pies, the average being about $3\frac{1}{2}$ pies per maund per mile. For very short distances the charges may be considerably higher. For instance, at Tindivanam in the Madras Presidency, the cost of transport from the seller's godown to the railway station by cart is about 3 pies per maund, although the distance between the two points is about one hundred yards. In considering the cost of transport by carts it should be noted that the cartage usually includes loading of the goods at the source and unloading at the destination. The cartage rates are higher in big cities, towns and urban areas than in the outlying districts, smaller markets and villages. For instance, the transport charges between station and godown work out at about 5 pies per maund per mile at Bombay as compared with $1\frac{1}{2}$ pies per maund per mile at Kolhapur. The rates are also generally higher during the monsoon when the condition of the road permits smaller quantities to be taken and during sowing season when bullocks are required for other agricultural operations. When there are unbridged rivers, charges, which may be anything from 8 annas to Rs. 2 per cart, have to be incurred for ferrying the cart across.

(b) *Motor trucks.*—Motor trucks are being increasingly used for the transport of groundnuts and other agricultural commodities. Their capacity usually varies from 1 ton to 3 tons and they are not only used side by side with carts for short distances such as from markets, godowns and decorticating factories to mills, railway stations and wharves but also for carrying produce comparatively longer distances from assembling centres to secondary markets, crushing centres and ports. For example, in Madras, a considerable

[Facing page 242.

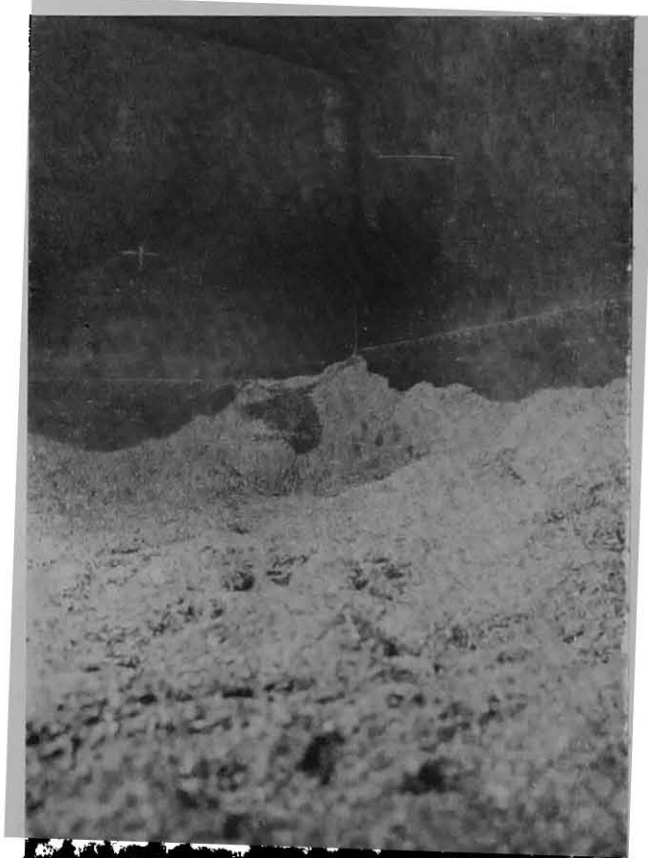


THREE TYPES OF BULLOCK CARTS USED FOR TRANSPORT OF GROUNDNUTS.

Facing page 243.]



A BOAT USED FOR TRANSPORT OF GROUNDNUTS IN BURMA.



A VIEW OF THE INSIDE OF A RAILWAY WAGON AFTER A CONSIGNMENT OF GROUNDNUT OIL IN TINS HAD BEEN UNLOADED.

(Note.—The black patches indicate spots where oil leaked from tins.)

portion of the produce from Chingleput district is taken a distance of 30 to 60 miles to Madras by motor lorries, while in Bombay, motor trucks are being extensively used for transport of groundnuts from Karad and Kolhapur more than 100 miles to Ratnagiri and Chiplun.

The charges made by motor lorries are, unlike railway freights, not calculated on a per maund per mile basis, but are usually quoted between two specific points. When they ply side by side with carts, their rates are similar to those of carts but when they operate between two points connected by rail, the charges are usually somewhat lower than railway freight. The charges are, however, not fixed and vary in different seasons, sometimes with different customers, and according to whether a return load is expected. Long hauls are usually charged for at comparatively lower rates, so that the cost per maund per mile usually decreases as the distance increases. An analysis of the usual charges in a number of instances in different parts of India shows that the charges for motor trucks may vary from nearly $\frac{1}{2}$ pie to 1 pie per maund per mile for long hauls while it may be as much as 5 pies per maund per mile for short distances. A few instances of charges made by motor lorries are given in the table below :—

Transport charges by motor trucks on groundnuts in shell and kernels between certain centres.

From	To	Distance (miles).	Transport charges per bag of 177 lb. kernels.	Transport charges per bag of 82 lb. nuts in shell.	Transport cost per maund per mile.
			Rs. A. P.	Rs. A. P.	Pies.
<i>Madras.</i>					
Ancharapakkam ..	Madras ..	60	0 8 0*	..	74
Madurantekam ..	Madras ..	53	0 5 0†	..	52
<i>Bombay.</i>					
✓ Kolhapur ..	Ratnagiri ..	82	0 12 0‡	..	79
<i>Punjab.</i>					
Machiwara ..	Amritsar ..	115	..	0 9 0	94
Machiwara ..	Lyalpur ..	237	..	1 1 0	86

*The railway freight is 10 annas.

†The railway freight is Re. 0-8-6.

‡Per bag of 182 lb.

(2) BY RAIL.

(a) *Quantities.*—A net work of railways traverses the main groundnut producing areas and in spite of competition from road and water transport in some places, railways carry the bulk of long distance traffic in groundnuts from interior markets to ports and between different markets and crushing centres. Taking an average of five years 1933-34 to 1937-38, 196,000 tons of groundnut kernels (and nuts in shell) moved by rail (and river) annually between different provinces and States of India (see Appendix XXI). Hyderabad, Madras and Mysore together contributed 183,000 tons to the inter-provincial movement by rail, their respective shares being 117,000 tons, 46,000 tons and 20,000 tons. In addition to the inter-provincial movement 245,000 tons moved by rail within Madras Presidency from interior markets to ports and another 70,000 tons from markets in Bombay Presidency to Bombay port, making a total of 315,000 tons railed from interior markets in these two provinces to their respective ports. Besides the inter-provincial movement and movement to ports, considerable quantities are railed between different centres (besides ports) within a province for crushing and edible use. The total quantities put on rail annually during the quinquennium referred to, may, therefore, be reckoned to be not far short of 800,000 tons. As has been stated earlier, the movement in South India is mostly in the form of kernels, while in North India, the bulk of quantities move in the form of nuts in shell.

(b) *Freights.*—Freights charged for transport of goods by rail appear to be fixed on a number of considerations such as the nature and value of the commodity, the size of the consignment, the distance the goods have to be carried, the volume of traffic and alternative means of transport available. Grains, oilseeds, fodder, coal, etc., are charged the lowest rates while explosives and dangerous goods are charged the highest rates of freight. Full wagon loads are charged for at cheaper rates than small consignments and telescopic freights, which are generally quoted, make long hauls relatively cheaper than short journeys by lowering the rate as the distance increases. Special reduced rates of freight are quoted when there is competition from other transport agencies or a large volume of traffic between two points.

In order to allow for variations on account of these different considerations, freights are charged in three different ways, viz., (i) class rates, (ii) schedule rates, and (iii) station to station rates.

(i) *Class rates.*—The various commodities are grouped, for purposes of freight, into 16 classes, for each of which a minimum and a maximum rate per maund per mile is laid down. All rates, of whatever kind, for commodities grouped in a particular class are kept between the minimum and maximum rates of that class and (in the absence of schedule or station to station rates) the maximum for the class is the ordinary rate per maund per mile for commodities grouped in that class (without terminals, short distance charges and tolls). A commodity is, however, sometimes charged at the rate of a lower class than that in which it is classified. This lower class rate is, of course, higher than the minimum rate of the class in which the commodity is placed.

The following are the maximum and minimum rates of freight per maund per mile fixed for the various classes* :—

Rates of freight for commodities grouped in different classes.

Class	Maximum rate per maund per mile. (Pies).	Minimum rate per maund per mile. (Pies).
1	.38	.100
2	.42	.100
2A	.46	.100
2B	.50	.100
2C	.54	.100
3	.58	.166
4	.62	.166
4A	.67	.166
4B	.72	.166
5	.77	.166
6	.83	.166
6A	.89	.166
7	.96	.166
8	1.04	.166
9	1.25	.166
10	1.87	.166

It will be observed that the rate of rail freights for different commodities may vary under different conditions from a minimum of .1 pie per maund per mile to a maximum of 1.87 pies per maund per mile.

A number of oilseeds and grains are grouped in class 1 but groundnuts, the classification of which has been subject to revision more than once in recent years, have been variously placed under class 2, 2A, 2C, 3 and 4 under different conditions. According to the rules in force on 1st July 1934, groundnuts (both nuts in shell and kernels) were grouped in class 4 with the proviso that full wagon loads (300 maunds on broad gauge and 160 maunds on metre and narrow gauge systems), when loading and unloading was done by senders and consignees, were grouped as class 3 at railway risk and class 2 at owner's risk. The rules in force on 1st April, 1938, retained groundnuts under class 4 but full wagon loads were classed as 2A and 2 at railway risk and owner's risk respectively. The rules, in force on 1st April 1939, grouped groundnuts (whether in wagon loads or small quantities) under class 2C at railway risk and this classification is still in force (October 1940). The present ordinary freight rate for groundnuts (both nuts in shell and kernels) is, therefore, .54 pie per maund per mile although the minimum rate permissible is as low as .10 pie per maund per mile. The various railways make a number of exceptions and variations under different

*Different rates are allowed on some hill and small railways.

conditions, as a result of which kernels are charged at class 1 rate, i.e., .38 pie per maund per mile at owner's risk on Bombay, Baroda and Central India and Great Indian Peninsula Railways, while both nuts in shell and kernels are charged at class 2 rate, i.e., .42 pie per maund per mile at owner's risk on Bengal Nagpur, Madras and Southern Mahratta, Mysore State and Nizam's State Railways. On the other hand, groundnuts are charged at class 4 rate, i.e., .62 pie per maund per mile at railway risk on South India Railway.

The rates of freight in force on 1st January, 1940 on several railway administrations concerned in the movement of groundnuts together with the conditions applicable are summarised in Appendix LI, from which it will be observed that nuts in shell and kernels are subject to the same rates of freight except on Bombay, Baroda and Central India and Great Indian Peninsula Railways. On the former railway the rate for kernels under certain conditions, as has already been mentioned, is .38 pie per maund per mile at owner's risk while in the case of nuts it is .42 pie per maund per mile at owner's risk and .46 pie at railway risk. On the Great Indian Peninsula Railway the rates charged for kernels and nuts are .38 pie and .54 pie per maund per mile at owner's risk and railway risk respectively.

It would be interesting to note here that groundnut oil is grouped under class 2A at railway risk and class 2 at owner's risk so that taking into account the concessions allowed for groundnuts in shell and kernels on several railways, the freight for groundnut oil is higher than that for groundnut kernels only on Great Indian Peninsula and Bombay, Baroda and Central India Railways. On Bengal Nagpur, Madras and Southern Mahratta, Nizam's State and Mysore Railways, groundnut oil and groundnuts (in shell and kernels) are, under certain conditions, charged the same rate of freight. On South India Railway, groundnut oil is charged a lower rate of freight than groundnuts. The relative rates of railway freight on groundnuts and groundnut oil by encouraging or discouraging movement of one commodity or the other sometimes appreciably affect the development of groundnut crushing in certain areas. This will be further referred to in Chapter X. Groundnut cake is grouped under class 1 and the freight rates are, therefore, lower than either nuts and kernels or oil.

(ii) *Schedule rates.*—Rates lower than the maximum but not lower than the minimum rate for the class in which a commodity is grouped, are adopted on different railway administrations for various commodities as conditions of traffic require. Such rates, called schedule rates, may be quoted per maund, per ton or per wagon and may be on a uniform basis or may vary according to distance or weight on the telescopic principle.

In the case of groundnuts, as the various railway administrations handling groundnuts charge freight at a rate (as has been stated under class rates) equal to the rate of a lower class, schedule rates are not generally quoted. Only on East Indian Railway, schedule rates are quoted for wagon loads (270 maunds for kernels and 200 maunds for nuts in shell) carried at owner's risk, loading and

unloading being done by senders and consignees. According to these rates the freight is charged as under :—

For the first 100 miles ..	·38 pie per maund per mile.
From 101 to 300 miles, add at ..	·22 pie per maund per mile.
From 301 to 600 miles, add at ..	·13 pie per maund per mile.
Above 600 miles, add at ..	·11 pie per maund per mile.

There are no schedule rates for groundnut oil but a number of schedule rates are allowed for groundnut cake on various railways.

(iii) *Station to station rates.*—These are special reduced rates inclusive of terminal, short distance charge and tolls, etc., quoted for the total distance between two specific points on considerations of volume of traffic and competition from other transport agencies. Station to station rates, generally with certain restrictions regarding minimum weights, have been allowed in the case of groundnut kernels (in some cases nuts in shell) from a number of markets in producing areas to Bombay and several East Coast ports and some crushing centres.

The following table gives the station to station rates for groundnut kernels between certain centres ; the respective calculated freights between the same points at the class rate applicable on the railway concerned have also been given for comparison.

Station to station rates of freight on groundnut kernels between certain centres together with freights calculated at class rates.

(Full wagon loads, loading and unloading by senders and consignees, and at owners' risk).

From	To	Name of railway.	Distance.	Class rate.		Station to station rate.	
				Calculated freight per maund.	Rate per maund per mile.	Freight per maund.	Calculated rate per md. per mile.
				Rs. A. P.	Pies.	Rs. A. P.	Pies.
Guntur ..	Coonada ..	M. & S. M.	153	0 5 5	·42	0 2 6	·196
Vizagapatam	Calcutta .. (Shalimar).	B. N. ..	549	1 3 2	·42	0 7 0	·153
✓ Kolhapar ..	Bombay ..	M. & S. M.	180	309	0 10 5	0 8 0	·233
		G. I. P. ..	119				
Gulbarga ..	Bombay ..	G. I. P. ..	353	0 11 2	·38	0 10 8	·363
Davangere ..	Madras ..	M. & S. M.	425	0 14 11	·42	0 13 0	·367
Dhulia ..	Bombay ..	G. I. P. ..	230	0 7 7	·38	0 7 0	·351

It will be observed that the freight between Guntur and Cooonada at the class rate (applicable on Madras and Southern Mahratta Railway, i.e., ·42 pie per maund per mile) works to Re. 0-5-5 per

maund but the station to station rate is only Re. 0-2-6 per maund, which is less than .2 pie per maund per mile. The reduced station to station rate is accounted for besides considerable traffic between the two points by the alternative water transport available. Similarly, between Vizagapatam and Calcutta between which coastal steamers provide an alternative means of transport, the station to station rate is 7 annas per maund only, *i.e.*, about .15 pie per maund per mile as compared with the class rate of .42 pie per maund per mile. Between Kolhapur and Bombay, combined road and water transport (motor lorry from Kolhapur to Ratnagiri and steamer from Ratnagiri to Bombay) competes with rail transport and the station to station rate is 6 annas per maund only, *i.e.*, .233 pie per maund per mile.

(3) BY RIVER AND CANAL.

The movement of groundnuts by river and canal is confined to a few areas only and the total quantities involved are comparatively small. In Madras, water transport is common only in the deltas of Kistna and Godavari rivers, where about 20,000 tons of groundnuts (mostly kernels) from Guntur and neighbouring centres move annually by canals to Masulipatam and Coconada ports. Country-made wooden boats carrying 200 to 300 bags at a time provide the usual means of transport. In the United Provinces, the Lower Ganges Canal serves some of the producing areas such as Mainpuri and Farrukhabad and country boats carry some traffic from these centres mainly to Cawnpore. In Cochin and Travancore States, there is a small traffic by country boats between Ernakulam, Cochin, Travancore and some other places, while small quantities move by river steamers in Assam, Bengal and Bihar.

The cost of water transport, which is invariably lower than rail transport, depends on the length of haul and the size of consignment besides season and the possibility of return load in the case of country craft. The following table gives a few instances of transport charges between different points :—

Transport charges by boat on groundnuts in shell and kernels between certain centres.

From	To	Distance (miles).	Transport charges per bag of 177 lb. kernels.	Transport charges per bag of 82 lb. nuts in shell.	Transport cost per maund per mile.
			Rs. A. P.	Rs. A. P.	Pies.
<i>Madras.</i>					
Chebrole	Masulipatam	60	0 3 0	..	.28
Bezwada	"	44	0 1 6	..	.19
Chebrole	Coconada ..	120	0 4 10	..	.22
<i>United Provinces.</i>					
Kansua Ghat ..	Cawnpore ..	64	..	0 3 0	.56
Imerda Ghat ..	Cawnpore ..	52	..	0 2 9	.53
<i>Bengal.</i>					
Calcutta	Krishnanagar	80	..	0 3 0	.45

The transport charges usually include loading of goods from shore to boat and unloading from boat to shore.

(4) BY SEA.

The transport of groundnuts by sea may be divided under two heads, *viz.*, (a) coastal, *i.e.*, transport by coastal steamers between the various ports in India, (b) foreign, *i.e.*, transport from ports in India to foreign countries.

(a) *Coastal*.—The areas concerned in the movement of groundnuts by coastal steamers are Madras, Bombay, Kathiawar States, Bengal and Sind. During the period 1933-34 to 1937-38, on an average, about 17,000 tons of groundnuts in shell and kernels moved annually by coastal steamers between different provinces and States mainly from Madras, Bombay and Kathiawar States to Bengal, Sind and Bombay (see Appendix XXII). Besides the inter-provincial movement, about 9,000 tons were, on an average, handled annually during the same period by coastal vessels between different ports within the provinces of Madras and Bombay.

The transport by coastal vessels is usually slower than rail transport and is made use of mainly on account of the comparative cheapness of steamer as compared with rail freight. The extent of cheapness will be clearly indicated by an example. The steamer freight between Bombay and Madras before September 1939 was Rs. 7 per ton, which, if spread over the distance of 1,463 miles by steamer route, works to .03 pie per maund per mile. Even if the steamer freight is reckoned on the shorter distance by rail (794 miles), the freight per maund per mile amounts to .06 pie. Again, the steamer freight between Bombay and Karachi (483 miles) used to be Re. 0-2-6 per maund for kernels and 3 annas per maund for nuts, which works out to .06 and .07 pies per maund for kernels and nuts respectively. The freights by coastal steamers are thus about one-sixth of the lowest rate permissible on Indian railways and are considerably lower than any reduced station to station rate charged between any two stations. A few instances of steamer freight* before the outbreak of War in 1939 on groundnuts in shell and groundnut kernels are given in the table below :—

Steamer freights on groundnuts in shell and kernels between certain centres.

		Rs.	A.	P.	
Bombay to Madras	.. .. .	7	0	0	per ton† less 10% deferred rebate.
Bombay to Calcutta	.. .. .	9	8	0	Do.
Bombay to South Madras ports	.. .. .	11	0	0	per ton.†
Bombay to Coromandel ports	.. .. .	9	8	0	per ton.†
Coconada to Calcutta	.. .. .	5	0	0	per ton.
Bombay to Karachi	} Nuts in shell	0	3	0	per maund.
Kathiawar ports		} Kernels	0	2	6	per maund.

* The rates of freight were increased from 15th September 1939 and again from 1st May 1940.

† Per ton of 14 cwt. groundnut kernel or 6 cwt. nuts in shell.

The rates of coastal freight do not fluctuate from month to month but remain uniform for long periods. For instance the freight, on groundnuts between Bombay and Madras and between Bombay and Calcutta or Coromandel ports, was Rs. 7 per ton and Rs. 9-8-0 per ton respectively from 1st September, 1935 to 14th September, 1939. The rate between Bombay and South Madras ports was Rs. 10 from 1st September, 1935 to 11th April 1937, and Rs. 11 per ton from 12th April 1937 to 14th September 1939. Bombay, which is an open port for foreign freight, has association rates for coastal freight.

In some cases, transport by road and coastal steamers together offers an alternative and competitive means of transport to rail. For instance, groundnuts from Kolhapur and Karad used to be railed to Bombay but with the development of motor traffic, a considerable portion of the produce from these areas is now sent by motor lorry to Ratnagiri and Chiplun from where it is shipped to Bombay by coastal steamers. It is reported that in spite of the railway having allowed a special station to station rate between Kolhapur and Bombay, there is a saving of about 2 annas per maund by sending the goods by lorry to Ratnagiri and thence to Bombay by steamer.

The freights for groundnut oil by coastal steamers, as will be seen from the table below, which gives the rates in force in 1939 before the outbreak of War, are higher than those for nuts and kernels (calculated where necessary to per ton of 20 cwt. to make them comparative with oil rates).

Steamer freights on groundnut oil between certain centres.

		Rs. A. P.	
Bombay to Karachi	}	0 7 0 per maund.
or			
Kathiawar ports	}	7 0 0 per ton less 10% deferred rebate.
Bombay to Madras			
Bombay to Calcutta				.. ..	9 0 0 Do.

(b) *Foreign.*—The quantities exported to foreign countries have already been discussed in Chapter I, where it was also stated that the exports are mostly in the form of kernels. These are shipped both as parcels on regular steamship services or in full cargoes on specially chartered steamers in which case the freights are somewhat lower. Large quantities are shipped by charter from Madras, but the quantities vary considerably from season to season according to liner space rate. Nuts in shell are invariably sent as parcels.

The rates of freight for groundnuts vary from time to time—they often fluctuate from month to month—and usually differ between Bombay and Madras or other East Coast ports. A uniform rate of freight is generally charged from all the East Coast ports. The rates for the United Kingdom usually apply to North Continental ports also. At Madras and East Coast ports, freights for groundnut kernels are quoted on the basis of a ton of 20 cwt., while at Bombay, they are quoted for a scale ton of 14 cwt.*

* Light seeds, including linseed and several other oilseeds are quoted per ton of 13 cwt. and the freight for groundnuts was generally 1s. higher than the rate for light seeds before the outbreak of War in September, 1939. Special conditions, however, prevailed later and the freight quoted for groundnuts from Bombay to the United Kingdom became 10s. higher than that for light seeds.

The average monthly freights for groundnut kernels from Madras and Bombay to the United Kingdom from 1933-34 to 1938-39 are given in Appendix LII. It will be observed that the freights from Madras during the quinquennium 1933-34 to 1937-38 varied from *sh.* 16 to *sh.* 32-6 per ton of 20 cwt., while those from Bombay during the same period varied from *sh.* 16 to *sh.* 35-6 per ton of 14 cwt. It should, however, be noted that at Bombay the freights quoted by different shipping companies sometimes vary as much as 5 *sh.* per ton. The relative freights from Madras and Bombay are largely influenced by the outports on both coasts.

(5) COMPARISON OF DIFFERENT TRANSPORT AGENCIES.

It will be clear from what has been said in earlier sections that coastal steamers offer the cheapest mode of transport. These, however, cannot be made use of for the movement of the crop from assembling centres to crushing centres or ports and, therefore, have only a limited utility in groundnut transport. Country boats plying on inland waterways offer another cheap means of transport but this form of traffic is possible only in certain areas. The bulk of movement, therefore, takes place by road or rail.

On the road, the bullock cart holds an unrivalled position for transport of produce from villages to assembling markets, specially when roads are *kachcha*. Its slow speed, however, precludes it from long distance transport. Motor trucks are taking an increasing share in the movement of agricultural produce competing with carts as well as railway. In the case of groundnuts, however, as lorry traffic has not developed in the districts of Madras (except Chingleput district) as much as in Bombay and Northern India, the quantities handled by lorries still form a comparatively small proportion of the total.

The charges for lorry transport between points connected by rail are generally somewhat lower than railway freight. The elimination of handling and cartage to and from railway station, saving in time required for transit, less chances of damage and the freedom from formalities and miscellaneous charges attendant on booking and clearing goods at railway stations also encourage transport by lorries. Lorries thus compete seriously with rail transport in some places and have been instrumental in bringing about reduced station to station rates of rail freight in several instances. The lack of organisation, the absence of any basis for calculating charges, and uneconomic competition, however, often affect the motor lorry traffic adversely.

The charges for groundnuts on Indian railways are appreciably higher than those for other oilseeds such as linseed, castor, sesamum, rape and mustard, cottonseed, etc. All these oilseeds, being grouped in class I, are ordinarily charged at the rate of .38 pie per maund per mile and besides have the advantage of a number of schedule rates according to which the freight under certain conditions may be as low as .1 pie per maund per mile. The ordinary rate for groundnuts now classed as 2C is .54 pie per maund per mile—it was .62 pie per maund per mile at one time—although 2 railways charge .38 pie per maund per mile for groundnut kernels and at least 5 railways charge .42 pie per maund per mile. The groundnut kernels do not differ

very appreciably from other oilseeds in respect of value or the space occupied. An ordinary gunny bag is usually packed with 177 lb. groundnut kernels as compared with 165 lb. castor seed, 164 lb. sesamum seed and 185 lb. linseed. There do not, therefore, appear to be strong reasons for a different classification and a higher rate of freight for groundnut kernels as compared with other oilseeds. The case of nuts in shell is different as they, on account of being bulky, occupy more space which may form a reason for a somewhat relatively higher freight rate per maund.

C.—Handling and transport in Burma.

In producing areas, the nuts are invariably handled loose and the chief means of transport from producing areas to collecting centres is the bullock cart which generally holds about 25 baskets of 36 lb. each, *i.e.*, about 900 lb. The cartage charges, on an average, work out to 8 annas per 100 baskets (*i.e.*, little over 2 pies per maund) per mile. Lorries share the cart traffic where roads are motorable, their charges being about the same.

At collecting centres, the nuts are usually put in bags and the country boat becomes the chief means of transport for subsequent movement. A typical country boat used in Burma is shown in the upper plate facing page 243. Many of the collecting centres are situated on the banks of Irrawaddy river, and country boats are used almost exclusively for transport of nuts to various consuming centres. Only in the case of shipments to Rangoon, steamers carry about 15,000 tons annually. The country boats have a capacity varying from 250 to 1,000 bags and cover 30 to 40 miles in a day downstream with the breeze. As the transport of groundnuts is mostly downstream and the river is usually calm and has a favourable breeze between November and March, when the bulk of movement takes place, country boats are almost as quick as steamers and are considered to involve little risk. For the upward journey, the boats are towed by ropes along the banks and proceed about 10 to 15 miles a day. The boats are owned by individuals and their charges are, in many cases, less than a third of those charged by steamers. The following table gives the steamer freights and average country boat charges between some centres.

Rate of steamer freight and charges by country boats on groundnuts in shell between certain centres.

(Per 100 bags of 140 lb. each).

From	To	Distance (miles).	Steamer freight.	Country boat charges.
Sale Singu	Allanmyo ..	149	Rs. A. 67 8	Rs. A. 22 0
Myingyan	Prome ..	96	60 0	17 0
Magwe	Allanmyo ..	48	40 0	13 0
Sale Singu	Prome ..	197	70 0	30 0

The steamer company provides flats at main collecting centres and allows consignors to keep the bags on flats for about a fortnight. Flats accommodate nearly 4,000 bags each and are attached to steamers.

Railways take a limited share in the transport of groundnuts, the total quantities put on rail annually not exceeding 20,000 tons.

Handling and transportation.]

INTER-CHAPTER NINE.

Cultivators usually do not pack their nuts in bags before selling at the village or taking them to an assembling centre, but after the nuts have been decorticated, the kernels are invariably handled in bags. There appears to be a great deal of unnecessary handling and manipulation from the time the produce leaves the farm and till it reaches the consumer in India or is exported abroad. In case producers have not dried the nuts sufficiently, they are spread once again for drying by merchants or at decortivating factories. On the other hand, the latter may sprinkle water over the nuts the night before to facilitate decortication. After the kernels have been separated, they receive further manipulation either by way of cleaning and dressing to reduce impurities or by the addition of clay, nooks, etc., to raise the percentage of refraction to the amount allowed under any particular contract. These processes are often repeated more than once and the same lot may receive cleaning at an up-country market and a subsequent addition of clay at a port or vice versa. Hardly any consignment from upcountry markets leaves the ports in the same condition as received. The cost of manipulation at port markets on exports alone exceeds 5 lakh rupees annually. The absence of mutual terms in some contracts and a definite procedure for the determination of moisture leave little incentive for the sellers to clean their produce and also account for a desire on their part to market moist or imperfectly dried nuts.

The handling to which the bags are subjected at ports, where loading into steamers is not done direct from wharves, is far from satisfactory. Bags often get wet by splashing of the waves during transport and loading and such wet bags if they escape unnoticed into

the holds of steamers, help in the quick development of free fatty acids.

Railways account for the major portion of movement from assembling markets onwards and the incidence of railway freights, therefore, has an important bearing on the trade. Both nuts and kernels are grouped under class 2C as compared with other oilseeds which are grouped under class 1, with the result that the ordinary freight rate for groundnuts is .54 pie while it is .38 pie per maund per mile on other oilseeds. Freights on oil and kernels are the same on several railways and at least on one railway groundnut oil can travel cheaper than groundnuts or groundnut kernels. With the rapid change in the volume and nature of the groundnut trade, there appears to be little justification for charging groundnut kernels at a rate different from other oilseeds and there is clearly a need for more uniformity in the practice and policy in respect of freight rates on groundnuts and groundnut products on different railways.

Motor lorries often become serious competitors of railway traffic, the points in their favour being elimination of handling and cartage to and from railway stations, saving in time, less chances of damage and freedom from formalities and miscellaneous charges involved in transport by rail.

The rates of transport by coastal steamers are cheaper than rail freights and as such where movement by coastal steamers is possible, they are preferred to railways. For exports abroad, freights are quoted on the basis of a ton of 20 cwt. at Madras and 14 cwt. at Bombay and the rates of freight do not always depend on the distance. Apart from the difference between chartered steamer and parcel rates, the relative freights from Madras (and other ports on East Coast) and

Bombay are largely influenced by the outports on both coasts. For instance, in spite of the United Kingdom being nearer to Bombay than Madras, the freights from Bombay to the United Kingdom are not always lower than those from Madras.

Burma.—The collecting centres are situated on the bank of the Irrawaddy river and country boats form the chief means of transport. Their charges are in many cases only a third of the steamer charges and on a journey down the river they are almost as quick as steamers. In view of the importance and cheapness of traffic by country boats, steps should be directed to organising and reducing the risks of this form of transport.

CHAPTER X.—MANUFACTURE AND DISTRIBUTION OF GROUNDNUT PRODUCTS.

A.—Groundnut crushing.

(1) QUANTITIES CRUSHED.

It was stated in Chapter II (see page 59), that the crushing of groundnut kernels has rapidly developed in India and now accounts for the major portion of the disappearance of groundnuts in the country. While the quantities retained in India amounted to only about 1/5th of the production before the 1914-18 War, the retention in India increased to nearly half of the production during the period 1923-24 to 1932-33 and further to more than three-fifths of the production during the quinquennium 1933-34 to 1937-38, when on an average, nearly 1.7 million tons groundnuts (in shell) were annually utilised in India for different purposes. Of this, 1.2 million tons nuts in shell, equivalent to nearly 840,000 tons kernels, as already discussed, are estimated to have been crushed, on an average, annually. The quantities reckoned to be crushed in different provinces and States have been given on page 59.

(2) METHODS OF CRUSHING AND MACHINERY USED.

The machinery used for crushing groundnuts (kernels) falls under the following different classes :—

- (a) *Chekkus*.
- (b) Screw presses.
- (c) Rotary mills.
- (d) Expellers.
- (e) Hydraulic presses and other types of machinery.

Chekkus which are usually worked by bullocks operate mostly in villages while other types of machinery which are worked by power (with the exception of screw presses) are found in establishments located in towns and important assembling and consuming centres. Power is supplied by oil engines, steam engines or electric motors and groundnut crushing is sometimes carried on along with other industries such as cotton ginning and rice milling. Different types of oil crushing machinery may also be used in one establishment. For instance, it is common to find expellers and rotary mills working under the same roof.

It should also be noted that the plant used for groundnut crushing can, with slight modifications and adjustments, be used for several other oilseeds such as linseed, sesamum, mustard, etc., and many of the oil mills operate on more than one oilseed changing over from one to another as conditions require.

(a) *Chekkus*.—*Chekkus* known as *ghanis* or *kolhus* in North India—which are extensively used in the villages of India for crushing all kinds of oilseeds, figure in the crushing of groundnut kernels chiefly in the main producing areas of Madras and to a limited extent in Bombay, Hyderabad, Kathiawar States and the Central Provinces. In the United Provinces, Punjab, Bengal, Bihar and Sind, they do not so far appear to handle groundnuts.

The *chekkus* seen in different parts of India vary in point of size and detail of construction but the principle of operation is the same, viz., a pestle rotating in a mortar. The mortar is generally made of wood but in some parts of South India granite mortars—Arrupukotai in Ramnad district of Madras is an important centre for crushing in stone *chekkus*—are used. The upper plate facing this page shows a stone *chekku*. The pestle is also made of wood and is connected to a shaft, to which one or more bullocks are yoked. The bullocks move round and round in a circle and the extraction of oil from the seed within the mortar takes place as a result of friction caused by the revolving pestle. The pressure brought to bear on the pestle is regulated by means of a lever and weights—usually large pieces of stone. In Malabar district, *chekkus* are sometimes worked by man power but these are largely used for crushing copra.

The oil usually flows out from a hole provided in the mortar into a container, but in some cases it is scooped out or taken out by soaking a cloth which is squeezed into the container. A small quantity of water is generally added to facilitate extraction. The capacity of a *chekku* varies according to the size of the mortar, the charge put in at one time being as little as 10 lb. in some cases and as much as 60 lb. in others. The stone *chekkus* in Madras take a charge of about 60 lb., while the wooden *chekkus* in Bombay take 25 to 40 lb. kernels at a time. In the Central Provinces, a charge of about 12 to 15 lb. is usual. It takes 2 to 3 hours to crush a charge, so that 3 to 5 charges are handled in a day. The average daily output of a *chekku* is reported as nearly 250 lb. kernels per day in Madras and 150 lb. kernels in Bombay.

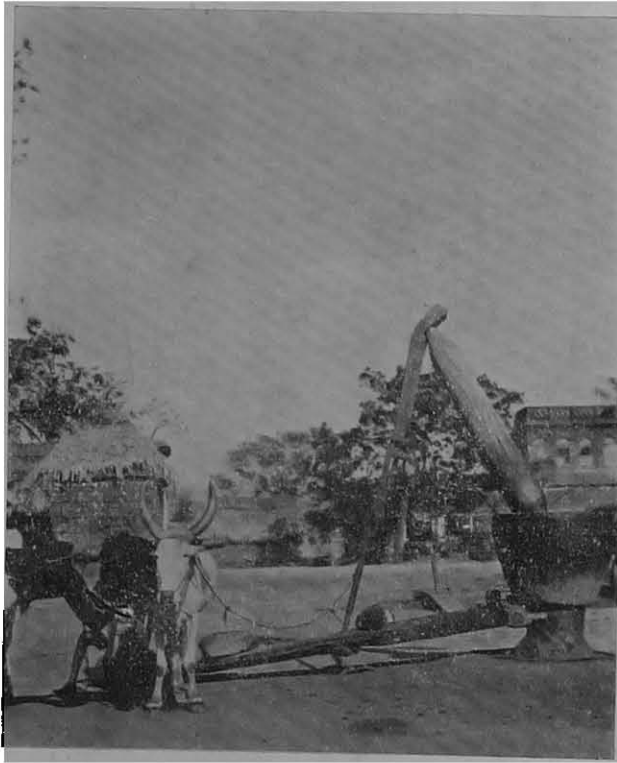
The *chekkus* are usually worked individually by their owners (*telis*) who crush their own seed or work on hire, in which case a charge is either made in cash or the cake is retained as a charge for crushing, the oil only being handed over to the person bringing the kernels. In some cases when *chekkus* are owned by merchants and rented to *telis*, as many as 100 *chekkus* may be grouped together.

The oil from the *chekkus* is not filtered. A small quantity of water is sometimes added to the oil to help clarification. The mixture is shaken, then allowed to settle and the clear oil on top decanted. It may be mentioned here that in Madras the oil produced in stone *chekkus* invariably commands a premium over expeller oil of about Rs. 2 per candy of 500 lb.

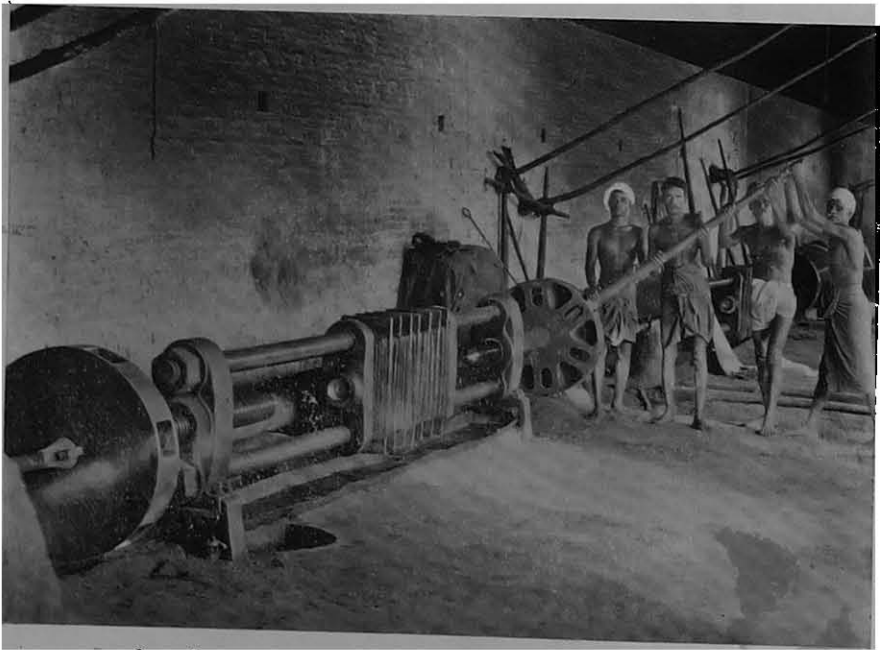
Chekkus usually crush groundnuts in the form of kernels without preliminary breaking or grinding, but nuts in shell or nuts in shell mixed with kernels are also crushed. In some cases, mixtures of two or more oilseeds are crushed together. This practice appears to be more prevalent in Bombay and Hyderabad than in Madras. Niger seed and groundnuts mixed in equal proportions were seen being crushed in a village in Poona district, while in Belgaum district, safflower (*kardi*) seed, sesamum and groundnuts are often mixed in proportions of 7 : 1 : 3. In Hyderabad, it is common for *chekkus* to crush a mixture of safflower seed and groundnuts.

(b) *Screw presses*.—Screw presses, also called hand presses, are not commonly used for crushing groundnuts except to a limited extent in Madras. The hand press, as may be seen from the lower

[Facing page 258.]



A STONE CHEEKU.



A HAND PRESS.

Facing page 259.]



A BATTERY OF ROTARY MILLS.

plate facing page 258, consists of a number of plates, which are worked by a screw and lever. The material after being made into meal and packed in small pieces of gunny, which is kept between the plates, are heated by an open fire and the extraction of oil takes place as a result of pressure on the meal brought about by one or more men working a wheel attached to the end of the screw with levers, so that the plates get closer and closer to one another. The colour of the oil produced in these presses tends to be reddish. The oil is reported to be specially in demand for adulterating til oil.

(c) *Rotary mills*.—Rotary mills, which may be seen in the plate facing this page, are more or less *chekkus* or *ghanis* worked by power. In principle they are similar to bullock driven *chekkus* with this difference that in the case of rotary mills, both the mortar and pestle revolve. Rotaries invariably work in pairs; their number in action at one establishment may, however, vary from a pair to several hundreds. Their use for crushing groundnuts is common only in the main groundnut producing areas. In the United Provinces, mills which have lately taken to crushing groundnuts along with other oilseeds being equipped with both expellers and rotary mills, use one or the other for crushing groundnuts but expellers are more common. In Bihar and Bengal, rotary mills seldom crush groundnuts, although on several occasions groundnut kernels were seen being added during crushing of mustard and rape seeds in rotary mills.

The rotary mills used in different parts of India do not differ much in size and usually take 25 to 30 lb. groundnut kernels for a charge. The crushing is done much more quickly than in *chekkus* and is usually completed in 20 to 30 minutes. The average output of a rotary mill may be reckoned as 750 lb. to 900 lb. kernels per day. As in the case of *chekkus*, kernels are fed whole without preliminary grinding or heating and water is added during the process of crushing. The oil flows through a hole in the mortar into a container or is conducted to a settling tank. In small mills the oil is clarified by being allowed to "settle" for sometime, whereas in larger factories the oil is filtered.

(d) *Expellers*.—Expellers are being increasingly used for crushing oilseeds in India, and are now the most important type of machinery used for extraction of groundnut oil—not only in the groundnut producing areas but also at important consuming centres for groundnut oil, e.g., Bombay and Calcutta. Most of the groundnut crushing mills have one to three expellers but some of the mills have as many as 12 to 20 expellers.

There are several different makes of expellers but they all work on the same principle. A typical expeller may be seen in the plate facing page 260. The extraction of oil takes place in a steel cage by means of a series of hardened steel worms, so arranged on a shaft, which revolves, as to produce gradually increasing pressure as the seeds are carried from one end of the cage to the other. The oil is expelled through the perforations of the cage and the cake is forced out through the end opposite to the feed. The capacity is usually about 3 tons of groundnut kernels per day of 10 hours. Unlike linseed, groundnut kernels are not always fed to expellers

after being rolled into meal, but in the form of kernels as such or mixed with some nuts, which serve as a binding material providing better grip. The meal or kernels are heated by being allowed to pass through a steam jacketed trough or in a steam heated kettle before entering the cage. (Groundnut kernels are usually pressed twice to get the maximum amount of oil, the first pressing being usually done cold at comparatively less pressure whereas the second pressing is done after breaking the cake from the first pressing and heating the meal. Some factories have a special type of expeller—which has a bigger capacity but works at a low pressure—for the first pressing. Expellers also crush mixed seeds in some cases. For instance, a mixture of groundnut kernels and niger seed in the proportion of 1 to 2 was seen being crushed in a mill in the Central Provinces. The oil from the expellers is generally filtered before being sold.

(e) *Hydraulic presses and other types of machinery.*—With the rapid increase in the number of expellers, hydraulic presses, in which rolled seed is pressed between the plates of presses worked by hydraulic pumps, are now little used for crushing groundnuts. Solvent extraction plants, which are comparatively little known in India, are not used for extracting oil from groundnuts or groundnut cake.

(3) NUMBER AND LOCATION OF CRUSHING ESTABLISHMENTS.

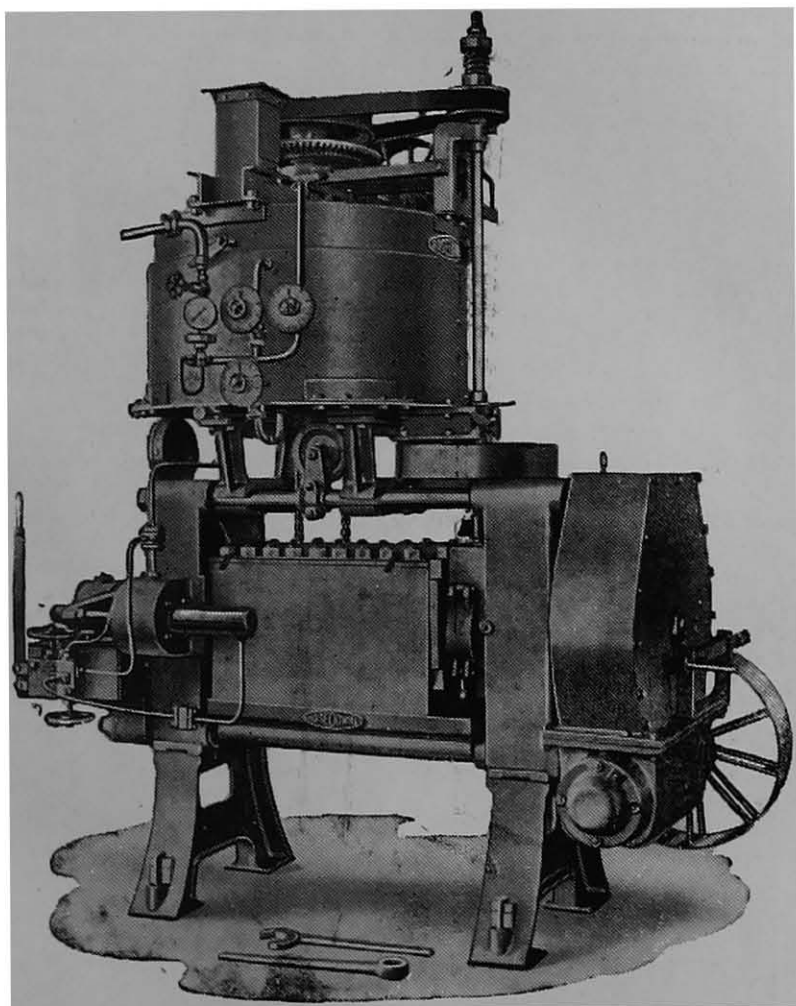
✓ The bulk of groundnut crushing is done in Madras and Bombay Presidencies, which together account for nearly 70 per cent. of the groundnut oil produced in India. Hyderabad, Kathiawar States, the United Provinces, the Central Provinces and Mysore also crush appreciable quantities. The number of expellers, rotary mills and *chekkus* in different provinces and States has already been indicated in Chapter II (see pages 62 to 64), from which it would appear that nearly 650 expellers, 2,100 rotary mills, 29,000 *chekkus* and 300 hand presses take part in the crushing of groundnuts in India. They operate on this oilseed exclusively or more commonly along with other oilseeds. Their distribution is shown in the map facing page 61.

In Madras, some of the important crushing centres are Guntur, Narasaravupet (Guntur district), Nandyal (Kurnool district), Madras and Virudhunagar (Ramanad district), while in Bombay the bulk of crushing is done at Bombay and in East Khandesh, West Khandesh and Sholapur districts. Raichur in Hyderabad State, Bhavnagar in Kathiawar, Cawnpore in the United Provinces, Malkapur (Buldana) in the Central Provinces and Davangere in Mysore are some other important groundnut oil producing centres.

(4) YIELD OF OIL AND CAKE.

The yield of oil and cake obtained by crushing groundnut kernels or nuts in shell, as already indicated, varies under different conditions. Besides the difference in the inherent oil content, which has been found to vary under different soil and climatic conditions, in different varieties and at different stages of maturity, a number of other factors such as the condition of kernels, the amount of impurities, the efficiency of the machinery used and the method adopted for extraction all influence the yield of oil. Figures obtained from a number of mills in different parts of India show that the crushing of groundnut kernels by expellers generally yields 40 to 44 per cent. oil. The

[Facing page 260.]



AN EXPELLER USED FOR CRUSHING GROUNDNUT KERNELS.

[By courtesy of Messrs. Marshall and Sons (India), Limited.]

Facing page 261.]



TINS OF GROUNDNUT OIL BEING TRANSPORTED ON A BULLOCK CART.



40/45 GALLON DRUMS FILLED WITH GROUNDNUT OIL.

yield of oil obtained by crushing in rotary mills ranges from 36 to 42 per cent. while the yield from *chekkus* varies from about 35 to 39 per cent. The yield of oil from hand presses is about the same as from *chekkus*. The average yield of oil from kernels in India may, therefore, be taken as 40 per cent. The yield of cake may be reckoned as 60 per cent.

(5) COST OF CRUSHING.

The cost of crushing groundnuts varies considerably, depending on a number of factors such as the type of machinery used, the efficiency of the plant, the number of hours worked daily, the total turnover, cost of labour and overhead charges, etc.

In village *chekkus*, the labour is often supplied by the members of the *teli's* family, while the bullocks used for *chekkus* may also be used for agricultural operations. It is, therefore, difficult to work out the cost of crushing accurately. At Arrupukotai, an important centre for groundnut crushing by *chekkus*, *telis* when crushing groundnuts on hire usually charge about 6 annas per 20 lb. of oil, which works out to Rs. 42 per ton of oil. The average cost of crushing is reported as Rs. 35 to Rs. 37 per ton from Bombay.

The cost of crushing in rotaries is comparatively high and is reckoned in Bombay to be about Rs. 54 per ton of oil. Expellers are more economical on account of their larger output and efficiency, the cost of crushing in Bombay being reckoned as Rs. 28 to Rs. 30 per ton of oil.

The miller's margin, calculated by taking the difference between the price of groundnut kernels and the prices for resulting oil and cake, as will be seen from Appendix LIII, averaged Rs. 1-3-10 or roughly Rs. 1-4-0 per maund of oil at Bombay and Rs. 1-8-3 or roughly Rs. 1-8-0 per maund of oil at Calcutta, during the period 1933-34 to 1937-38.

(6) COMPARISON OF DIFFERENT TYPES OF MACHINERY USED FOR CRUSHING GROUNDNUTS.

Each type of machinery has its own particular advantages and disadvantages. The *chekku*, the cost of which may be reckoned as Rs. 50, entails very little initial cost and its upkeep requires no engineering skill. It provides the cultivator employment when he is not engaged in agricultural operations. On the other hand, *chekkus* are slow and less efficient than power driven machinery, leaving a larger percentage of oil in the cake.

(Hand presses are a crude type of machinery producing oil of inferior quality and involving manual labour.) They may offer some advantage when worked as part of the general process in conjunction with other machinery such as to press oil out of sediment collected from tanks, etc., but they cannot compete with other machinery for pressing groundnuts.

Rotary mills have larger capacities than *chekkus* and almost all the parts can be made locally, the cost of a pair of rotary mills being about Rs. 200 to 250. The initial costs are thus considerably lower than expellers but rotary mills are wasteful on power and their crushing efficiency is generally low. They offer special advantages in crushing mustard and rape seed but do not appear very suitable for

groundnuts. Being driven by power they cannot replace *chekkus* in villages.

Expellers involve a comparatively large initial outlay but are compact self-contained units with a high crushing efficiency. The labour required is little and crushing costs are not high. For these reasons, the number of expellers has rapidly increased. It must, however, be noted that expellers or other power driven machinery cannot be compared with village *chekkus* only on the score of efficiency and costs. (The *chekku* is a part of the village organisation, which places two essential commodities, *viz.*, oil from locally produced oilseed—for eating, toilet, burning, etc.,—and oil cake at the door of the cultivator and saves much unnecessary transport of seed to crushing centres and oil and cake back to villages. Efforts should, therefore, be directed towards improving the village *chekku* to make it more efficient. Steps should also be taken to mark good quality *chekku* oil so as to secure as far as possible the existing premium which the market is prepared to pay for the village product.)

B.—Groundnut oil.

(1) WORLD PRODUCTION, TRADE AND UTILISATION.

(a) *Production.*—Statistics regarding the world production of groundnut oil are not complete as figures are available only for a few countries. The highly industrialised countries of Europe, *viz.*, France, Germany, the United Kingdom, Netherlands, Denmark and Italy together with India, China, and Japan are the principal manufacturers of groundnut oil. French West Africa and the United States of America, which occupy respectively the third and fourth places next to India and China, in the world production of groundnuts, have little share in the world production of groundnut oil. French West Africa exports most of her production while the United States utilise the bulk of their production for direct human consumption and for cattle feed.

The production of groundnut oil in some of the important countries during the period 1934 to 1938 is tabulated below :—

Production of groundnut oil in the main producing countries of the world.

(Thousand tons.)

Countries	1934	1935	1936	1937	1938	Average
India*	457	140	308	272	505	336
France	279	253	290	321	317	292
Germany.. .. .	159	80	130	121	131	124
United Kingdom	41	64	79	114	140	88
Netherlands	63	51	43	64	64	57
Italy	68	14	13	82	19	39
China†	19	39	31	41	24	31
Denmark	11	13	11	13	13	12
Japan	5	4	4	3	15	6
Total	1,102	658	907	1,031	1,228	985

Source.—Review of the Oilseed, Oil and Oil Cake Markets for 1933—Frank Fehr and Company.

* Statistics about groundnut oil production are not maintained in India. The figures are based on the estimated quantities of groundnuts crushed.

† The figures are based on exports only. Besides exports, there is a considerable home market for groundnut oil in China, *e.g.*, for canning fish.

It will be observed that the average world production of groundnut oil is nearly one million tons, India alone producing more than one-third of the total. France ranks next to India as the largest manufacturer of groundnut oil, followed by Germany and the United Kingdom.

(b) *Trade*.—The export trade in groundnut oil, as will be seen from the table below, is largely in the hands of the European countries producing groundnut oil, which together account for more than two-thirds of the exports. All these countries, with the exception of Italy, re-export in the form of oil part of the groundnuts imported by them.

Exports of groundnut oil from various countries of the world.

(Thousand tons.)

Countries	Average 1929- 1933	1934	1935	1936	1937	1938	Average 1934- 1938
France	38.2	52.4	37.0	37.2	53.0	52.3	46.4
Netherlands ..	16.1	33.6	43.7	28.9	45.9	43.8	39.2
United Kingdom..	4.8	1.5	13.5	17.1	25.6	36.4	18.8
Denmark	5.1	8.7	8.4	6.8	11.0	8.9	8.8
Germany.. ..	25.6	23.6	1.2	0.1	0.3	0.9	5.2
Others	1.2	0.7	1.3	2.2	1.4	2.4	1.6
Total European countries.	91.0	120.5	105.1	92.3	137.2	144.7	120.0
China	30.8	19.2	38.0	30.6	40.8	24.2	30.6
India	7.0	3.0	9.4	11.9	13.6	18.7	11.3
Hong Kong ..	8.4	7.4	7.1	7.4	7.5	<i>Nil</i>	5.9
French West Africa	1.8	(a)	0.4	2.0	5.2	<i>Nil</i>	1.5
Others	5.6	6.7	6.1	8.0	10.2	11.5	8.5
Total Non-Euro- pean countries.	58.6	36.3	61.0	59.9	77.3	54.4	57.8
Grand total ..	144.6	156.8	166.1	152.2	214.5	199.1	177.8

(a) Less than 50 tons.

Source.—Vegetable Oils and Oilseeds—Summary of Figures of Production, Trade and Consumption—Imperial Economic Committee.

France exported on an average about 38,000 tons annually between 1929 and 1933, which increased to an average of over 46,000 tons amounting to over 26 per cent of the total exports in the period 1934 to 1938. Similarly Netherlands' exports increased from an average of about 16,000 tons between 1929 and 1933 to an average of over 39,000 tons or about 22 per cent of the total exports in the quinquennium 1934 to 1938. The exports from the United Kingdom, which were negligible before the 1914-18 War, amounted to an average of nearly 5,000 tons during the period 1929 to 1933 but expanded to an average of nearly 19,000 tons in the quinquennium 1934 to 1938. On the other hand, Germany's exports averaged nearly 26,000 tons between 1929 and 1933 but dropped to an average of about 5,000 tons only between 1934 and 1938. China, which ranked next only to France during the period 1929 to 1933 exporting on an average about 31,000 tons, was relegated to the third place with a share of about 17 per cent in the quinquennium 1934 to 1938 although the quantities exported remained substantially the same.

On the other hand, India, which is the largest producer of groundnuts and groundnut oil, exported on an average only about 7,000 tons during the period 1929 to 1933 and 11,000 tons, *i.e.*, less than 7 per cent of the total exports in the quinquennium 1934 to 1938. If exports to Burma are left out of account, India's share in the world export trade falls to about 2 per cent. only.

The imports of groundnut oil are mainly into Canada, Algeria and the United States of America. A number of European countries import groundnut oil, while Hong Kong has a considerable *entrepot* trade. British Malaya, Tunis and French Morocco are other importers of groundnut oil. The quantities imported into different countries are summarised in the table below:—

Imports of groundnut oil into various countries of the world.

(Thousand tons.)

Countries.	Average 1929- 1933	1934	1935	1936	1937	1938	Average 1934- 1938
Canada	19.8	30.7	30.6	32.2	38.5	45.7	35.5
United States of America.	3.3	1.2	36.0	21.9	25.9	6.9	18.4
United Kingdom	14.8	4.8	9.3	6.9	6.8	1.6	5.9
Belgium	8.1	7.5	5.1	5.8	6.4	7.6	6.5
Switzerland ..	4.7	5.8	5.3	5.4	5.3	7.2	5.8
Germany.. ..	1.2	0.2	0.1	0.4	1.1	18.5	4.0
Other European countries	24.9	13.5	6.6	8.8	10.5	15.1	10.9
Algeria	23.9	32.7	24.0	24.2	29.1	30.4	28.1
Tunis	1.3	2.8	0.6	3.1	11.7	10.4	5.7
French Morocco	2.2	4.2	2.6	3.4	6.4	10.0	5.3
British Malaya ..	12.2	7.4	6.9	8.7	9.9	10.9	8.8
Hong Kong	12.7	13.6	9.3	6.7	8.6	17.1	11.1
Others	3.8	2.4	1.0	0.9	1.2	1.0	1.3
Total	132.9	126.8	137.4	128.4	161.4	182.4	147.3

Sources.—Vegetable Oils and Oilseeds—Summary of Figures of Production, Trade and Consumption—Imperial Economic Committee.

It will be observed that the imports into Canada and the United States of America as well as Algeria, Tunis and French Morocco during the quinquennium 1934-38 are considerably higher than those in the preceding 5 year period, i.e., 1929-33. On the other hand, the imports into most of the European countries show a decrease. The exceptionally large quantities imported by Germany in 1938 account for 1934-38 average being higher than 1929-33 average, although her offtake between 1934 and 1937 was very low.

It may not be out of place to mention here that simultaneously with the development of groundnut crushing and improvement in the quality of oil produced in India, the possibilities of building up an export trade in groundnut oil, specially to non-European countries should be further explored. The markets in Canada and the United States seem to offer the greatest scope for expansion.

(c) *Utilisation.*—As groundnut oil is one of those vegetable oils, which are entirely suitable for human consumption after being pressed and filtered without further processing, the bulk of it is utilised for edible purposes either as such or in the manufacture of margarine, lard compounds and vegetable cooking fats. For instance, in the United States of America during the period 1933-37, nearly 90 per cent. of the reported factory consumption of groundnut oil was for the manufacture of compounds, cooking fats, margarine and other edible products.

The oil as such is used as a preserving oil in fish canning industry and as salad or cooking oil, for which its use is reported to have increased in recent years at the expense of olive oil. In the manufacture of margarine and lard compounds, it is used along with several other vegetable, marine and animal oils and fats and for the preparation of vegetable cooking fats with one or more other vegetable oils and fats. Margarine was originally prepared almost exclusively from animal oils and fats but vegetable oils—chiefly coconut oil, cotton seed oil and palm oil—now form a considerable proportion of the raw materials used. Lard compound or artificial lard consists of a mixture of different oils and fats and is distinguished from margarine mainly by the fact that it contains no water. Vegetable cooking fats are blended or unmixed vegetable oils and fats or hardened oils.

The quantities of groundnut oil utilised in some countries for the manufacture of margarine and lard compounds and cooking fats are given in the table below :—

Groundnut oil used for the manufacture of margarine in some countries.

(Thousand tons.)

Countries	Average 1927-31	1932	1933	1934	1935	1936	Average 1932-36
United Kingdom	26.6	11.8	12.8	10.8	7.8	10.8	10.8
Denmark ..	3.8	2.1	1.6	1.2	1.2	0.9	1.4
United States of America	2.0*	1.0	1.0	1.0	2.0	2.0	1.4
Total ..	32.4	14.9	15.4	13.0	11.0	13.7	13.6

* In 1931.

Groundnut oil used for the manufacture of lard compounds and cooking fats in some countries.

(Thousand tons.)

Countries	Average 1927-31	1932	1933	1934	1935	1936	Average 1932-36
United Kingdom	7.8	10.8	10.8	11.8	17.7	19.7	14.2
United States of America	3.0*	2.0	1.0	3.9	40.4	39.4	17.3
Total ..	10.8	12.8	11.8	15.7	58.1	59.1	31.5

* In 1931.

It will be observed that the consumption of groundnut oil for the manufacture of margarine shows a decline, while that for the preparation of lard compounds and cooking fats shows an increase in recent years.

The proportion of groundnut oil in the oils and fats consumed in the manufacture of margarine and other edible products in different countries is largely influenced by its price relative to those of other vegetable and animal oils and fats. (As groundnut oil in Europe is invariably dearer than coconut oil, cotton seed oil and palm oil, the proportion of groundnut oil in the raw materials used for the manufacture of these products is relatively small, as will be seen from the following table, which gives the average quantities and proportions of groundnut oil and other oils and fats used in some countries, for the manufacture of margarine and lard compounds and vegetable cooking fats during the period 1932 to 1936.

Quantities and proportions of groundnut oil and other oils and fats used in the manufacture of margarine and lard compounds and vegetable cooking fats.

(Average 1932-36.)

(Thousand tons.)

	Margarine.						Lard compounds and cooking fats.			
	United Kingdom.		United States of America.		Denmark.		United Kingdom.		United States of America.	
	Quantities.	Share.	Quantities.	Share.	Quantities.	Share.	Quantities.	Share.	Quantities.	Share.
	(Per cent.)	(Per cent.)	(Per cent.)	(Per cent.)	(Per cent.)	(Per cent.)	(Per cent.)	(Per cent.)	(Per cent.)	(Per cent.)
Groundnut oil	10.8	7	1.4	1	1.4	2	14.2	20	17.3	3
Cotton seed oil	12.6	8	26.8	25	1.0	2	22.4	32	416.0	74
Coconut oil	33.1	21	64.6	59	22.2	36	..	..	9.5	2
Other vegetable oils ..	31.7	21	3.3	3	19.1	31	16.7	24	64.0	11
Animal and marine oils	65.8	43	12.6	12	17.7	29	16.3	24	57.5	10
Total ..	154.0	100	108.7	100	61.4	100	69.6	100	564.3	100

On the other hand, groundnut oil is very often cheaper than coconut oil in India and forms the bulk of raw material used for the manufacture of Vanaspati—a product made from hydrogenated vegetable oils (see page 297).

For non-edible purposes, groundnut oil finds some use in the wool textile industry, in the preparation of compound lubricants, for medicinal purposes and for the manufacture of soap. The quantities utilised for soap manufacture in the United Kingdom and Denmark are as under :—

Groundnut oil used for soap manufacture in certain countries.

(Thousand tons.)

Countries	Average 1927- 31	1932	1933	1934	1935	1936	Average 1932- 36.
United Kingdom	1.4	1.0	1.0	2.0	4.9	4.9	2.76
Denmark ..	.06	..	.1	.1	.3	.3	.16
Total ..	1.46	1.0	1.1	2.1	5.2	5.2	2.92

The quantities consumed by the soap industry in these countries thus appear to be increasing but they still form a very small proportion of the total raw material used for soap manufacture as will be seen from the following table, which gives the quantities and proportion of different oils and fats used during the period 1932-36. The relative price of groundnut oil often eliminates it from the soap kettle, and animal fats, palm oil and coconut oil remain the basic materials for soap.

Quantities and proportions of groundnut oil and other oils and fats used in the manufacture of soap.

(Average 1932-36.)

(Thousand tons.)

	United Kingdom.		Denmark.	
	Quantity.	Share. (Per cent.)	Quantity.	Share. (Per cent.)
Groundnut oil	2.7	1	.16	1
Cotton seed oil	2.5	1	..	..
Coconut oil	20.5	8	2.19	12
Other vegetable oils	123.1	49	10.43	58
Marine and animal oils	101.4	41	5.20	29
Total ..	250.2	100	17.98	100

(2) PRODUCTION AND UTILISATION IN INDIA.

It has already been stated that 1·2 million tons nuts in shell, *i.e.*, nearly 840,000 tons kernels are, on an average, estimated to have been crushed annually during the quinquennium 1933-34 to 1937-38 and that the average yield of oil may be reckoned as 40 per cent. of kernels. The average annual production of groundnut oil during the quinquennium referred to, therefore, amounts to 336,000 tons. The variations in the quantities estimated to be produced in different years may be seen from the table below :—

Production of groundnut oil in India.

(Thousand tons.)

Year.	Production of ground-nuts.*	Production in terms of kernels.	Kernels exported†	Kernels used as seed for sowing.‡	Nuts used for eating (in terms of kernels).§	Kernels used for oil extraction.	Oil produced.
1933-34	3,379	2,365	815	250	158	1,142	457
1934-35	1,890	1,323	715	171	88	349	140
1935-36	2,315	1,620	571	175	108	766	306
1936-37	2,850	1,995	954	229	133	679	272
1937-38	3,676	2,573	839	300	172	1,262	505
Average	2,822	1,975	778	225	132	840	336
1938-39	3,398	2,379	1,198	287	159	745	298
1939-40 (10 months)	3,179	2,225	631	274	149	1,171	468

It will be observed that the production of oil since 1933-34 is estimated to have varied from a minimum of 140,000 tons in 1934-35 to a maximum of 505,000 tons in 1937-38.

The exports during the period 1933-34 to 1937-38 averaged nearly 9,000 tons only—about 5,000 tons to Burma and 4,000 tons to other foreign countries—so that 327,000 tons groundnut oil was, on an average, consumed annually in India during the quinquennium referred to above. In 1938-39 the exports increased to over 12,000 tons to Burma and 6,000 tons to other foreign countries so that 280,000 tons oil was left for consumption in India.

The oil is mainly used for culinary purposes, specially in South India, in the manufacture of Vanaspati (hydrogenated vegetable oil) and for adulteration of ghee or for mixing with other higher priced

* See page 12.

† Exports to foreign countries and Burma. See page 145.

‡ At 72 lb. per acre. See page 313.

§ 6·7 per cent of the production. See page 57.

oils, about which more will be said in a later section (see page 297). It has already been stated in Chapter II that the Vanaspati industry consumed about 50,000 tons of groundnut oil in 1938-39. Its use for industrial requirements such as for manufacture of soaps, cosmetics, etc., is very limited. Inferior quality oils are also utilised in the main groundnut producing districts of Madras for burning in lamps or for pouring on torches carried for lighting with marriage and religious processions.

(3) CONTAINERS.

The containers used in groundnut oil trade are mostly 4 gallon tins and 40/45 gallon drums. Smaller tins and drums are seldom used. Besides these containers, railway tank wagons are also used for the transport of oil in bulk between a number of important centres.

(a) *4 gallon tins.*—Kerosene oil tins of 4 gallon size are seen in every part of India and when empty, serve as containers for all sorts of oils, household provisions, etc. Second-hand kerosene oil tins as well as new tins of the same size and capacity are both used for distribution of groundnut oil, the former being more common. The old tins are washed before being used. The tare of these tins is about 2½ lb. each and they hold nearly 18 seers groundnut oil. The cost usually varies from 4 annas to 8 annas per tin. When these tins are transported by bullock carts, they are tied together with a rope as may be seen in the upper plate facing page 261. For transport by rail a layer of groundnut shell is spread over the floor of the wagon and the tins arranged inside the wagon. The space between the tins is filled with straw and shell to minimise the effect of impact between the tins during transit. In spite of these precautions the tins are often damaged and some oil leaks out. The lower plate facing page 243 shows the inside of a railway tank wagon after a consignment of groundnut oil had been unloaded. The black patches indicate spots where oil had leaked out from the tins.

(b) *40/45 gallon drums.*—These are of two types, viz., heavy and light. The heavy drums, a few of which awaiting despatch at a railway station may be seen in the lower plate facing page 261, are strengthened with two bands round the circumference. Their tare is usually 80 to 120 lb. and capacity 400 to 420 lb., i.e., nearly 5 maunds. The cost varies from Rs. 5 to Rs. 12 each second-hand. Such drums are received with coconut oil imported from Ceylon. The light drums which are largely imported into India with lubricating and other mineral oils, after being cleaned serve as containers for transport of vegetable oils. Their capacity is usually 40 to 45 gallons and the tare varies from 45 lb. to 60 lb. They cost from Rs. 3 to Rs. 5 each. New drums of this type are being made by one or two firms in India but on account of their high cost drums imported with mineral oils are more commonly used.

(c) *Tank wagons.*—The use of railway tank wagons for the transport of groundnut oil in bulk appears to be increasing although the total quantities moved by tank wagons still form a small proportion of the quantities handled by railways. Their use is confined

between several important centres only. For instance, they are used between some of the crushing centres in Khandesh districts and Lyallpur or Bombay. The oil is brought to the railway station in drums, from which it is pumped into the wagon through a pipe, as may be seen in the upper plate facing this page. Some mills having a railway siding running into or alongside their compound, pump the oil straight from their mill into the railway tank wagons placed on their siding, while some others which have no railway sidings, often fill the oil into tanks fitted over motor trucks, from where the oil is pumped into the railway tank wagon at the railway station. On arrival at the destination, the oil is emptied into drums or tins.

(d) *Suitability of different types of containers.*—It will be observed from what has been said that the tare of the containers is about 6½ per cent. of the weight of contents in the case of 4 gallon tins, about 12½ per cent. in the case of light drums and nearly 20 per cent. in the case of heavy drums. Transport in tins, therefore, involves less cost by way of railway freight when the oil is sent by rail. Besides tins being square in shape can be stacked compactly and are easily handled. On the other hand, they are generally more liable to damage in transit than drums. Drums, specially the heavy type are stronger than tins and can be used over and over again. For these reasons tins are largely used for transport of oil by rail and in retail trade while heavy drums find use for local distribution, *e.g.*, from mills to wholesale merchants and for transport by coastal steamers, the freight in which case is comparatively lower than railway freight. Another container which appears to be very suitable for local distribution is in the form of a tank fitted on a bullock cart as seen in the lower plate facing this page. Such containers could be used with advantage for distribution of oil by mills to local wholesale merchants or for the retail trade.

(4) PRICES.

(a) *Comparison with other oils.*—The bulk of groundnut oil, as already stated, being used for edible purposes, the prices are influenced by the values of other edible oils. A reference to the diagram facing page 84, already discussed in Chapter III, shows that at London the prices of groundnut oil generally remain higher than those of coconut oil and cotton seed oil, although the difference between the prices of the three oils varies from time to time as a consequence of various complex factors affecting the course of prices of different oils and oilseeds. The following table, which gives the excess of the average annual price of groundnut oil over the average annual prices of coconut oil and cotton seed oil between 1928-29 and 1939-40, shows that the excess price of groundnut oil over the price of coconut oil (except in 1928-29 when coconut oil was, on an average, dearer than groundnut oil by £1.0.7 per ton) averaged as much as £10.8.9 in 1935-36 and as little as £1.9.5 per ton in 1929-30. Similarly, the difference in the price of groundnut oil over cotton seed oil (except in 1938-39 when cotton seed oil was dearer than groundnut oil by £0.4.3 per ton) was as high as £6.8.9 per ton in 1932-33 and as low as £1.4.10 in 1939-40.

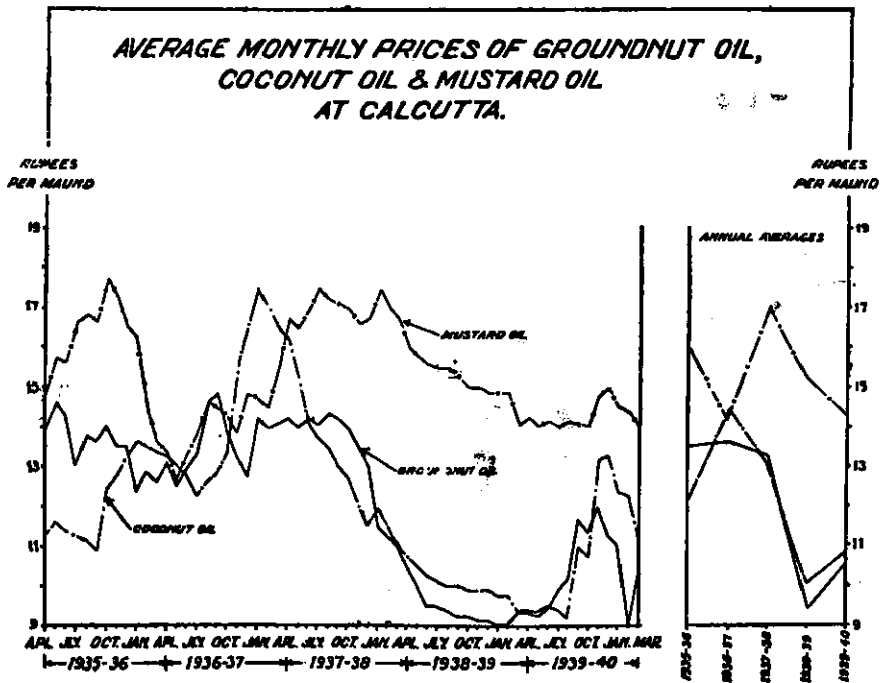
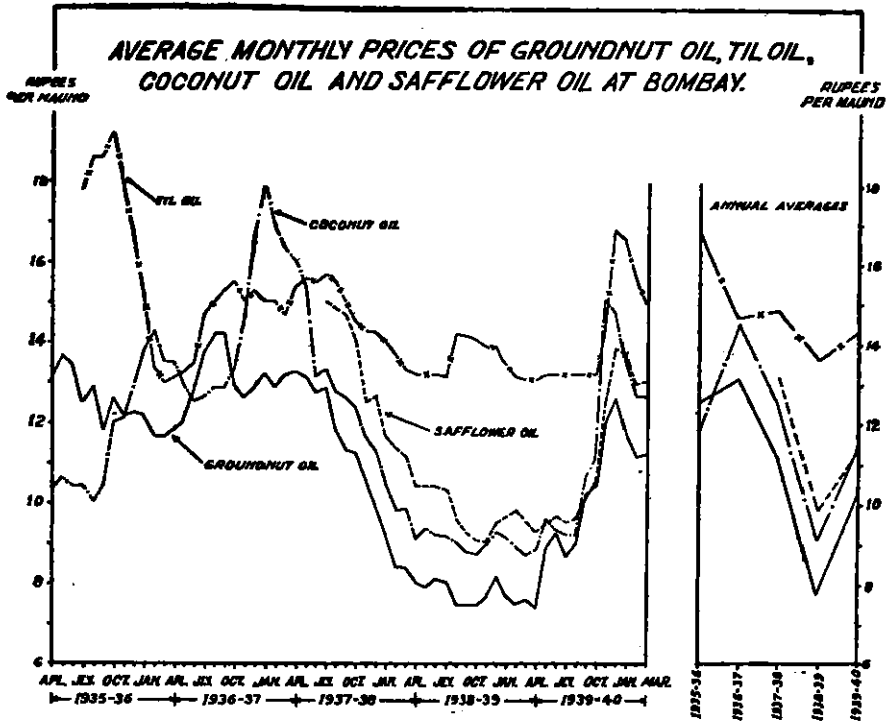
[Facing page 270.]



RAILWAY TANK WAGON USED FOR GROUNDNUT OIL.



TANK FITTED OVER A BULLOCK CART.



Excess of average annual prices of groundnut oil over average annual prices of coconut oil and cotton seed oil at London.
(Per ton.)

Year.	Excess of groundnut oil over coconut oil.		Excess of groundnut oil over cotton seed oil.	
	£	s. d.	£	s. d.
1928-29	(—)1	0 7	3	9 5
1929-30	1	9 5	1	14 5
1930-31	1	10 0	1	11 8
1931-32	5	6 1	5	4 5
1932-33	7	12 1	6	8 9
1933-34	5	3 5	2	1 9
1934-35	8	8 2	3	14 10
1935-36	10	8 9	4	1 8
1936-37	6	14 0	2	7 4
1937-38	7	1 3	2	11 3
1938-39	5	6 3	(—)0	4 3
1939-40	5	4 10	1	4 10

Contrary to this, groundnut oil is generally cheaper than coconut oil and several other vegetable oils in India. The manufacturing industries based on groundnut oil have to that extent an initial advantage over manufacturers in other countries.

At Bombay, of the four oils, groundnut oil, coconut oil, safflower (*kardi*) oil and *til* oil, the last named oil, as may be seen from the upper diagram facing this page, is usually the dearest, whereas groundnut oil is usually the cheapest. Coconut oil was cheaper than groundnut oil only from April to November 1935 and from June to September 1936. The excess of *til* oil price over groundnut oil price was at a maximum in 1938-39 and minimum in 1936-37, as has already been indicated in Chapter II, where it was also stated that the demand for groundnut oil in Bombay increases or decreases as the margin between *til* oil and groundnut oil increases or decreases.

At Calcutta, mustard oil is generally the highest priced oil but coconut oil and groundnut oil change places from time to time, as may be clearly seen from the lower diagram facing this page. The margin between mustard oil and groundnut oil and along with it the demand for groundnut oil in Bengal, as already discussed in Chapter II, was maximum in 1938-39 and minimum in 1936-37.

At Coconada, which is closely connected with the groundnut producing areas, coconut oil was cheaper than groundnut oil only between September 1934 and September 1935 (excepting in June

1935), the position having been largely brought about by the small groundnut crop harvested in 1934 (see upper diagram facing this page). The margin between the average annual prices of coconut oil over groundnut oil was as little as 1 anna per maund in 1934-35 and as much as Rs. 3-4-9 per maund in 1936-37.

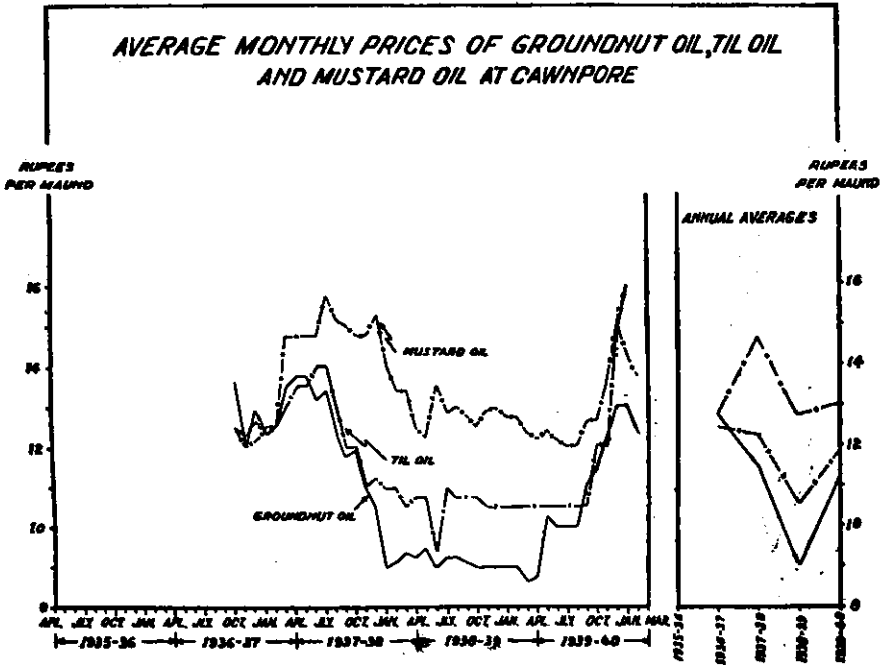
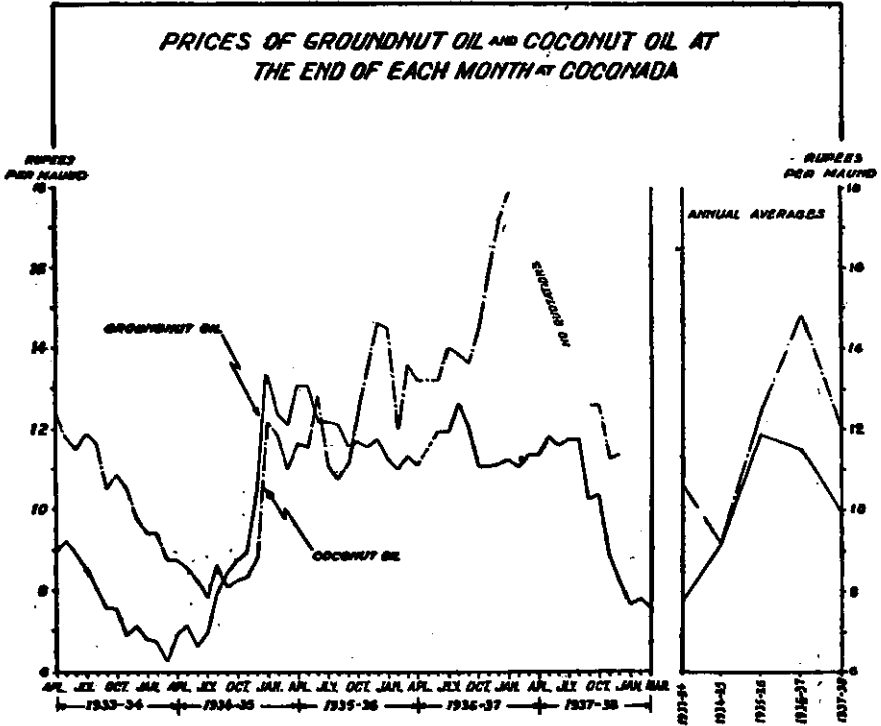
At Cawnpore, like Calcutta, mustard oil is generally the dearest oil, while groundnut oil is usually cheaper than both mustard and *tii* oils (see lower diagram facing this page). In 1936-37, groundnut oil prices ran very close to mustard oil prices but the margin widened in 1937-38 and 1938-39, the difference between the average annual price of mustard oil over that of groundnut oil being as much as Rs. 3-10-10 per maund in 1938-39. The margin again tended to narrow down in 1939-40.

(b) *Comparison of prices in different markets.*—The average monthly prices of groundnut oil at the three port markets of Madras, Bombay and Calcutta, tabulated in Appendices LIV to LVI, are illustrated on the diagram facing page 273. It will be observed that the three markets generally show a similar trend, although at times the prices in individual markets take a different course in consequence of local conditions. For instance, in June 1933, the prices at Madras soared above those at Bombay and Calcutta, although normally prices at Madras remain at a lower level than those at Bombay and Calcutta. As another instance, in February 1940, the prices at Calcutta dropped lower than those at Madras and Bombay. Apart from such striking deviations which take place when special conditions affect the values at a particular market, the margin between the prices at the three markets varies from time to time, as will be apparent from the following table, which gives the annual averages of the prices at the three markets.

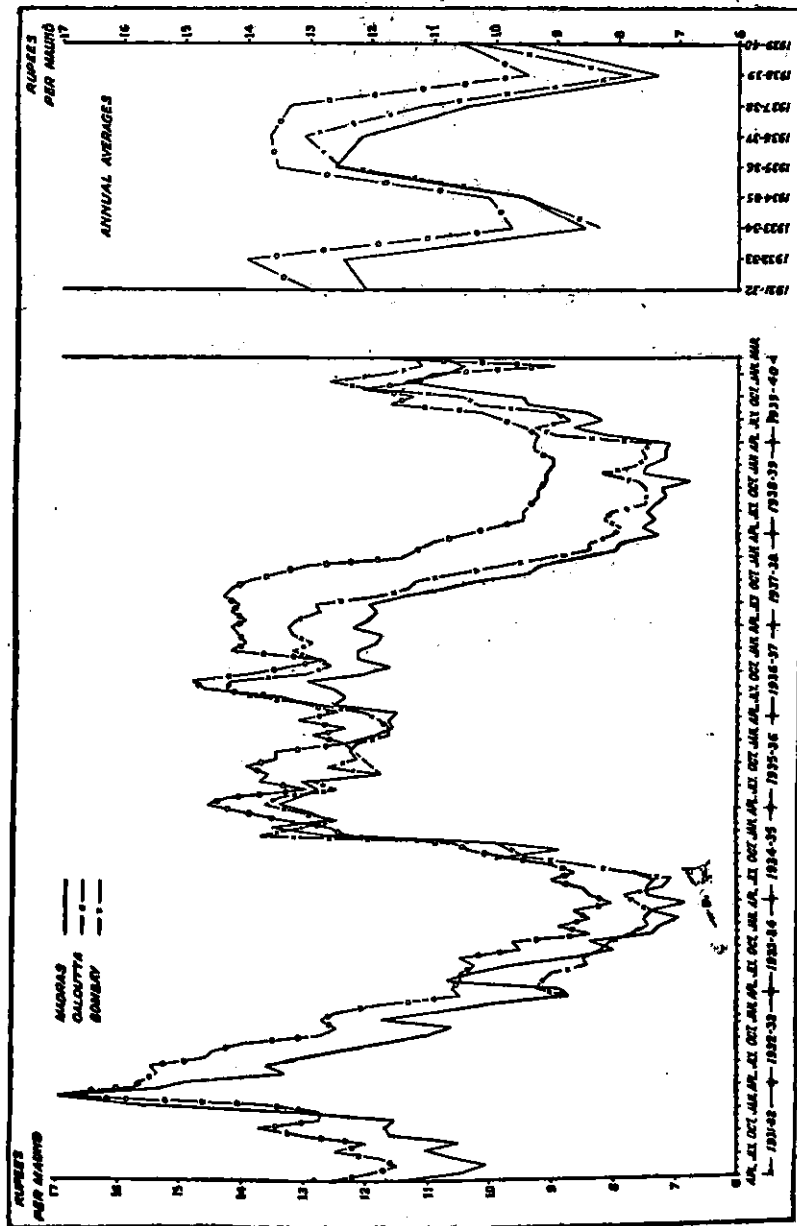
Average annual prices of groundnut oil at Madras, Bombay and Calcutta.

(Per maund).

Year.	At Madras.			At Bombay.			At Calcutta.			Difference (Calcutta over Madras).			Difference (Bombay over Madras).		
	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
1931-32	12	1	1	..	..	..	12	15	0	0	13	11	..	..	..
1932-33	12	6	6	..	..	..	13	15	6	1	9	0	..	..	..
1933-34	8	8	3	8	4	4	9	11	0	1	2	9	—(0	3	11)
1934-35	9	7	9	9	8	1	10	0	10	0	9	1	0	0	4
1935-36	12	9	0	12	8	2	13	7	10	0	14	10	—(0	0	10)
1936-37	12	2	3	13	1	2	13	10	4	1	8	1	0	14	11
1937-38	10	5	5	11	1	10	13	4	8	2	15	3	0	12	5
1938-39	7	4	11	7	12	5	9	6	7	2	1	8	0	7	6
1939-40	9	7	7	10	3	11	10	8	3	1	0	8	0	12	4



AVERAGE MONTHLY PRICES OF GROUNDNUT OIL AT MADRAS, BOMBAY AND CALCUTTA.



The difference of Calcutta over Madras prices varied from a minimum of Re. 0-9-1 in 1934-35 to a maximum of Rs. 2-15-3 per maund in 1937-38. Similarly, the difference of Bombay over Madras prices was as little as 4 pies per maund in 1933-34 and as much as Re. 0-14-11 in 1936-37, while in 1933-34 and 1935-36 the oil was, on an average, cheaper at Bombay as compared with Madras. It is noteworthy that up to 1935-36 groundnut oil at Bombay was cheaper or only slightly dearer than at Madras, but for the last 4 years the prices fetched for groundnut oil have been consistently higher at Bombay, as compared with Madras. This is accounted for by the increased demand at Bombay as well as better prices obtained for groundnut kernels. The course of prices at four markets, three producing centres, viz., Raichur in Hyderabad and Malkapur and Akola in the Central Provinces and one consuming centre, Patna, may be seen in the diagram facing page 274. Of the four markets, Raichur is invariably the cheapest and Patna the dearest while Akola and Malkapur, situated in two neighbouring districts, often change places. The annual averages of the prices at the four markets show a striking similarity in trend—such as is not seen in the prices of groundnuts.

(c) *Seasonal variations.*—The seasonal fluctuations in the prices of groundnut oil, as may be seen from the diagram facing page 275, are not so wide as in the case of groundnuts in shell or groundnut kernels. Of the four markets, Madras, Coconada, Bombay and Calcutta, which may be taken as representatives of three provinces, viz., Madras, Bombay and Bengal, the maximum range of variation amounting to 12·5 per cent between September and February is seen at Calcutta, which unlike Madras and Bombay is not a centre for trade in groundnuts but is only a consuming centre for groundnut oil.

At Madras, the maximum range of variation amounting to 7·4 per cent is also between February and September. The prices begin to decline from October and remain below the annual mean up to April excepting for a temporary rise in December. The lowest level is reached in February, after which an upward trend continues up to September except for a temporary dip in August.

At Coconada, the downward trend of prices commences earlier from September and the lowest level is reached in November, after which prices recover and reach the peak in January. It may be recalled that the prices of groundnut kernels at Madras ports also begin to fall from October, reaching the lowest level in November.

At Bombay, the maximum range of variation amounting to 8·8 per cent is between February and June. The prices do not begin to decline till after December and remain below the annual mean between January and April. The lowest point is touched as at Madras in February. An upward trend sets in after April, the peak being reached in June.

At Calcutta, the prices experience a precipitate fall after November and reach the lowest point as at Madras and Bombay in the month of February. A recovery starts from April and the prices reach a peak in September, i.e., shortly before the harvesting of the

new crop. It will be apparent from the diagram that although the four markets show somewhat dissimilar seasonal fluctuations, they all have the common feature of a pronounced drop in prices after the arrival of the crop; the prices in three out of the four markets touch their lowest level in February.

(d) *Variations due to quality.*—It has been stated earlier that the quality of oil is judged mostly by colour. White or light coloured oils fetch a higher price than darker coloured or yellow oils. For instance, it was found at Delhi that white or 1st quality oil fetched about 8 annas per maund more than light yellow or 2nd quality oil, which in turn fetched nearly Re. 1 per maund more than yellow or 3rd quality oil. The first two quality oils were sold for edible use while the 3rd quality found a market only for soap making or for mixing in small proportions as an adulterant with the other two qualities.

In Madras *chekku* oil fetches a better price than expeller oil. Oil from village *chekkus* is largely consumed locally but there are some centres in Madras from where *chekku* oil is sent to different markets. For instance, considerable quantities of *chekku* oil* are sent from Virudhunagar to Madras and other markets, where it is sold at a premium of 2 annas to 8 annas per maund over locally produced oil or oil imported from other centres. To get advantage of the higher rate for Virudhunagar oil, groundnut oil is often imported into Virudhunagar from other centres and re-booked as Virudhunagar oil.

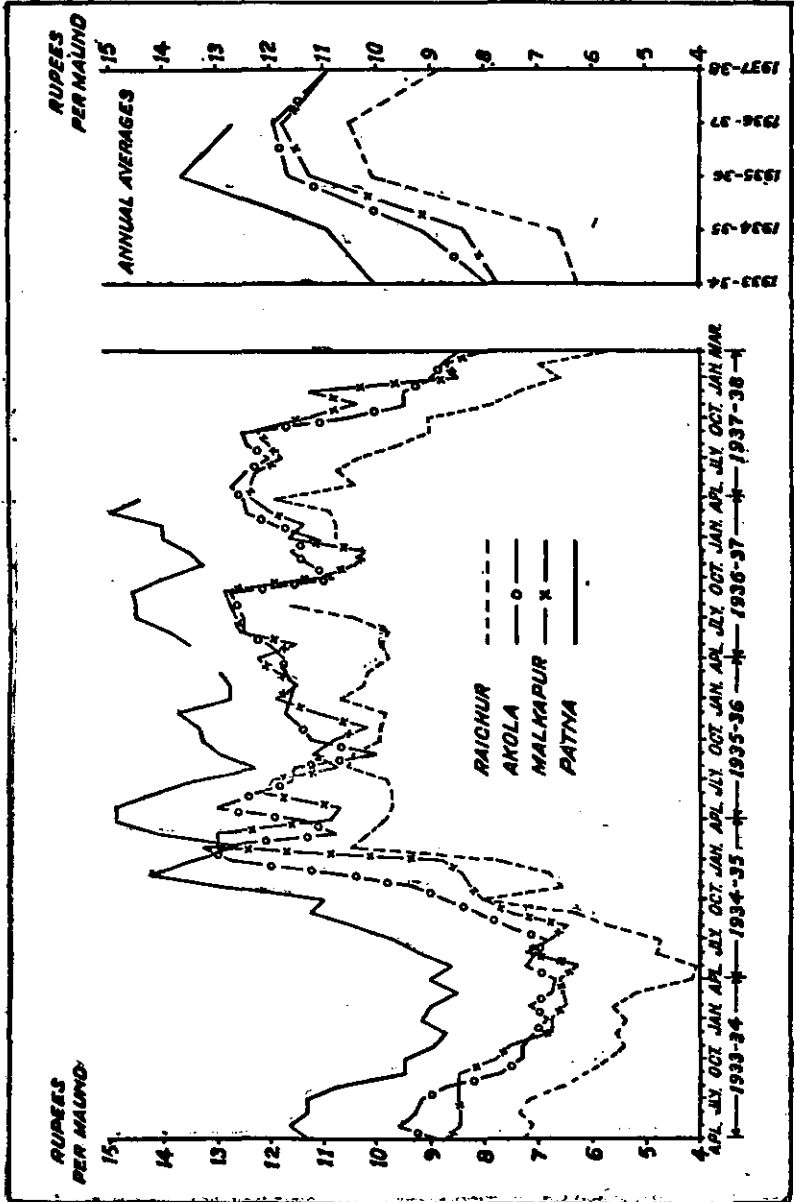
(e) *Retail prices.*—The retail prices, which depend to some extent on the quantity bought, are always higher than the wholesale prices but the margin between wholesale and retail prices varies considerably from time to time and at different markets, being comparatively less in centres of production of oil than in areas, where oil is imported from distant markets. The margin also varies with the value of oils, being usually more when the prices are at a high level. Enquiries made in a number of markets show that the margin may be anything from 8 annas to Rs. 5-0-0 per maund or 5 per cent to 20 per cent of the wholesale prices.

(5) QUALITY.

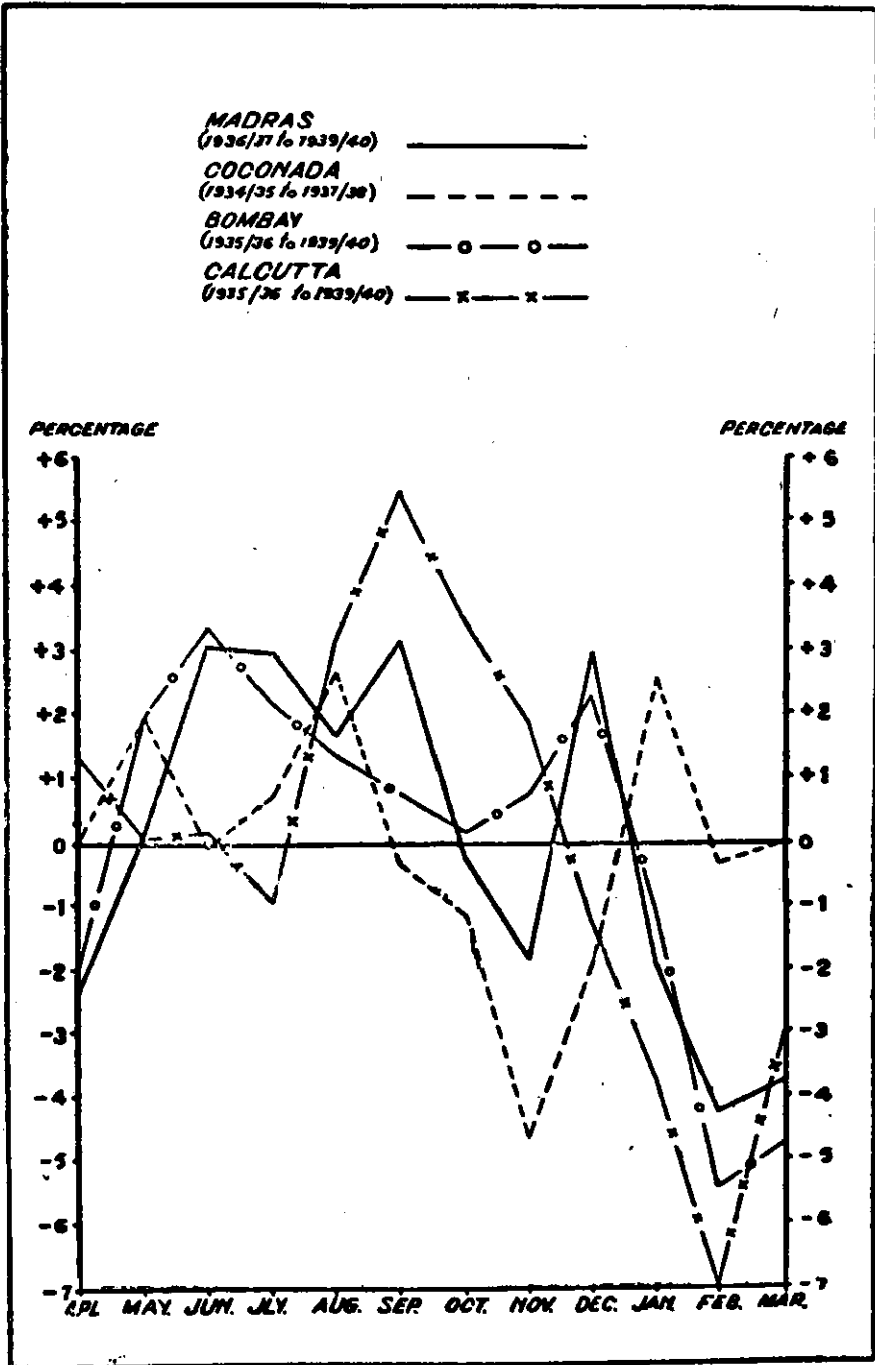
The quality of groundnut oil depends on the condition of kernels at the time of crushing, the temperature attained during crushing and the conditions and period of storage of oil. Kernels with a high proportion of damaged kernels and nooks usually produce an oil with a high percentage of free fatty acids with a tendency to get rancid on storage. Oils pressed at a higher temperature are darker in colour than those pressed cold or with little heating. The oil obtained by first pressing (cold) in expellers and from *chekkus* is, therefore, lighter in colour than that obtained from second pressing in expellers. Screw presses usually produce very dark coloured oils as the meal is subjected to an uneven heat from an open fire. Again, it is reported by several oil millers in Madras and Bombay that kernels of Peanuts and Khandesh variety give a whiter oil than that from Coromandels, the oil from which is yellowish. The mills in the United Provinces report that the oil obtained from locally

*Made at Arrupukotai.

AVERAGE MONTHLY PRICES OF GROUNDNET OIL AT RAICHUR, AKOLA, MALKAPUR, PATNA.



PERCENTAGE DEVIATION OF THE AVERAGE MONTHLY PRICES OF GROUNDNUT OIL FROM THEIR ANNUAL MEAN.



produced kernels is inferior in quality to oil imported from Khandesh districts of Bombay. The oil produced by *chekkus* is commonly believed to be superior for edible purposes and commands a premium over expeller oil although the latter is invariably clearer. Red Natal kernels, being covered with deep red coloured skin, generally produce a somewhat discoloured oil.

No systematic scientific work, however, appears to have been done to find whether the oils produced by different machinery or from different varieties have any special characteristics.

The trade assesses the quality of groundnut oil mainly on the basis of colour while smell and appearance, i.e., clearness are other factors which count in appraising the quality. (There are no definite grades or limits of colour prescribed and the oils are generally referred to as white, light yellow, yellow or dark yellow) Oils produced at certain centres have come to be recognised as of a certain quality and colour and are handled in trade under that name. For instance, the trade in Madras commonly refers to oil produced in Virudhunagar, Proddattur and Raichur as Virudhunagar oil, Proddattur oil and Raichur oil respectively. The first named oil is largely the product of stone *chekkus**, the second of screw presses and the third of expellers. In Calcutta, groundnut oil is generally sold as Guntur oil and Bombay oil, the latter fetching a higher price.

The colour of the oil is specified in definite comparable terms only by some of the Vanaspati manufacturers in their purchases of groundnut oil. It will be observed from Appendix LVII, which gives a copy of a contract used by a Vanaspati factory that the maximum depth of colour acceptable without any rebate as well as the maximum depth which may be accepted with rebate and over which the oil is rejected, are specified.

A lighter colour is insisted upon between 15th November and 14th May than between 15th May and 14th November, the standard for the two periods being 30 and 35 with rejection limits of 40 and 45 respectively. The numbers taken as standards represent the weight in milligrammes of pure potassium bichromate dissolved in 100 c.c. of distilled water to prepare a solution with the colour of which the colour of the oil is compared. Thus between 15th November and 14th May the oil is accepted without any rebate if the colour of oil is lighter than or equal to colour 30, i.e., the colour of a solution prepared by dissolving 30 milligrammes potassium bichromate in 100 c.c. distilled water, accepted with a rebate if the colour is between 30 and 40 and rejected if the colour is over 40.

The colour of 23 samples of groundnut oil collected during the survey from several manufacturing centres in Madras, Bombay, Hyderabad, Mysore, the Central Provinces and the United Provinces was found to vary from a minimum of .1 yellow unit in a sample from Bombay to a maximum of 1.55 yellow and .35 red units on a Lovibond Tintometer through $\frac{1}{2}$ cm. cell. A sample of stone *chekku* oil from Virudhunagar had colour equal to .6 yellow while another sample of rotary mill oil from the same place had colour

*At Arrupukotai.

equal to .6 yellow and .1 red. A sample of expeller oil from Rai-chur had colour equal to 1.2 yellow and .2 red units.

The clearness of oil is considered a factor in favour of the oil at most of the consuming centres but in the villages in producing areas, slightly turbid oil from *chekkus* is preferred. Smell of the oil is considered to be a criterion of its freshness or otherwise. A rancid or obnoxious smell and an acrid taste indicates that the oil is not fresh and has a high percentage of free fatty acids.

The actual percentage of free fatty acids, however, does not form one of the terms of sale except in the purchases made by Vanaspati manufacturers who, as in the case of colour, specify in their contracts the maximum percentage of free fatty acids accepted free, as well as the maximum percentage accepted with an allowance and over which the oil may be rejected. The free tolerance is usually 1 per cent. and the rejection limit 2 per cent. Sometimes the tolerance and rejection limits differ at different times of the year, as will be seen from Appendix LVII, already referred to. It will be observed that the free tolerance is 1 per cent with rejection over 2 per cent from 15th November to 14th May, *i.e.*, after the arrival of the new crop as compared with a free tolerance of 1.5 per cent and rejection limit 2.5 per cent from 15th May to 14th November.

The percentage of free fatty acids in the 23 samples of groundnut oil examined was found to vary from a minimum of .11 per cent in a sample from Bombay to a maximum of 7.2 per cent in a sample from Pollachi*, the number of samples with different free fatty acids being as under :—

Under $\frac{1}{2}$ per cent f. f. a.	7
From $\frac{1}{2}$ per cent to 1 per cent. f. f. a.	4
From 1 per cent to 2 per cent. f. f. a.	5
From 2 per cent to 3 per cent. f. f. a.	2
Over 3 per cent. f. f. a.	5

It will be observed that 43 per cent. of the samples had free fatty acids under 1 per cent while nearly 70 per cent had free fatty acids below 2 per cent. from which it is evident that some very good quality oil is prepared in India and if the same is packed and graded to distinguish it from oils with a high percentage of free fatty acids, it would be possible to place on the export market oils of acceptable quality.

Besides the ordinary (unrefined) groundnut oil, there is a small trade in refined groundnut oil, for the preparation of which the free fatty acids are neutralised and the colour of the oil bleached partly or wholly. These oils, therefore, are almost water white or have a very light colour together with a low percentage of free fatty acids.

* The kernels in this area are often marketed without being dried as indicated in Chapter VII.

(6) ADULTERATION.

It has already been stated that in India groundnut oil is generally cheaper than other edible oils and in recent years has in most cases been the cheapest vegetable oil on the market. It, therefore, finds an important outlet for mixing with other oils. The oils, with which groundnut oil is more commonly mixed are *til* oil mainly in Madras, Bombay and the Central Provinces, rape and mustard oil in Bengal, Bihar and the United Provinces and safflower (*kardi*) oil in Bombay and Hyderabad. Coconut oil also is at times, when prices permit, adulterated with groundnut oil. The demand for cheap oil, and the difficulty of distinguishing pure oils from mixed oils without chemical analysis coupled with the laxity in the enforcement of measures to prevent adulteration in most places, help in widespread adulteration being done with impunity. Samples of *til* oil collected from different parts of India showed that at least 50 per cent. of the commercial samples were adulterated with groundnut oil. Similarly, at least half of the commercial samples of rape and mustard oils analysed were reported to be adulterated with groundnut oil or linseed oil. The choice between these two oils for mixing with mustard oil, as already discussed in Chapter II, largely depends on their relative prices. Besides being used for mixing with other oils, groundnut oil also finds use in the adulteration of ghee, alone or along with coconut oil and/or vegetable product.

It was stated in an earlier section that groundnuts were also sometimes crushed by mills mixed with other oilseeds, for example, *til* and mustard seed. The oils obtained from these mixed seeds are invariably marketed as pure *til* and mustard oils and the consumer is made to believe as far as possible, that the oil he is buying is pure oil. For instance, it is reported from Madras that to a drum (about 400 lb.) of groundnut oil about 3 lb. fried and powdered sesamum seeds mixed with 1 to 1½ lb. palm jaggery are sometimes added and the drum left for sometime, when the oil acquires the colour and smell of *til* oil. The powdered *til* seed in suspension serves to indicate that the oil has been obtained by crushing in a *chekku*. Similarly in the case of mustard oil, synthetic mustard oil essence (allyl isothiocyanate) is added to the adulterated oil to obtain the strong pungency, characteristic of pure mustard oil produced in *ghanis* and rotary mills. In Hyderabad, colouring matter is sometimes added to groundnut oil to give it the colour of safflower oil.

The practice of adulteration of other edible oils may at first sight appear advantageous from the point of view of groundnut producers as it provides an outlet for the oil but a closer examination of the problem shows that the practice of adulteration brings down the level of prices of other edible oils. As different oils can be substituted by one another to a great extent and their prices are relatively inter-dependent, the lowering of the price levels of *til*, mustard oil, etc., results in bringing down the prices of groundnut oil and consequently groundnuts. Groundnut oil is not inferior to other edible oils for several requirements and is, in fact, largely used though under the guise of other oils for edible purpose. It is, there-

fore, in the interests of groundnut producers that a demand for this oil be created on its intrinsic worth and qualities and not for being masked by other oils before reaching the consumer.

Apart from a more rigid enforcement of food adulteration laws, the steps necessary to check marketing of mixed, impure or adulterated oils would seem to be the licensing of all oil seed crushing factories and their furnishing compulsory returns for the quantities of oilseeds crushed and oils sold. There can, of course, be no objection to the marketing or use of blended oils for particular requirements or to suit the palate as long as the oils mixed are specified and the consumer is aware of what he is buying.

The problem of adulteration of ghee is different and is discussed in a later section of this chapter.

(7) GRADING UNDER THE AGRICULTURAL PRODUCE (GRADING AND MARKING) ACT, 1937.

It has already been stated that the trade (with the exception of some buyers) assesses the quality of groundnut oil mainly on the basis of colour and that there are no well-defined standard specifications of quality or commonly recognised grades. Most of the provincial governments have not fixed any presumptive standards for purity as in the case of mustard oil. The consumer, therefore, cannot be sure whether the oil he buys is pure and fresh and suitable for edible use. Inferior oils which should be pronounced unfit for edible use, may be quite suitable for industrial uses. Of the samples of groundnut oil from various manufacturers analysed, several were found to be of poor quality with a high percentage of free fatty acids, whereas there were others which were of very good quality. In the absence of standard grades, or methods of marketing, the superior oil can not get a premium commensurate with its quality.

The question of grading of edible oils was examined in February 1939 at an informal conference of some representative of interests concerned in the trade in edible oils and the Central and Provincial Marketing Staffs. The conference recommended that edible oils should be included in the Schedule of the Agricultural Produce (Grading and Marking) Act, 1937 and drew up draft specifications for three edible oils, *viz.*, groundnut oil, *til* oil and mustard oil. The draft rules were examined at a second informal conference held at Calcutta and the final rules published soon after. The rules, a copy of which may be seen in Appendix LIX, provide that a Certificate of Authorisation can only be granted to a party equipped with suitable plant for the expression of vegetable oils, who packs only such oils as are manufactured by him and satisfy the specifications laid down, in suitable containers and seals them so that the contents are not tampered with up to the time they reach the buyer. The specifications, which have been laid down for three grades of groundnut oil, provide that the colour will not be deeper than a prescribed limit, the refractive index specific gravity, iodine value and saponification value will be within prescribed minimum and maximum

values, and the acid value and unsaponifiable matter will not exceed a prescribed limit.

It will be observed from Schedule II in Appendix LIX that the maximum acid value permissible for Special (Refined) and Special grades is 0.5 and 2 respectively, i.e., 0.25 per cent free fatty acids for Special (Refined) and 1 per cent free fatty acids for Special grade. The maximum acid value permissible for Grade A is 3, i.e., 1.5 per cent free fatty acids.

It is obvious that only oils carefully manufactured and stored will satisfy the specifications given above and as such AGMARK oils will be acceptable to buyers in India as also in the export trade. It is, therefore, hoped that grading and marking will not only provide an incentive for the manufacture of and a better return for superior quality oil but also help in the development of an export trade in groundnut oil and an increased consumption in India of the oil as such with a decrease in the adulteration of other oils and ghee.

(8) INTER-PROVINCIAL TRADE.

Madras, Bombay, Hyderabad, Mysore and Kathiawar States are the main areas of surplus production of groundnut oil while most of the other areas import groundnut oil from the areas of surplus production. The movement takes place both by coastal steamers and by road and rail.

Madras, Bombay and Kathiawar States account for the bulk of despatches by coastal steamers, the quantities despatched between 1933-34 and 1939-40 being as under :—

Despatches of groundnut oil from different provinces by coastal steamers.*

(Thousand tons.)

—	1933-34.	1934-35.	1935-36.	1936-37.	1937-38.	Average 1933-34 to 1937-38.	1938-39.	1939-40.
Madras ..	.4	1.6	.2	1.0	2.0	1.0	4.5	4.7
Bombay	.7	1.4	.7	.4	1.4	.9	2.9	2.3
Kathiawar States.	1.0	4.8	2.5	3.0	5.7	3.4	3.5	1.3
Total ..	2.1	7.8	3.4	4.4	9.1	5.3	10.9	8.3

It will be observed that the despatches from Madras during the period 1933-34 to 1937-38 averaged about 1,000 tons, of which more

*Compiled from "Accounts of Coasting Trade and Navigation of British India." Trade with Burma, which formed part of India before 1937 is not included in these figures. Figures for Kathiawar States have been arrived at by taking the difference of the total of imports into different provinces less exports from Madras and Bombay.

than 80 per cent. were to Bengal and the balance mainly to Bombay, besides occasional despatches to Sind and Kathiawar States. The quantities increased to over 4,000 tons in 1938-39 and 1939-40. The main ports concerned in the trade with Bengal are Coconada and Masulipatam while despatches to Bombay and Sind are from Coconada, Cuddalore and Cochin.

The despatches from Bombay during the period 1933-34 to 1937-38 averaged about 900 tons, which increased to 2,900 tons and 2,300 tons in 1938-39 and 1939-40, respectively. The destinations were mainly Bengal, Kathiawar States and Sind. Kathiawar States' despatches averaged 3,400 tons, the destinations being Bombay, Bengal and Sind.

The quantities landed into different provinces are given in the table below :—

Arrivals of groundnut oil into different provinces by coastal steamers.
(Thousand tons.)

—	1933-34.	1934-35.	1935-36.	1936-37.	1937-38.	Average 1933-34 to 1937-38.	1938-39.	1939-40.
Bengal ..	.3	4.3	.6	.6	2.5	1.6	6.6	6.0
Bombay	.9	2.7	2.0	2.6	4.9	2.6	3.1	.9
Madras ..	.3	(a)	.1	(a)	(a)	.1	(a)	.1
Sind ..	.6	.8	.8	1.2	1.7	1.0	1.2	1.3
Total ..	2.1	7.8	3.4	4.4	9.1	5.3	10.9	8.3

(a) Less than 500 tons.

As has been said already, Bengal receives oil both from Bombay and Madras while the arrivals into Bombay are from Kathiawar States and Madras. Arrivals into Madras are mainly from Bombay, almost the entire quantities being received at the West Coast ports of Cochin, Calicut, Mangalore, etc., Sind's supplies are drawn mainly from Kathiawar States and Bombay.

Statistics relating to the movement of groundnut oil by rail and road between different provinces and States are not available (except in the case of Hyderabad and Mysore States) as the different vegetable oils are grouped together under one head. The quantities moving out from and received into different provinces and States have, therefore, been estimated on the basis of extensive enquiries made from the trade and recorded railway arrivals and despatches at some important centres. It is estimated that Madras receives, on an average, 1,500 tons of groundnut oil annually by rail and road mainly from Hyderabad. The despatches by rail and road from Madras are to Bombay, Mysore, the Central Provinces and Orissa

and are estimated as 2,000 tons. Bombay is estimated to despatch annually about 18,000 tons groundnut oil to the Central Provinces, Central India, the United Provinces, Rajputana, Delhi and the Punjab. On the other hand, Bombay receives about 12,000 tons groundnut oil largely from Mysore, Hyderabad and Kathiawar, the arrivals from the last mentioned source being mainly into the districts of Ahmedabad and Broach. Hyderabad's despatches during the period of 1933-34 to 1937-38 amounted to nearly 13,000 tons. It may be noted that the despatches from Hyderabad considerably increased after 1931-32, when the duty on exports of oil from the State was removed in May 1931. The despatches in 1931-32 amounted to less than 4,000 tons, which steadily increased to over 15,000 tons in 1934-35. During the next two years, the quantities declined to less than 13,000 tons as a result of two short crops but in 1937-38 the despatches again increased and exceeded 16,000 tons. The destinations for Hyderabad oil are mainly Madras, Bombay and the Central Provinces, although some oil moves farther to North India. The arrivals into Hyderabad, which are mainly from Bombay, are small and do not exceed 100 tons. Mysore's despatches by rail during the period 1933-34 to 1936-37 averaged nearly 1,700 tons, being largely to Bombay. Marmugao is also an important destination for the despatch of oil from Mysore accounting for nearly one-fourth of the total quantities. The despatches of oil from Mysore declined from 2,600 tons in 1927-28 to less than 700 tons in 1932-33, after which they increased again reaching nearly 1,800 tons in 1935-36 and 2,200 tons in 1936-37. Mysore also receives considerable quantities of groundnut oil from Madras. The arrivals by rail, which have steadily increased from less than 300 tons in 1927-28 to over 2,600 tons in 1936-37, averaged nearly 2,000 tons between 1933-34 and 1936-37. The arrivals by road from the adjoining districts of Bellary, Kurnool and Anantapur in Madras are estimated as 300 tons. Central Provinces receive about 2,000 tons groundnut oil mainly from Warangal district of Hyderabad and from the neighbouring Khandesh districts of Bombay. The despatches from the Central Provinces, which are mainly to the United Provinces, the Punjab, and Bombay are estimated as 500 tons. United Provinces and the Punjab annually get about 5,000 tons and 3,000 tons respectively, mainly from Bombay and Kathiawar. Bihar's supplies amounting to about 2,000 tons are drawn chiefly from the United Provinces and Bengal.

(9) DISTRIBUTION.

The oil produced by village *chekkus* is generally consumed locally, and is distributed through the village merchant or by the *teli* (oil maker) himself, who sells it at the nearest market or in the village for cash or in exchange for other goods. In Madras, however, *chekku* oil is sent from some centres—where, as stated previously, groups of *chekkus* are owned by merchants—to other markets for distribution. For instance, large quantities of *chekku* oil are sent from Virudhunagar to Madras. The distribution of this oil is on the same lines as oil produced by mills having expellers or rotary mills.

The oil mills dispose of their oils in one of the following ways.

- (a) By sales to wholesale merchants locally or in other markets, direct or through brokers.
- (b) By sales on contract to large consumers such as Vanaspati manufacturers.
- (c) By sales through commission agents.
- (d) By sales through their own selling organisations.
- (e) By exporting abroad themselves or selling to exporters.

(a) *Sales to wholesale merchants.*—The oil mills sell considerable quantities to wholesale merchants locally or in other markets, who sell it in their turn to retail merchants and consumers such as confectioners, soap factories, etc. The wholesale merchants do not usually sell less than one full tin (about 18 seers of oil) but some wholesale merchants simultaneously carry on retail trade also. Written contracts are seldom entered into for sales by mills to wholesale merchants. The quotations of rate given by the mill and a letter from the buyer indicating the quantity of oil and the rate; usually form the basis of a transaction. Orders are often placed by telegrams. Some mills employ guarantee brokers, in which case all sales made by the mills are through these brokers, who are responsible for the fulfilment of contracts in return for a commission on sales, which may vary from one anna to 4 annas per maund, or from 8 annas to Re. 1 per cent.

(b) *Sales on contracts.*—Some big consumers of groundnut oil such as Vanaspati factories enter into contracts direct or through brokers with groundnut crushing mills for their requirements of oil. These contracts are usually made for the supply of oil during a certain period or by a certain date. The terms and conditions of purchase are incorporated in a contract form provided by the buyers. A copy of a groundnut oil contract form used by a Vanaspati factory may be seen in Appendix LVII. The contract specifies the quantity, rate, place of delivery, quality of oil and terms regarding brokerage, payment and arbitration. The percentage of free fatty acids and the colour form the main basis of quality as has been indicated earlier. Some mills have their own selling contracts, which they require their buyers, who may be merchants or consumers to enter into. A copy of an oil mill's selling contract may be seen in Appendix LVIII. Such contracts besides specifying the quantity of oil, rate and place of delivery, include some terms which safeguard the mills in the event of manufacture of oil being interrupted for various reasons such as strikes, breakdowns, etc.

(c) *Sales through commission agents.*—Some of the mills send their oil for commission sale to *arhatiyas* in different markets, the consignments being usually of more than 300 maunds to get advantage of the reduced rates of railway freight. 660 tins (containing about 18 seers oil each) generally form a full wagon load. For oil sold on commission basis, the *arhatiya* debits the mill with all costs incurred in connection with the receipt and sale of goods

and sends the sale proceeds to the mills after deducting his commission, which usually varies from 12 annas to Rs. 1-9-0 per cent. The other expenses are similar to those incurred for distribution of groundnut kernels and include brokerage, *dharmada*, weighing charges, etc.

(d) *Sales through own selling organizations.*—A few mills have their own selling organisations in the shape of sole agents, sale depots and retail shops. The sole agents look after the sales in definite areas, while sale depots and retail shops usually sell the oil on cash basis to consumers.

(e) *Exports and sales to exporters.*—A few oil mills export oil direct, sending it to their foreign agents but more commonly the oil for export passes into the hands of exporters as in the case of groundnut kernels. The quantities exported, as discussed earlier, are very small, amounting to a few thousand tons annually.

The mills base their selling prices on loose *ex-mill* basis. Accordingly when the oil is supplied with containers, the cost of the latter is added as also the cost of transport, if the delivery has to be given at a particular place. Local sales and in some cases to other markets also, are often made on the basis of returnable drums. No charge is, as a rule, made for the use of the drums and a deposit for the value of drums may or may not be taken depending on the business relations of the parties concerned. The cost of returning empty drums is invariably borne by the buyer. Prices for oil to be despatched by rail are usually quoted f. o. r. at despatching station.

Most of the sales are made on credit terms, the period for which credit is allowed varying from 15 to 90 days at different centres, interest being charged after the free period.

The cost of distribution naturally varies according to the distance between the origin and destination, and the charges at the two points, *e.g.*, transport to and from station, terminal tax or octroi, etc. The following statement of cost and expenses incurred on a consignment of oil sent from Dhulia to Delhi provides an example of the charges incurred.

Statement of cost and expenses incurred on a consignment of oil sent by a mill in Dhulia to a wholesale merchant at Delhi.

	Rs.	A.	P.
Cost of oil 660 tins weighing 297 maunds @ Rs. 8 per maund loose <i>ex-mill</i>	2,376	0	0
Cost of tins @ Rs. 40 per 100	264	0	0
Soldering tins @ Rs. 1-8-0 per 100 tins	9	14	6
<hr/>			
Cost of oil in tins at factory	2,649	14	6
Loading at factory and cartage from factory to station (?) Rs. 1-14-0 per 100 tins	12	6	0
Loading into wagons at station @ 8 annas per 100 tins	3	4	9
Station expenses	2	0	0
<hr/>			

*Statement of cost and expenses incurred on a consignment of oil sent
by a mill in Dhulia to a wholesale merchant at Delhi—contd.*

	Rs.	A.	P.
Cost f. o. r. Dhulia ..	2,667	9	3
Railway freight from Dhulia to Delhi @ Rs. 1-1-5 per maund (on gross weight 316 maunds 20 seers) ..	344	9	0
<hr/>			
Cost f. o. r. Delhi ..	3,012	2	3
Terminal tax @ 2 annas per maund ..	37	2	0
Station <i>dala</i> ..	0	4	0
Unloading charges from wagons ..	2	0	0
Cartage from station to merchant's godown @ 3 pies per tin ..	10	5	0
Unloading from carts at buyer's godown @ 5 annas per 100 tins ..	2	1	0
<hr/>			
Cost at buyer's godown at Delhi ..	3,063	14	3

It will be observed that 660 tins of oil costing Rs. 2,649-14-6 at the factory at Dhulia cost Rs. 3,063-14-3 at buyer's godown at Delhi, so that the distribution costs between Dhulia and Delhi amounted to Rs. 413-15-9, i.e., 15.7 per cent of the cost of oil packed in tins at the factory at Dhulia. Railway freight amounting to Rs. 344-9-0 accounts for nearly 83 per cent of the total distribution costs.

The retail distribution which is almost all for culinary purposes, is largely in the hands of *telis*, who retail a number of different vegetable oils. Some grocers, specially in South India, also retail groundnut oil. The sales are generally on cash terms and quantities sold retail vary from a few *chattaks* to 10 seers. The consumer generally takes his own container to the retailer, who weighs or measures the oil into it, but when a whole tin is taken the consumer may give a similar tin in exchange or return the tin later and get a refund of the price paid for the container. Only a few mills put up their oil in small containers.

(10) MANUFACTURERS' ASSOCIATIONS.

There are no associations exclusively concerned with the ground-nut crushing industry in India or a central body to look after the interest of oil crushing industry. A few associations formed by local oil mill owners, however, function at some centres. The objects of these associations are generally to regulate local trade but in practice the chief function in most cases is to represent their grievances and difficulties to the government, municipalities and railways. At Dhulia in Bombay Presidency, there is an oil mill owners' association, of which every oil mill proprietor is a member. The association settles terms of sales and the cess to be collected. At Sholapur, the oil mill proprietors have recently started an association. An oil mill association is also reported to have been started at Bombay. In the United Provinces, an oil millers' association, styled the United Provinces Oil Millers' Association, was started in 1934. The Association is formed under Section 26 of the Companies Act, so that the income and the property of the Association may be applied solely towards promoting the objects of the Association.

The membership of the Association is open to any firm, individual, company or corporation engaged in the oil crushing and allied industries. The objects of the Association in general are to promote and protect the oil crushing and allied industries in the United Provinces, and to settle disputes arising out of trade dealings and commercial transactions. The Association has paid attention and made representations about the production of groundnuts, and their quality as also the rates of terminal tax, etc., on groundnuts and its products. At Calcutta, there is an association called the Bengal Oil Mills Association, its membership being confined mostly to the mills in Calcutta crushing mustard seed by rotary *ghanis*. The Bengal Oil Mills Association and United Provinces Oil Millers' Association were actively engaged for sometime on the question of railway freights on mustard seed and mustard oil from the United Provinces stations to Bengal. The matter has now been settled after an exhaustive enquiry by the Railway Rates Advisory Committee.

C.—Groundnut cake.

(1) PRODUCTION AND UTILISATION IN INDIA.

The production of oil from 840,000 tons kernels (1,200,000 tons nuts in shell), estimated to have been crushed, on an average, annually during the quinquennium 1933-34 to 1937-38 has been stated in a previous section to be 336,000 tons, i.e., 40 per cent of the weight of kernels. The balance, viz., 504,000 tons or 60 per cent of the weight of kernels (or 42 per cent of the weight of nuts) may be reckoned as the production of cake.*

The variations in the quantities produced from year to year may be seen from the table below :—

Production and consumption of groundnut cake in India.

(Thousand tons.)

Year.	Kernels used for oil extraction (see page 59).	Oil produced.	Cake produced.	Cake exported abroad.	Cake consumed in India
1933-34	1,142	457	685	175	} 469
1934-35	349	140	209	250	
1935-36	766	306	460	167	
1936-37	679	272	407	214	
1937-38	1,262	505	757	293	464
Average	840	336	504	219	285
1938-39	745	298	447	419	28
1939-40 (10 months) ..	1,171	468	703	233	470

* During the crushing of groundnuts, there is often some milling loss so that the weight of oil and cake produced together fall somewhat short of the weight of kernels. On the other hand, some shell is at times left with or added to the kernels. Nuts in shell are sometimes crushed without decortication. These factors have been taken as off-setting the milling loss. The figures of production given above include both decorticated groundnut cake and undecorticated groundnut cake.

Groundnut cake, as has already been indicated, is produced by village *chekkus*, rotary mills and expellers. The cake from village *chekkus* generally contains a higher percentage of oil than that from rotary mills, which in turn contains more oil than expeller cake. The cake from unshelled nuts has a much higher fibre content with a consequent reduction in the percentage of albuminoids. The bulk of the production of village *chekkus* and some of the rotary cake is utilised for consumption in India while the major portion of the expeller cake is exported abroad.

The exports during the quinquennium 1933-34 to 1937-38 averaged 219,000 tons so that 285,000 tons groundnut cake was, on an average, consumed annually in India. It will be observed that in 1934-35, when India harvested a very small groundnut crop, the exports of groundnut cake appear to exceed the estimated production. This is accounted for by the fact that the groundnut crop being harvested in October—December, the official statistical years (April to March) do not coincide with groundnut seasons and the quantities crushed during any official statistical year are drawn in part from two crops.

The groundnut cake retained in India is utilised mostly as cattle food in producing areas and to some extent for manure purposes either as such or in the preparation of fertiliser mixtures. The cake from village *chekkus* is preferred for feeding cattle, it being seldom realised that beyond a certain limit the amount of oil does not necessarily improve the quality of cake. Expeller cake is, however, generally bought for feeding cattle on military and agricultural farms, where the consumption appears to be increasing. For instance, the Director of Contracts purchased about 500 tons groundnut cake for military dairy farms in 1937-38, which increased to 1,100 tons in 1938-39 and 1,700 tons in 1939-40. Similarly, 64 tons were used for feeding cattle on Government farms in Bombay in 1937-38, which increased to 82 tons in 1938-39 and 140 tons in 1939-40. Madras is estimated to use annually about 53,000 tons groundnut cake for feeding cattle.

The crops for which it is used as manure are mainly sugarcane and coffee and the quantities utilised for this purpose have increased with the expansion in sugarcane acreage in several areas. For instance, it now forms a very important item of sugarcane manure in Bombay. In Madras about 39,000 tons groundnut cake are estimated to be annually used as manure in the districts. In the United Provinces, the agriculture and cane development departments utilised about 500 tons groundnut cake as fertilisers in 1937-38, which increased to nearly 1,800 tons in 1938-39 and about 2,200 tons in 1939-40. Similarly in Hyderabad the utilisation of groundnut cake has increased with the introduction of new varieties of sugarcane. The Government farms in Bombay used about 46 tons groundnut cake for manure in 1937-38, 79 tons in 1938-39 and 135 tons in 1939-40. Coorg imports groundnut cake from Mysore largely for use in coffee plantations. There appears to be an enormous field for the use of groundnut cake both for manure and cattle food.

The food value of groundnut cake is comparatively higher than other oil cakes, as will be seen from the table below but in certain areas the value of groundnut cake as cattle food is not only not recognised but there are certain prejudices against its use. For instance, it is reported from Madras that in the northern districts some cultivators believe that groundnut cake causes rheumatism and from Gwalior that the feeding of groundnut cake to cattle is supposed to decrease the quantity of milk. Some propaganda by agricultural departments is necessary to dispel such superstitious beliefs.

Comparison of food value of groundnut cake with some other oil cakes.

	Proteins. (Per cent.)	Fat. (Per cent.)	Carbo- hydrates. (Per cent.)	Fibre. (Per cent.)	Food units.
Groundnut cake	39.60	10.10	23.63	0.29	88
Linseed cake	25.37	8.74	27.72	2.91	75
Sesame cake	35.64	11.71	12.32	1.35	77
Coconut cake	19.1	8.1	33.0	8.1	76
Uncorticated cotton seed cake	18.96	6.1	15.23	3.8	46

Source.—Imperial Institute Monographs—Oilseeds and Oil Cakes.

As the development of groundnut crushing is closely linked up with the consumption of cake, it is desirable that the consumption of the cake in this country is encouraged by bringing the advantages of using groundnut cake to the knowledge of the cultivators. In this connection, the opinion expressed by the Oilseeds Specialist to the Government of Madras may be of interest and is cited below :—

“ As a feed for animals, groundnut cake is better than cotton seed, cotton seed cake or gingelly cake because of the presence of much higher percentage of crude protein in groundnut cake. It can be fed in small quantities to the cows after milking, without any danger of giving peculiar flavour to the milk. As groundnut cake is highly concentrated food, it should not be fed in large quantities and the proper balance in ration must be maintained by addition of other starchy grains like *cholam*, *cumbu*, and maize. The groundnut meal (crushed cake) is used extensively in fattening pigs in a short time. Two or three weeks before the pigs are to be sold, the groundnut meal should be stopped and the pigs should be fed on starchy grains for hardening the pork, as otherwise soft pork results. A

mixture of groundnut meal and coconut meal can replace horse-gram and oats in the rations of horses and bullocks after they have been accustomed to the mixture. The addition of groundnut meal to poultry feed, stimulates egg laying and aids in bringing chickens rapidly to a marketable size."

(2) PRICES.

(a) *Variations in different markets.*—The monthly prices* of expeller groundnut cake at Bombay and Calcutta, given in Appendices LX and LXI, together with the prices at Raichur and Malkapur are illustrated on the diagram facing this page, from which it will be observed that of the four markets, the prices at Raichur are invariably the lowest. Prices at Calcutta are generally somewhat higher than those at Bombay but the two port markets do not always show a similar trend. Raichur generally follows the trend of prices at Bombay, where the cake is sent for export. Malkapur does not follow Bombay so closely as Raichur although on many occasions the prices move parallel to those at Bombay. A glance at the annual averages of the prices at these four markets, illustrated on the right of the diagram, at once shows that the level of cake prices has been steadily improving at Raichur since 1933-34 rising from an average of only Re. 0-15-9 per maund in 1933-34 to Rs. 1-9-5 per maund in 1937-38, as will be seen from the table below. The averages of prices in other markets fluctuated between Rs. 1-9-3 and Rs. 2-7-8 per maund.

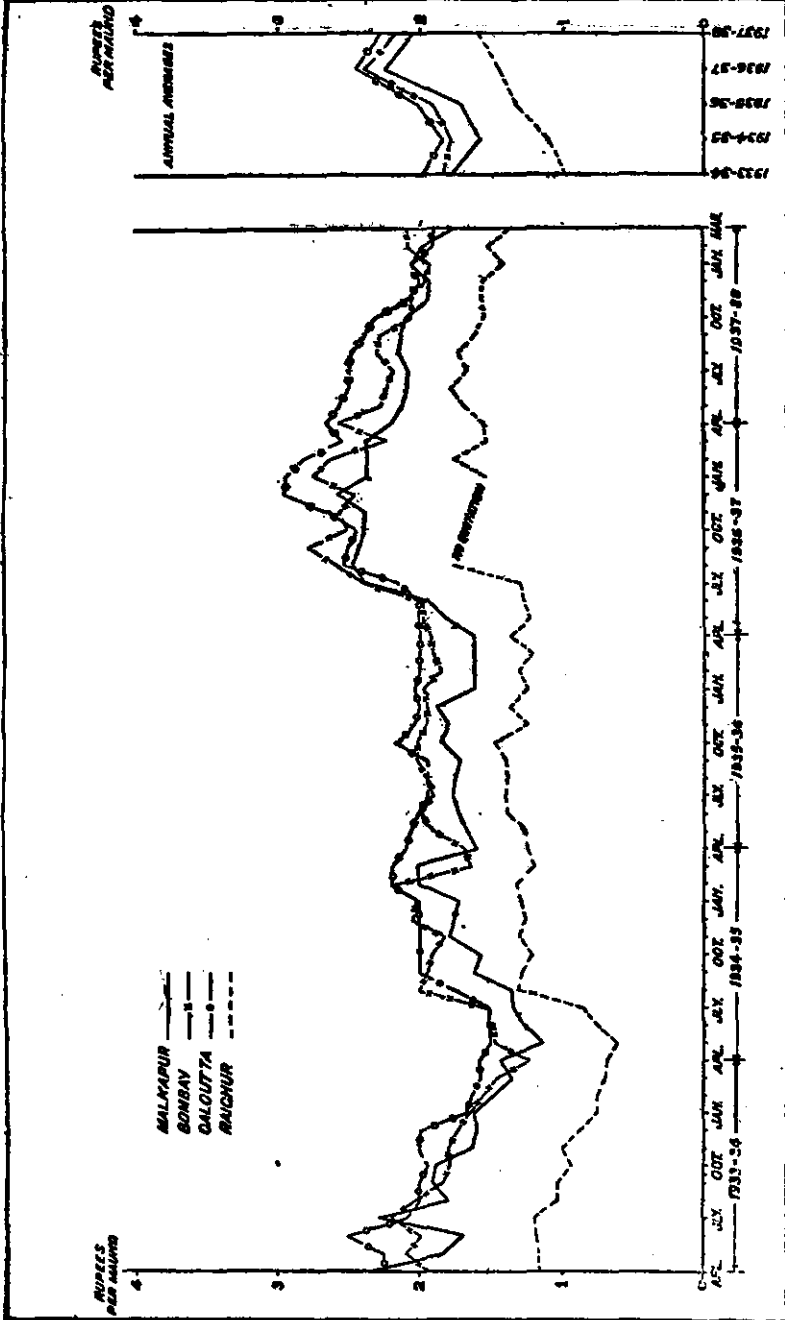
Average annual prices of groundnut cake at certain markets.

	Bombay.		Calcutta.		Raichur.		Malkapur.	
	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.
1933-34	1	13 5	1	15 10	0	15 9	1	12 6
1934-35	1	12 7	1	13 7	1	1 4	1	9 3
1935-36	1	14 9	2	0 3	1	5 1	1	11 5
1936-37	2	6 4	2	7 4	1	7 6	2	4 3
1937-38	2	2 10	2	4 6	1	9 5	2	0 10
Average	2	0 5	2	1 11	1	4 7	1	14 1

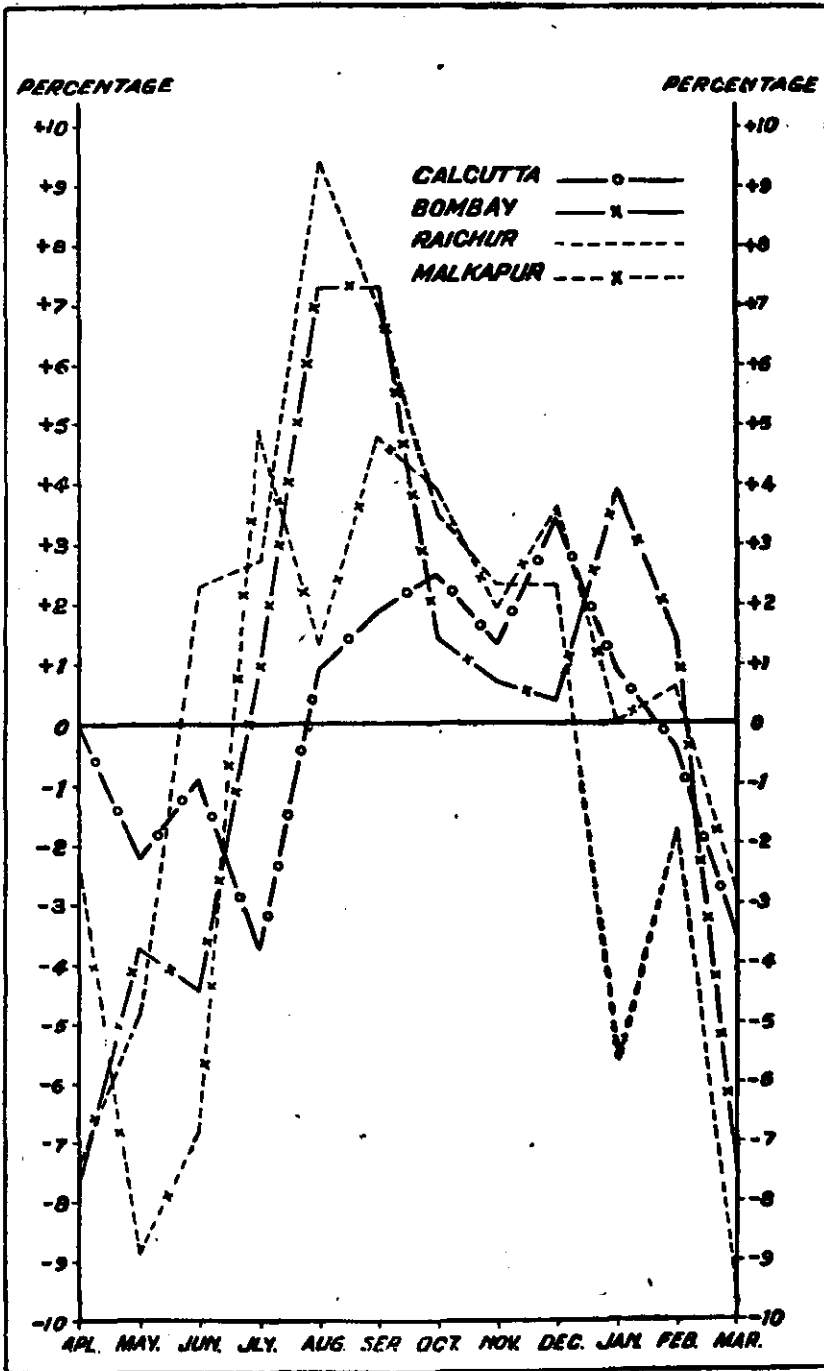
(b) *Seasonal variations.*—The seasonal variations in the prices of groundnut cake at four markets illustrated in the diagram facing page 289 show little in common among themselves or with the

* The Bombay prices are on one day in the beginning of every month while those at Calcutta, Raichur and Malkapur are average monthly prices.

MONTHLY PRICES OF GROUNDNUT CAKE PER MAUND AT BOMBAY, CALCUTTA, RAICHUR AND MALKAPUR.



PERCENTAGE DEVIATION OF THE AVERAGE MONTHLY PRICES OF GROUNDNUT
CAKE FROM THEIR ANNUAL MEAN.



seasonal variations in prices of oils or kernels except that the port markets show comparatively less fluctuations than markets in producing areas. The maximum range of variation amounting to over 19 per cent. is seen between August and March at Raichur, the prices being over the annual mean from June to December. At Bombay, the prices appear over the annual mean from July to February, the peak being reached in August-September and the lowest point in March-April. Calcutta prices reach the peak in December and the lowest point in July. Contrary to this, Malkapur prices reach the peak in July and the lowest point in May.

(c) *Variations due to quality.*—It has been said already that cake from village *chekkus* is preferred for feeding to cattle. It, therefore, fetches a higher price than cake from expellers and rotary mills. Between expeller and rotary cake, the former, although containing comparatively less oil, usually commands a premium on account of its better keeping qualities and less sand, etc. The premium fetched by expeller cake over rotary mill cake at Bombay ranged from about 6 pies to over 5 annas per maund at different times during the period 1933-34 to 1937-38 but it generally remained between 1 anna and 3 annas per maund. The annual averages of the premium fetched in different years varied from Re. 0-1-9 to Re. 0-2-2 per maund, as may be seen from the table below :—

Premium fetched by expeller cake over rotary cake at Bombay.
(Per maund.)

				Maximum.	Minimum.	Average.
				Rs. A. P.	Rs. A. P.	Rs. A. P.
1933-34	..	..	..	0 4 9	0 1 2	0 2 0
1934-35	..	..	..	0 3 0	0 1 2	0 1 9
1935-36	..	..	..	0 5 4	0 0 7	0 2 0
1936-37	..	..	..	0 4 1	0 1 2	0 2 1
1937-38	..	..	..	0 3 0	0 1 9	0 2 2

(3) DISTRIBUTION.

Groundnut cake exported from India is generally sold under the London Cattle Food Trade Association's contract for imported feeding cakes and meals and the Hamburg Cattle Food Trade Association's contract for Indian oil cakes. Apart from the general terms, conditions of delivery, payment, arbitration, etc., the quantities of cake sold and the rate, the contracts usually specify* the minimum percentage of oil and albuminoids and the maximum percentage

* Sales on the basis of samples are also made under Hamburg Cattle Food Trade Association's contract.

permissible of sand and also of castor seed if found present, together with scales of allowance and limits for rejection on account of deficiency of oil and albuminoids, or excess of sand or castor seed. Relevant extracts from the two contracts are given in Appendices LXII and LXIII. It will be observed that the terms of the two contracts in respect of oil and albuminoids and sand are essentially the same but differ in respect of castor seed. Oils and albuminoids (in decorticated groundnut cake) are generally required to be not less than 55 per cent and sand not more than 2½ per cent. The allowances for deficiency in oil and albuminoids percentage are 1 per cent of the contract price for each of the first 3 units, 2 per cent for the 4th and 5th units and 3 per cent for each unit over 5. If the deficiency exceeds 10 per cent the buyer has the option under the Hamburg Contract to reject the cake. The deduction for sand is usually 1 per cent (sometimes more under London Contract) for each unit over the free tolerance with buyer's option to reject if the total of sand exceeds 5 per cent. As regards presence of castor seed, the London Cattle Food Trade Association's contract requires the cake to be free from castor seed but lays down that the buyer can reject the goods only if the percentage of castor seed exceeds .005 per cent. The Hamburg Cattle Food Trade Association's contract, on the other hand, gives the buyer an option to reject even if castor seed is found in traces although in practice cake containing up to .02 per cent is seldom rejected. The allowances prescribed in the contracts of the two associations are compared in the table below:—

Scale of allowances for presence of castor seed in groundnut cake.

Proportion of castor seed.	Allowances.	
	London contract.	Hamburg contract.
Traces .. .. .	..	Buyer has the option to reject or may make the following allowances.
Less than .001 per cent ..	2s. 6d. per ton ..	
.. .. .002	3s. 9d. per ton ..	2% of the contract price.
.. .. .005	5s. per ton ..	2½% do.
Less than .008 per cent ..	Reject over .005%	3½% of the contract price.
.. .. .02 .. ..	..	4½% do.
.. .. .05 .. ..	..	5½% do.
.. .. .08 .. ..	..	7½% do.
.. .. .10 .. ..	..	9% do.
.. .. .25 .. ..	..	11% do.
.. .. .5 .. ..	..	15% do.

The causes of the presence of castor seed in groundnut cake have already been discussed in Chapter VII. It may, however, be mentioned here that the methods employed for detection of presence of castor seed do not appear to be infallible as it seems possible for certain wild seeds to be mistaken as castor seed.

The cake exported to Ceylon is often sold on the basis of 7 per cent nitrogen only.

The exporters in India also make their purchases under written contracts which, like the contracts referred to above, besides including general terms and conditions of delivery, sampling, arbitration, etc., specify the basis and allowances in respect of oil and albuminoids and sand. The terms in respect of the basis and allowances are generally similar to London and Hamburg contracts but sometimes differ slightly with different exporters. A copy of an exporters' contract for purchasing groundnut cake may be seen in Appendix LXIV. The oil and albuminoids required are usually not less than 55 per cent and sand not more than 2½ per cent. The allowance for deficiency in oils and albuminoids and excess of sand is 1.25 per cent for every one per cent up to 5 per cent deficiency of oil and albuminoids or excess of sand. Cake containing more than 5 per cent sand or over 5 per cent deficiency of oil and albuminoids is rejected at buyer's option. The bulk of groundnut cake exported is expeller cake and is sold under a guarantee of oil and albuminoids and sand as mentioned above, but some expeller and rotary cake is also exported without any guarantee of oil and albuminoids percentage.

The cake destined for the export trade passes into the hands of shippers at Calcutta, Bombay, Madras and other ports in much the same way as groundnut kernels, the routine followed being also similar. A representative sample is drawn from the goods to be shipped and analysed. If the results satisfy the contract terms, the cake is weighed over, paid for and shipped, but if the goods do not conform to the specifications, allowances are made or goods rejected.

Besides the purchases made by exporters, purchases by the military authorities for use in military dairy farms and by agricultural departments for use in government farms are also usually made on the basis of specifications. The specifications for purchases for the military farms are as under.

Specifications of groundnut cake.—The cake shall be fresh, free from moulds, rancidity and any harmful constituents or admixture, jute fibres or other indigestible fibrous matters and shall satisfy the following specifications.

	Decorticated groundnut cake.	Udecorticated groundnut cake.
Moisture ..	..	Not more than 10 per cent.
Ash ..	..	Not more than 4 per cent.
Crude fibre	Not more than 7 per cent.	Not more than 24 per cent.
Protein	Not less than 44 per cent.	Not less than 25 per cent.
Fat ..	Not less than 6 per cent.	Not less than 7 per cent.

Apart from this, the trade is carried on largely without any specifications or analysis, the agencies concerned in the distribution being *telis* or operators of *ghanis* and the retail dealers of oil, who deal in cake as well as vegetable oils. The packing is usually 2 maunds in a bag.

D.—Relation between the prices of groundnuts, groundnut oil and groundnut cake.

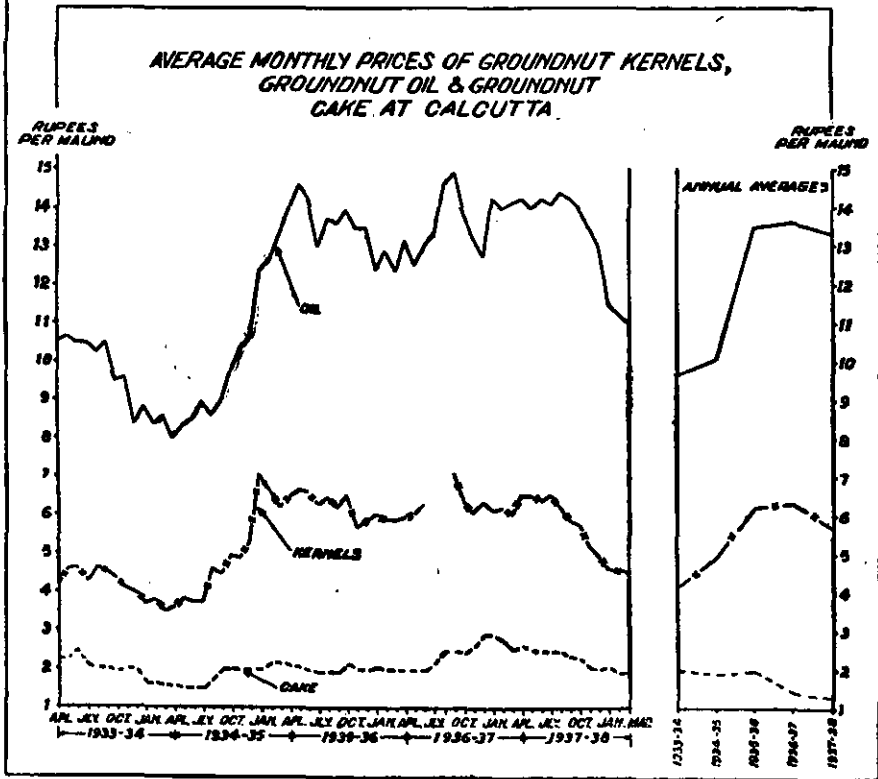
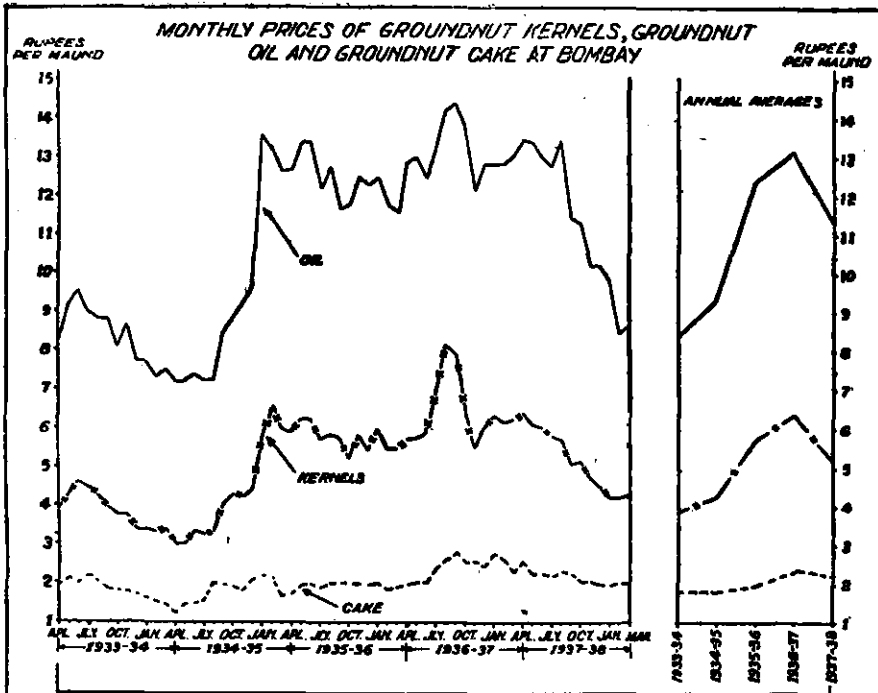
The monthly prices* of groundnut oil, groundnut cake and groundnut kernels at Bombay and Calcutta are illustrated on the diagrams facing this page, from which it will be observed that at Bombay, groundnut oil prices move in close sympathy with and have the same trend as the prices of groundnut kernels, although the margin between the prices of the two commodities varies from time to time. At Calcutta, the prices of oil and kernels generally have the same trend but at times the prices of the two commodities take a different course. The cake prices do not always follow the prices of kernels or oil.

The relation between the prices of groundnut kernels, oil and cake in the two markets may be seen from the following table, which expresses the annual average prices of oil and cake as percentages of the average annual prices of kernels.

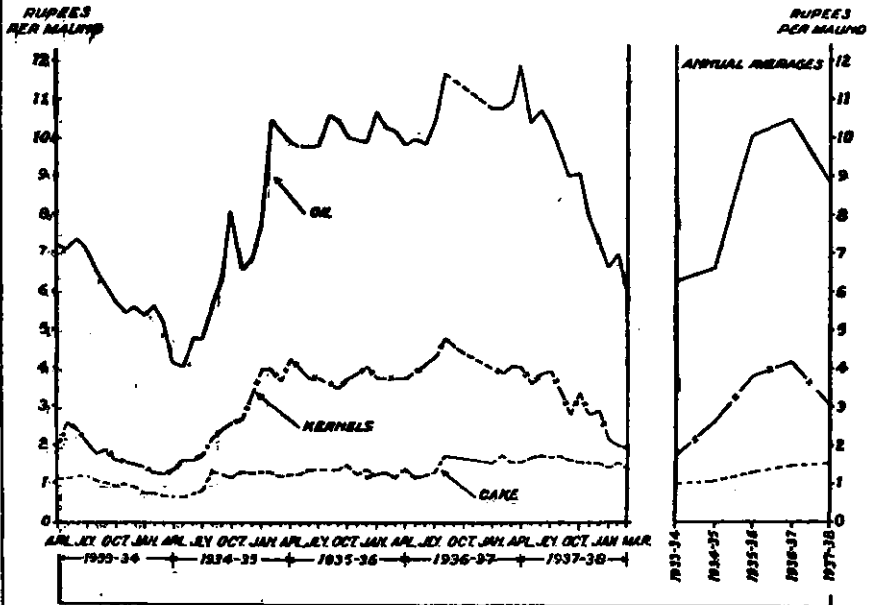
Relation between prices of groundnut kernels, groundnut oil and cake at Bombay and Calcutta.

	Groundnut kernels. Annual average price per maund.	Groundnut oil.		Groundnut cake.	
		Annual average price per maund.	Price expressed as percentage of kernels price.	Annual average price per maund.	Price expressed as percentage of kernels price.
	Rs. A. P.	Rs. A. P.		Rs. A. P.	
Bombay—					
1933-34	3 14 0	8 6 2	216	1 13 5	47
1934-35	4 4 0	9 4 7	218	1 12 7	42
1935-36	5 11 9	12 5 11	216	1 14 9	33
1936-37	6 6 0	13 2 1	206	2 6 4	38
1937-38	5 2 8	11 5 5	219	2 2 10	42
Average	5 1 3	10 14 5	215	2 0 5	40
Calcutta—					
1933-34	4 3 4	9 11 0	231	1 15 10	47
1934-35	4 15 2	10 0 10	208	1 13 7	37
1935-36	6 4 1	13 7 10	216	2 0 3	32
1936-37	6 4 9	13 10 4	217	2 7 4	39
1937-38	5 11 0	13 4 8	234	2 4 6	40
Average	5 7 8	12 0 6	220	2 1 11	39

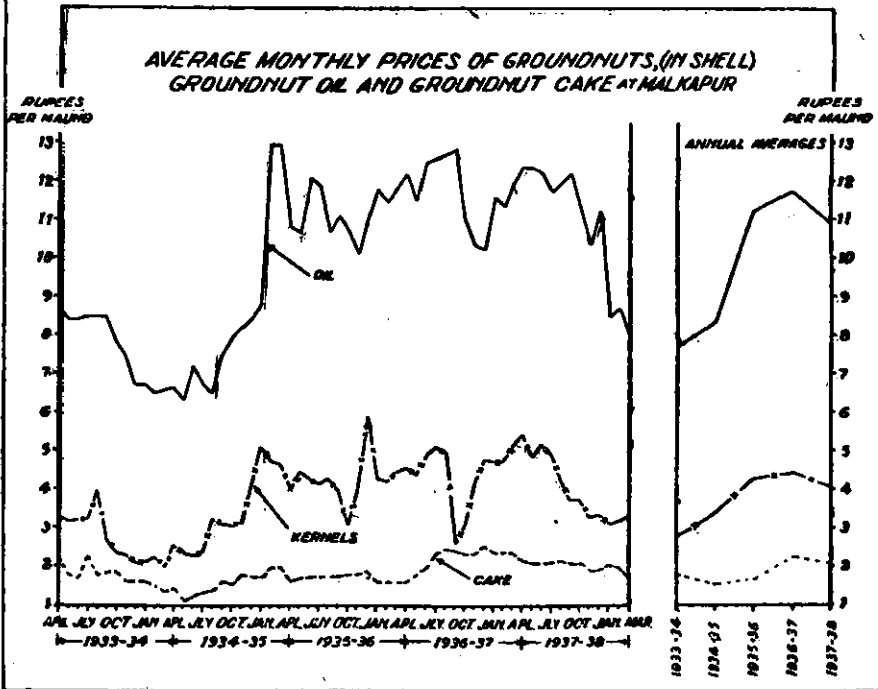
* Prices on one day in the first week of every month at Bombay and average monthly prices at Calcutta.



AVERAGE MONTHLY PRICES OF GROUNDNUTS (IN SHELL), GROUNDNUT OIL AND GROUNDNUT CAKE AT RAICHUR



AVERAGE MONTHLY PRICES OF GROUNDNUTS (IN SHELL) GROUNDNUT OIL AND GROUNDNUT CAKE AT MALKAPUR



W. V. S.

It will be observed that the annual average prices of groundnut oil at Bombay varied within a comparatively narrow margin of 216 to 219 per cent of the prices of kernels except in one year when the value of oil dropped to 206 per cent of the value of kernels. At Calcutta, the relative value of oil ranged between a comparatively wider margin of 203 to 234 per cent of the value of kernels.

The prices of cake averaged 33 per cent to 47 per cent of the value of kernels at Bombay and 32 per cent to 47 per cent at Calcutta. Considering the prices for the five years 1933-34 to 1937-38 together groundnut oil fetched 215 per cent of the price of kernels at Bombay and 220 per cent at Calcutta. Similarly, the price fetched by groundnut cake amounted to 40 per cent of the value of kernels at Bombay and 39 per cent at Calcutta.

The relative values of groundnuts in shell and oil and cake in markets in producing areas as well as the course of prices show wider fluctuations and more dissimilarity, as may be seen from the diagrams facing this page and table below giving the annual average prices of the three commodities at Raichur and Malkapur.

Relation between prices of groundnuts in shell, oil and cake at Raichur and Malkapur.

	Groundnuts in shell.	Groundnut oil.		Groundnut cake.	
	Annual average price per maund.	Annual average price per maund.	Price expressed as percentage of nuts price.	Annual average price per maund.	Price expressed as percentage of nuts price.
<i>Raichur—</i>	Rs. A. P.	Rs. A. P.		Rs. A. P.	
1933-34	1 12 4	6 3 6	351	0 15 9	56
1934-35	2 9 7	6 10 2	255	1 1 4	42
1935-36	3 13 3	10 1 5	264	1 5 1	34
1936-37	4 2 9	10 8 0	252	1 7 6	35
1937-38	3 1 0	8 12 10	287	1 9 5	52
Average	3 1 5	8 7 2	274	1 4 7	42
<i>Malkapur—</i>					
1933-34	2 11 9	7 12 0	283	1 12 6	65
1934-35	3 6 5	8 5 11	246	1 9 3	46
1935-36	4 4 7	11 3 11	262	1 11 5	40
1936-37	4 7 5	11 12 3	264	2 4 3	51
1937-38	4 0 10	10 14 11	270	2 0 10	51
Average	3 12 7	10 0 2	264	1 14 1	50

The oil prices at these two markets generally follow the trend of groundnut prices but not in such close sympathy as at Bombay. The cake prices, on many occasions, show a trend opposite to those of nuts and oil.

At Raichur, oil price was 351 per cent of the price of nuts in 1933-34, but was as low as 252 per cent in 1936-37. At Malkapur, oil fetched a price 283 per cent of that of nuts in 1933-34 but in 1934-35 the price obtained for oil was only 246 per cent. Similarly for cake, the price at Raichur in 1933-34 was 56 per cent and as low as 34 per cent. in 1935-36. At Malkapur, the cake price was 65 per cent of the price of groundnuts in 1933-34, but 40 per cent in 1935-36. Considering the prices for five years 1933-34 to 1937-38 together groundnut oil fetched 274 per cent of the value of nuts at Raichur and 264 per cent at Malkapur. The value of cake averaged 42 per cent at Raichur and 50 per cent at Malkapur. It is obvious from what has been said above that the price of oil moves more closely in sympathy with the price of kernels at terminal markets than with the price of nuts at producing centres.

E.—Note on effect of railway freights and local taxes on groundnut crushing.

As the bulk of movement in groundnuts, groundnut oil and groundnut cake takes place by rail, railway freights have an important bearing not only on their movement but indirectly on groundnut crushing also.

The ordinary rate based on their classification is .54 pie per maund per mile at railway risk for groundnuts (nuts in shell and kernels), .46 and .42 pies per maund per mile at railway risk and owner's risk respectively for groundnut oil and .38 pie per maund per mile at railway risk for groundnut cake. As groundnut kernels yield roughly 40 per cent oil and 60 per cent cake, it would appear that at these rates groundnut oil and groundnut cake together could be railed cheaper than the requisite amount of kernels for producing the oil and cake. The freight on 4 maunds oil and 6 maunds cake amounts to 4.12 pies per mile, whereas the freight on 10 maunds kernels works out at 5.4 pies per mile. This position obviously encourages crushing in producing areas as against the exports of kernels. The ordinary rates are, however, nominal maxima only and the three commodities are actually carried at rates which differ on various railways and between different points on the same railway and by which the position given above does not always hold good. Groundnut kernels in full wagons, as referred to earlier (see page 245 and Appendix LI) are charged at lower class rates on several railways apart from a number of cheap station to station rates. Similarly, groundnut oil, the ordinary rate for which is .42 pie per maund per mile is charged at class 1 rates, i.e., .38 pie per maund per mile only by the Great Indian Peninsula Railway when carried in full wagon loads for distances over 300 miles. For groundnut cake the various railways have different schedule rates, which work out cheaper than ordinary rates. These are, in some cases, applicable only when it is declared that the cake is for manurial

purposes. For example, the cake in full wagon loads of over 400 maunds is charged at .14 pie per maund per mile at owner's risk on the Great Indian Peninsula, Bombay, Baroda and Central India, and Madras and Southern Mahratta Railways. On the South Indian Railway the rate of .14 pie per maund per mile is applicable to oil cakes in full wagon loads only when it is declared that the cake is for manurial purposes.

The rates of freight in force between two points on groundnuts and their products, therefore, decide whether it is advantageous to despatch oil and cake or the kernels and, therefore, whether it is advantageous to do groundnut crushing or not. If there be a local market for cake at the consigning station, the saving on cake freight provides an additional incentive for crushing groundnuts. For instance, the freight on groundnut kernels and groundnut oil from Raichur to Bombay is the same, *viz.*, 14 annas per maund, while the freight for cake is Re. 0-5-6 per maund so that 4 maunds of oil and 6 maunds of cake sent from Raichur to Bombay cost Rs. 5-9-0 for freight against Rs. 8-12-0 freight on 10 maunds of groundnuts kernels. It is, therefore, obviously advantageous to crush the kernels at Raichur and send the oil and cake to Bombay. Raichur is now a big groundnut crushing centre.

Similarly, the freight on 4 maunds oil at Rs. 1-1-9 per maund and on 6 maunds cake at Re. 0-8-2 per maund from Dhulia to Cawnpore amounts to Rs. 7-8-0, as compared with Rs. 7-1-4 freight on 10 maunds kernels at Re. 0-11-4 per maund. It would appear at first sight that Cawnpore could produce oil from kernels obtained from Dhulia cheaper than oil imported from Dhulia. But the fact that Dhulia can send the cake to the nearer market of Bombay paying a freight of less than 3 annas per maund, changes the position so that Dhulia can put oil on the Cawnpore market cheaper than oil made in Cawnpore from kernels imported from Dhulia.

On the other hand, the freight on 4 maunds oil and 6 maunds cake from Guntur to Coconada at Re. 0-4-3 and Re. 0-2-10 per maund respectively amounts to Rs. 2-2-0 as compared with Rs. 1-9-0 freight on 10 maunds groundnut kernels at the special reduced rate of Re. 0-2-6 per maund. It is apparent that the rates of freight favour groundnut kernels being despatched to Coconada.

The rates of freight, besides having a bearing on groundnut crushing, as shown above, also affect the movement and consumption of groundnut oil and cake, specially the latter. As the various vegetable oils are grouped together in the same class, they are all ordinarily charged at a uniform rate but exceptions made by certain railways in respect of particular oils with a view to encourage traffic between certain points, in some cases permit one vegetable oil being carried at a cheaper rate than another. For instance, the North Western Railway makes an exception in favour of coconut oil in full wagon loads carried distances of over 500 miles charging for it at class I rate of .38 pie per maund per mile at owner's risk. The result is that coconut oil can be carried, say, from Karachi to Lahore,

at .38 pie per maund per mile, i.e., at Rs. 1-7-11 per maund, whereas groundnut oil, between the same points is charged at .42 pie per maund per mile, i.e., Rs. 1-10-5 per maund.

Groundnut cake, as mentioned earlier, is partly utilised for manures, and as such the comparative rates of freight for manures also affect the movement of groundnut cake. Manures like oil cakes, are charged at the class I rate of .38 pie per maund per mile and the schedule rates applicable to manures are in many cases the same as in the case of oil cakes so that oil cakes and manures are normally carried under the same conditions. The question of freight on oil cakes, specially groundnut cake, is of considerable important since after the outbreak of war in September, 1939, the exports of groundnuts specially and oilseeds generally have fallen and a larger consumption of oil cakes in India will doubly benefit the producers by improving the yields of their crops as also helping to raise the prices obtained for their oilseeds. This together with the fact (referred to in the previous chapter) that groundnuts are classed differently to other oilseeds and do not enjoy the advantage of telescopic rates of freight which are applicable to other seeds and grains, indicate the need for greater uniformity in practice—not only on groundnuts and groundnut products but also in regard to other commodities on different railways and for railway rates being reviewed by some all-India body concerned with economic development and planning particularly in case of crops such as groundnuts and other products of comparatively recent introduction in India.

Reverting to groundnut crushing, another factor which affects the groundnut crushing industry in certain areas is the export duty levied by some states. For instance, Hyderabad State imposed the following duties on the exports of groundnuts, groundnut oil and groundnut cake.

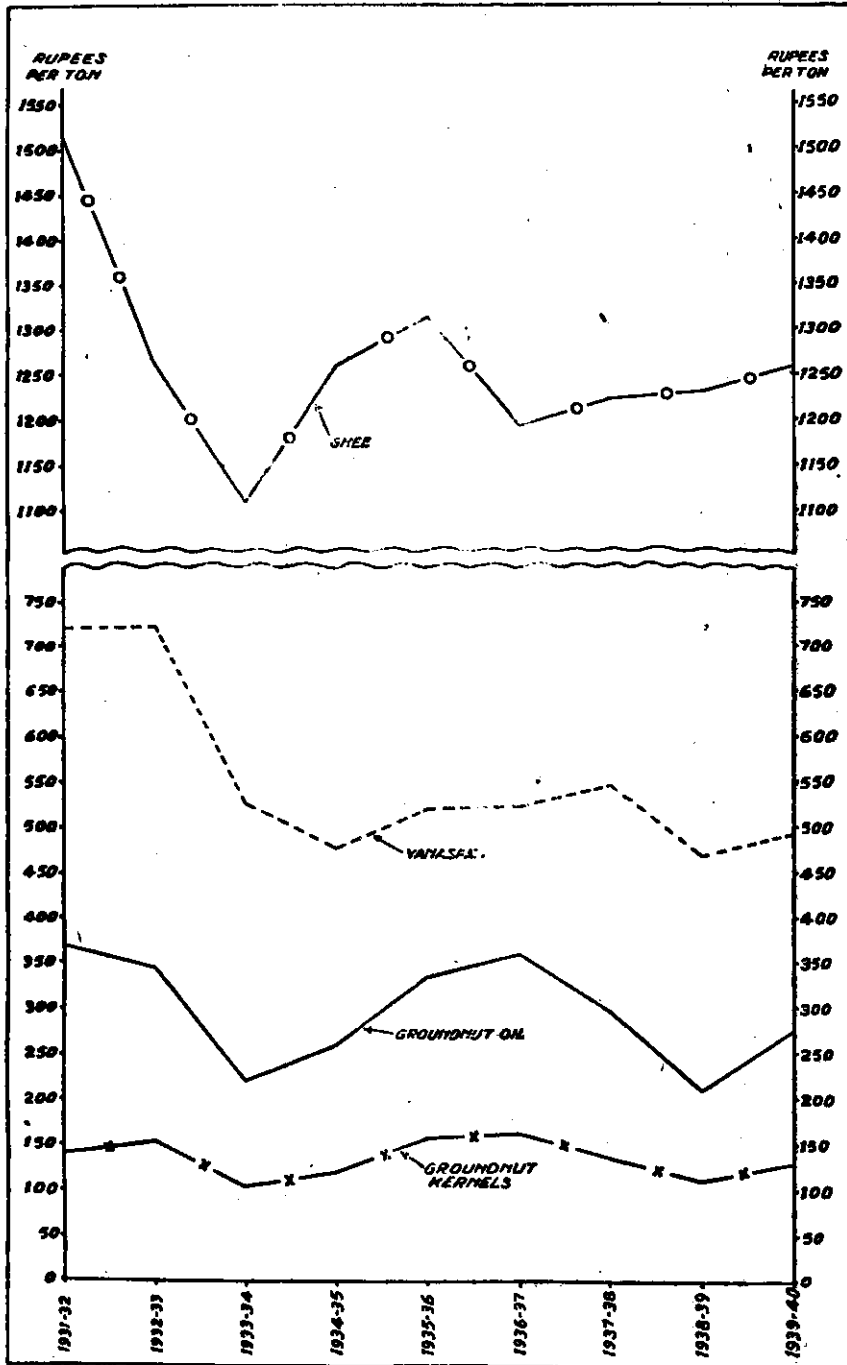
Rates of duty per maund levied on exports of groundnut kernels, oil and cake from Hyderabad State.

	Groundnut kernels.	Groundnut oil.	Groundnut cake.
	A. P.	A. P.	A. P.
From June 1931 to November 1932	3 5	4 7	2 3
From December 1932 to May 1933 ..	4 3	4 7	2 10
From June 1933 to June 1934 ..	3 5	Removed from May 1933.	2 3
Since February 1934	4 7	Do.	3 5

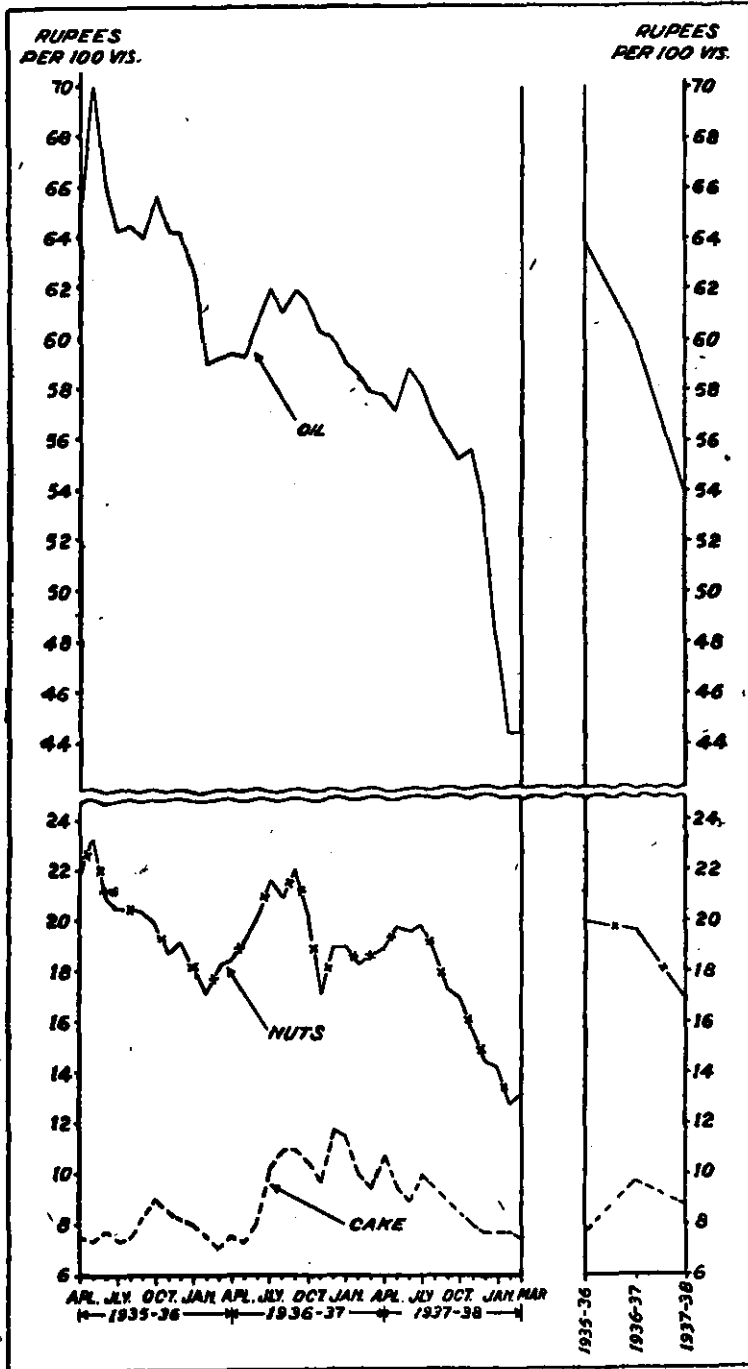
The removal of the duty on oil encouraged the production of oil and helped the development of oil crushing industry in the State. The oil imported from Raichur can, therefore, successfully compete now with locally produced oil in Madras markets.

The rates of terminal and octroi taxes charged by some municipalities on groundnuts are high and stand in the way of groundnut crushing industry. For instance, the terminal tax on arrivals of

AVERAGE MONTHLY PRICES OF GHEE AT KHURJA, VANASPATI AT A MANUFACTURING CENTRE, GROUNDNUT OIL AND GROUNDNUT KERNELS.



AVERAGE MONTHLY PRICES OF GROUNDNUTS IN SHELL, GROUNDNUT OIL AND GROUNDNUT CAKE AT RANGOON.



groundnut kernels levied by several municipalities in the Central Provinces, *e.g.*, Amraoti and Nagpur is 2 annas per maund so that the cultivators' return on his produce sold at these markets is reduced by this amount. In other cases, the rates charged for groundnuts and groundnut oil are anomalous. For instance, in the United Provinces, most of the municipalities classify groundnuts as dry fruits (and not as oilseeds) and levy a terminal tax on groundnut imports at a higher rate than on other oilseeds. The rates vary from 3 pies per maund to as much as Re. 0-10-6 per maund. The terminal tax on groundnut kernels at Cawnpore was till lately* Re. 0-1-6 per maund, as compared with 9 pies on other oilseeds. The rate for groundnut oil is 2 annas a maund, which has little relation with a rate of Re. 0-1-6 per maund on groundnut kernels. The comparatively higher tax which falls on locally produced oil as a result of terminal tax on kernels, increases the cost of locally crushed oil. On representation being made by the United Provinces Oil Millers' Association, some municipalities have reduced the rates of tax on arrivals of groundnuts. Besides a tax on arrivals, some municipalities have another tax on despatches of groundnuts and groundnut oil. For instance, Cawnpore Municipality has an export tax of Re. 0-1-3 and 2 annas per maund on exports of groundnuts and groundnut oil respectively.

Groundnut kernels and groundnut oil not being of higher value than other oilseeds and oils, there appears to be little justification for the higher terminal tax rates on groundnut kernels. The position of nuts in shell for edible purposes is different.

The widely divergent rates of taxes and conflicting local interests indicate, as in the case of railway rates, the necessity of octroi and terminal taxes being reviewed by some all-India body concerned with economic development and planning.

F.—Note on production and utilisation of Vanaspati or hydro- genated vegetable products in India.

Ghee (clarified butter) and vegetable oils are the main articles that supply the fat requirements of the Indian diet. Ghee, being more costly than oils, is used more by well-to-do people. The demand for cheap ghee resulted in products resembling ghee in appearance, texture and consistency being imported into India from Europe. Such products consisting almost wholly of hydrogenated vegetable oils were put on the Indian market under the name of vegetable products. Later, similar products, consisting largely of hydrogenated groundnut oil†, started being made in India and are popularly known as Vanaspati or Vanaspati ghee. The words "vegetable product", "Vanaspati", "artificial ghee" and "Vanaspati ghee" are all now understood to mean hydrogenated vegetable oils resembling ghee. The words vegetable and Vanaspati have a unique significance in India, where the use of animal fats such as lard or suet being prohibited by religion to many, a product entirely of vegetable origin makes a special appeal.

* It has now been reduced to 6 pies per maund.

† Vanaspati from cotton seed oil is now also made by some factories.

The annual imports of vegetable product amounted to nearly 23,000 tons in 1927-28 and 1928-29 (figures prior to this are not available), which rapidly declined to less than 2,000 tons in 1932-33. The imports between 1933-34 and 1939-40 have not exceeded 1,000 tons in any year. Simultaneously with the drop in imports, the production in India rapidly increased. In 1936, there were only 5 factories working in India and the potential capacity of all the factories together was estimated as 33,000* tons annually. The production increased with the erection of new factories to about 44,000 tons in 1938, and in 1939, the production is estimated to have been about 50,000 tons. In November 1940, at least 10 factories were producing Vanaspati—3 each in Bombay and the United Provinces and 1 each in the Punjab, Delhi, Cochin State and Calcutta. More factories were expected in Khandesh district of Bombay, and in Mysore and Hyderabad States. The production may be expected to be at least 60,000 tons in 1941, unless adversely affected by legislation, requiring compulsory colourisation, proposed in respect of Vanaspati in some provinces with a view to check adulteration of ghee.

As the Vanaspati industry provides a very important outlet for groundnut oil, it may not be out of place to examine its position as an adulterant of ghee, the likely effect of the proposed compulsory colourisation on its production, and the measures that should be taken to prevent adulteration and safeguard the interests of the ghee trade and the ghee consumer.

Vanaspati, besides resembling ghee in appearance making detection difficult without chemical tests, is considerably cheaper than ghee. With the increase in the production of Vanaspati in India, the fall in the prices of Vanaspati, as will be seen from the following table, has been more pronounced than the fall in the prices of ghee.

Average annual prices of ghee, Vanaspati and groundnut oil per ton and their index numbers.

Year.	Ghee (Khurja).	Vanaspati at a manufac- turing centre.†	Groundnut oil at a manufac- turing centre.	Index numbers 1931- 32 prices=100.		Margin between Vanaspati and groundnut oil prices.
				Ghee.	Vanaspati.	
1931-32 ..	Rs. 1,516	Rs. 721	Rs. 369	100	100	Rs. 352
1932-33 ..	1,264	723	345	83	100	378
1933-34 ..	1,109	526	220	73	73	306
1934-35 ..	1,259	478	260	83	66	218
1935-36 ..	1,313	520	335	87	72	185
1936-37 ..	1,193	522	358	79	72	164
1937-38 ..	1,223	546	296	81	76	250
1938-39 ..	1,230	468	208	81	65	260
1939-40 ..	1,257	494	274	83	68	220
1940-41 (9 months) ..	1,495	474	287	99	78	187

* Report on the Development of the Cattle and Dairy Industries of India by Dr. N. C. Wright.

† The average annual prices of Vanaspati reported from another manufacturing centre are Rs. 586, Rs. 435, Rs. 433, Rs. 514, Rs. 511, Rs. 537, Rs. 451, Rs. 473 and Rs. 466 for the years 1932-33 to 1940-41. It will be observed that they differ only slightly from the prices given in the table for the years 1935-36 to 1940-41.

It will be observed that prices of Vanaspati averaged over Rs. 700 per ton up to 1932-33, but came down to an average of Rs. 526 per ton in 1933-34. Since then this figure has been exceeded only once in 1937-38 when Vanaspati prices averaged Rs. 546. Taking the prices in 1931-32 as 100, the index number of ghee prices dropped to a minimum of 73 in 1933-34, whereas the index numbers of Vanaspati prices were as low as 66 in 1934-35 and 65 in 1938-39. The margin between the prices of Vanaspati and groundnut oil varied from Rs. 164 to Rs. 378 per ton in different years. As the cost of manufacture does not vary within such wide limits, it appears that the prices of Vanaspati are influenced not only by the prices of raw materials and costs of manufacture but also by other factors, such as prices of ghee as may be seen from the diagram facing page 298.

The food adulteration laws do not permit mixing of Vanaspati* with ghee and several municipalities have made bye-laws and adopted measures to prevent adulteration of ghee with Vanaspati. For instance, Delhi Municipality does not permit a ghee dealer to sell Vanaspati and vice versa, requires a person selling Vanaspati or food prepared with Vanaspati to display a signboard that Vanaspati or food from Vanaspati is sold, and prescribes that every receptacle containing Vanaspati should be distinctly marked. But in spite of such measures, it is well-known that Vanaspati owing to laxity in the enforcement of food adulteration laws, is used in large quantities for the adulteration of ghee and the persons interested in adulteration of ghee have found a very suitable material in Vanaspati. It is not, however, the only adulterant of ghee, the other common adulterants being animal fats and vegetable oils and fats such as groundnut oil and coconut oil. The widespread use of all these adulterants has been amply proved by the analysis of commercial samples of ghee and reports of public analysts and municipalities in different places. It was estimated in the "Report on the Development of the Cattle and Dairy Industries of India by Dr. N. C. Wright" that at least 11,000 tons of *charbini* (animal fat) was available for adulteration of ghee. The quantities of different oils available for adulteration are almost unlimited, although unlike Vanaspati, the difference in the consistency in the case of most of the oils limits their use beyond a certain proportion.

Vanaspati, besides being used for adulteration, also meets the demand for a cheap substitute for ghee and makes it possible for people who cannot afford ghee to make up the fat deficiency of their diet particularly if vitamins are incorporated in the product. The position of Vanaspati in relation to ghee, therefore, appears to be analogous to that of margarine in relation to butter in other countries and before examining the measures proposed in regard to Vanaspati, it will be interesting to review the development of the margarine industry†, its effect on butter production and the measures taken against the industry at different times in various countries.

* The Bombay rules permit Vanaspati to have milk fat up to 10 per cent.

† The material is largely drawn from "Oils and Fats: Production and International Trade—International Institute of Agriculture".

The manufacture of margarine which originally arose out of the necessities of the Franco-Russian War (1869) was eventually developed, on a large commercial scale towards the end of the last century, first of all in Netherlands and later in a number of European countries and the United States of America. The increase in the demand for fats in European countries encouraged the manufacture of margarine, which fully met their diet requirements and in 1913, *i.e.*, immediately before the commencement of the 1914-18 War, of the several margarine manufacturing countries in Europe, the United Kingdom, Denmark and Netherlands together produced as much as 210,000 tons besides 68,000 tons manufactured in the United States of America. The severe shortage of fats in the years immediately following the 1914-18 War, and the increase in the price of butter led to further rapid increase in the quantities of margarine manufactured so that the three countries referred to above together produced 409,000 tons in 1930, *i.e.*, about 200,000 tons more than their production in 1913. The production in the United States of America also expanded to 145,000 tons. Between 1930 and 1934, there was a decline in the production of margarine in some countries in consequence of the measures directed against it and the keener competition of butter, but this was followed by a considerable recovery in 1935 and 1936 in most countries. Besides the countries mentioned above, Germany, as will be seen from the table below, became the biggest producer of margarine towards the end of the last decade producing 430,000 tons in 1928.

Production of margarine in certain countries.

(Thousand tons.)

—	1913.	1924.	1930.	1932.	1934.	1936.
United States of America.	68	104	145	91	118	170*
United Kingdom	81	183	202	Not available.	164	181
Denmark ..	41	68	81	72	71	77
Netherlands ..	88	129	126	62	52	55
Germany ..	..	..	430†	502	376	417

*1935.

†1928.

Norway, Sweden, Belgium, France and other European countries also increased their output of margarine. On the other hand, the industry made little progress in Canada and South Africa as also in Australia and New Zealand. The manufacture and marketing of margarine is prohibited in the former two countries, while in Australia and New Zealand the very cheap price of butter provided little scope for the development of the industry.

Margarine being a rival of butter, the question naturally arises as to how the development of the industry affected the production

and consumption of butter in the producing countries. The figures given in the table below indicate that simultaneously with the increase in margarine manufacture, the production of butter also generally recorded an increase.

Production of butter in certain countries.

(Thousand tons.)

	1925.	1930.	1932.	1934.	1936.
United States of America..	901	947	1,020	1,006	961
United Kingdom .. ..	..	48	48	47	47
Denmark	139	187	185	180	177
Netherlands	74	86	84	89	109
Germany	224	355	389	417	488

It is, therefore, obvious that (butter production did not keep pace with the expansion in demand to meet the higher standard of living and margarine, without adversely affecting butter production, supplemented its supply to meet the increased demand for fats and provided a cheap substitute for those, who could not pay for butter.) The *per capita* consumption of butter and margarine for these countries, given in the table below, shows that an increase in the *per capita* consumption of margarine did not always result in a lower *per capita* consumption of butter.

Per capita consumption of butter and margarine.

(lb. per head.)

		1909-13.	1930.	1932.	1934.	1936.
United States of America	Butter	16.6*	17.3	18.1	18.0	16.5
	Margarine	1.6*	2.6	1.6	2.1	3.0
	Total	18.2	19.9	19.7	20.1	19.5
United Kingdom	Butter	13.1	18.4	21.4	25.4	24.9
	Margarine	7.8	11.9	9.8	7.9	8.6
	Total	20.9	30.3	31.2	33.3	33.5
Denmark	Butter	17.8†	13.4	18.7	20.9	20.0
	Margarine	34.5	49.7	44.9	43.1	46.2
	Total	52.3	63.1	63.6	63.1	66.2

* 1913.

† 1914.

Per capita consumption of butter and margarine—contd.
(lb. per head.)

		1909-13.	1930.	1932.	1934.	1936.
Netherlands	Butter	11.9	14.3	19.1	15.2	12.1
	Margarine ..	8.8	19.8	14.7	14.5	13.6
	Total ..	20.7	34.1	33.8	29.7	25.7
Germany ..	Butter	14.7	17.8	16.5	17.4	18.7
	Margarine ..	6.8	16.3	17.8	13.9	14.5
	Total ..	21.5	34.1	34.3	31.3	33.2

On the contrary the consumption of butter also simultaneously increased in several cases. For instance, the consumption of butter in the United Kingdom increased from an average of 13.1 lb. per head in 1909-13 to 24.9 lb. per head in 1936, while the consumption of margarine increased from 7.8 lb. to 8.6 lb. in the same period. Even in a specialised dairying country such as Denmark the *per capita* consumption of margarine is highest, having risen from 34.5 lb. in 1909-13 to 46.2 lb. per head in 1936; but the consumption of butter also increased from 17.8 lb. per head in 1914 to 20 lb. in 1936. The consumption of butter and margarine together increased in all countries except in the case of Netherlands where the consumption of both butter and margarine declined after 1932.

The measures taken against margarine from time to time in various countries have been of a varied nature and subject to periodical amendments and changes necessitated by the conditions of supplies of oils and fats and the raw materials used.

In the United States, where margarine has to be designated oleomargarine, the production and sale has been subjected to limitations imposed by both the Federal Government and the governments of the individual States. The Federal Government imposed an occupational tax on producers, wholesale dealers and retailers, together with a stamp tax, which at one time was fixed at a higher rate on margarine coloured to resemble butter. Later a customs duty was imposed on oils and fats commonly used in the margarine industry. It was made compulsory to mark the word "Oleomargarine" on every package. In addition to Federal Government measures several States imposed excise taxes varying from 5 to 15 cents per lb. on all margarine offered for sale, while others imposed taxes between 10 and 15 cents, only on margarine made from other than home-produced raw material or not containing the given percentage of home-produced oils and fats. Again a number of States imposed a license and license fee on producers, wholesalers, retailers and restaurants, hotels and boarding houses, which served margarine to their guests, while others prohibited the sale of yellow margarine.

Contrary to this, the production and consumption of margarine has not been subject to any such limitations in the United Kingdom

except that in the transport and sale of the product it must be clearly described as margarine and wrapped in paper bearing that name at the time of retail sale. The relation of the price of margarine to that of other oils and fats and the purchasing power of the consumer, therefore, largely determine the extent of production and consumption of margarine. With the fall in butter prices, the consumption of butter continuously increased after 1929 with a fall in the consumption of margarine but when the position changed in 1935, the consumption of margarine increased once again in 1936.

In Denmark, the reason for the first legislation relating to margarine was the fear that the reputation of Danish butter might be prejudiced by margarine and that an admixture of margarine with butter might damage the Danish butter export market. The law prohibited the colouring of margarine and laid down that whenever margarine was mixed with butter, the amount of butter guaranteed should be marked on each barrel. Severe penalties of imprisonment were prescribed for infringement of these laws. Later a Board of Control was established and a register of authorised manufacturers and sellers maintained. Amendments were made to the law from time to time and one amendment made an addition of sesame oil compulsory. The law underwent a radical change in 1925, with the result that the prohibition of colouring was abolished and the mixing of butter with margarine prohibited. The production of margarine reached a peak in 1930, after which the difficulties attending the export of butter and fall in prices of butter led to measures against margarine. The advertising of margarine was restricted, oils and fats used in the manufacture of margarine were subjected to a tax, and it was made obligatory to include a minimum specified proportion of Danish pig fat in the raw materials used. These measures were, however, allowed to expire when the butter market improved after 1934.

In Netherlands, the margarine industry developed into an important export trade, which reached the peak in 1926, after which as a consequence of the industry developing in other countries, the exports declined. Along with the declining export trade of margarine, the increasing difficulties in the exports of butter and dairy products led to the passing of Milk Crisis Law in 1932, which imposed *inter alia* an excise duty on all fats including butter. Margarine was affected in a number of ways. In the first place, it was obligatory from July 1932 for margarine sold on the home market to have a specified percentage of butter, which varied from 10 per cent to 40 per cent at different periods (the compulsory admixture was abolished in August 1937). A tax had to be paid on all margarine put on the market, the amount of tax varying for different kinds of margarines. In 1933, an agreement with the margarine industry limited the sale of margarine in Netherlands and it was arranged that a given quantity of margarine without an admixture of butter (People's margarine) should be prepared for sale to the poor classes at a fixed price. In 1935, the use of at least 60 per cent oils and fats produced in Netherlands or Netherlands Indies was made obligatory and the use of animal oils forbidden.

In Germany, the measures provided for the use of home produced fat as also an admixture of home produced lard (abolished in 1934) and introduced an excise duty on margarine in order to weaken the competitive power of margarine. When the output of margarine declined, various kinds of margarine with fixed retail prices for the cheapest kinds were introduced.

Besides the measures detailed above, the steps taken in other countries include a levy on margarine in Sweden (the proceeds of which are employed for supporting the milk market), a consumption tax together with a charge for a permit to manufacture margarine in Belgium, and prohibition of colouring of margarine in Australia, etc.

With this picture of the development of and measures taken against margarine in different countries in the background, the question of measures contemplated in regard to Vanaspati in India may be examined. It is obvious from what has been said earlier that the measures taken in other countries were designed, besides protecting the butter market and the butter consumer, to restrict the use of imported raw material. This latter position does not arise in India, where with a plentiful supply of a number of different vegetable oils, Vanaspati is manufactured entirely from home produced oils. Again as is the case with butter, the supply of ghee in India has not kept pace with the expansion in demand consequent on an increase in population. To take an instance, the population in certain areas of India increased by over 10 per cent between 1921 and 1931 but the increase in the production of milk in those areas has been only about 7 per cent.* The supply of ghee, therefore, required to be supplemented and Vanaspati filled the gap. (It is estimated that at least one man out of 6 in India does not get any milk or milk products even in the important dairy areas. It would, therefore, seem undesirable to take any measures that would have the effect of reducing the supply of edible fats to the poorer people.) As the tastes and customs of the people in India do not favour a highly coloured product for their cooking, the compulsory colourisation of Vanaspati to a deep yellow proposed in some provinces is likely to affect seriously the demand of Vanaspati and consequently of groundnuts produced in India. On the other hand, uncontrolled production—which has generally not been permitted in the case of margarine in different countries—for Vanaspati and the expansion of supply in advance of the demand may adversely affect the ghee industry of India. (The fall in prices of ghee may contribute to a fall in the level of oil prices to the disadvantage of producers of oilseeds. The steps that appear to be necessary should be, therefore, such as will protect the ghee industry and the ghee consumer without affecting the Vanaspati industry seriously.)

Having in view the measures that have been taken from time to time against margarine in different countries, a solution of the problem of allowing the Vanaspati industry to develop without adversely affecting the production and consumption of ghee appears to be in a judicious combination of a number of measures in the

* Report on the Marketing of Milk in India.

direction of controlled production, compulsory addition of indicators, regulated trade and strict enforcement of food adulteration laws. The following measures are suggested for the consideration of the manufacturers, provincial governments, municipalities, public health authorities and the general public.

- (i) The production of Vanaspati for the Indian market may be controlled with a view to let the supply expand only with a corresponding increase in demand. This will prevent new factories springing up too fast resulting in over-production and unhealthy competition as occurred in the sugar industry. The expansion should, however, permit of an ample development of the export market and provide for raising the standard of living and improving the dietary of consumers in India. The existing Manufacturers' Association might well consider the preparation of a detailed scheme for the control of the industry on those lines and submit the same to government for the necessary statutory backing.
- (ii) The possibilities of levying an excise duty on Vanaspati, as was done in the case of margarine in other countries, may be examined, part of the funds collected being utilised for improving the quality of Indian vegetable oils and oilseeds as well as ghee in much the same way as part of the sugar excise fund was allocated for the improvement of sugarcane.
- (iii) All manufacturers, wholesalers and retailers of Vanaspati may be licensed, such persons not being allowed to trade in or stock ghee.
- (iv) Persons selling food products in the preparation of which they use Vanaspati may be required to display a sign to that effect. The presence of Vanaspati on the premises of confectioners, etc., not displaying the Vanaspati sign may be made an offence. This will eradicate the evil of *halwais* and others using the Vanaspati for their preparations and passing them off as made with ghee.
- (v) Mixing of ghee and Vanaspati may be made an offence punishable with fine and/or imprisonment.
- (vi) The addition of butyric acid or other synthetic essence to give the product a semblance of ghee may be prohibited but addition of vitamins may be encouraged. The addition of sesame oil may be made compulsory for a period of, say, 5 years with a view to facilitate detection of adulteration of ghee. These measures

might well be examined by the Advisory Food Standards Committee of the Central Board of Health.

- (vii) The Food Adulteration Acts should be more vigorously enforced. This necessarily involves more frequent inspection of dealers' shops, collection and analysis of samples and exemplary punishment, specially when the offence is repeated. The inadequacy of the present control may be gauged by an example. In Delhi, apart from hawkers, there are over 1,100 ghee shops, but in the course of a year only 800 samples were drawn, i.e., less than 1 sample per shop per year. 105 of these were found adulterated. There were 77 convictions and the average fine was Rs. 15 per conviction.

G.—Manufacture and distribution of groundnut products in Burma.

It has already been stated in Chapter II that during the quinquennium 1933-34 to 1937-38, 118,000 tons groundnuts (in shell) were, on an average, crushed annually in Burma, from which the yield of oil—reckoning on the same basis as in India—works to nearly 33,000 tons annually. The crushing is now done largely by expellers in mills working at collecting centres in main groundnut producing tracts and at Rangoon. Some of the large mills are equipped both with expellers and Anglo-American presses, in which case the kernels are first given a preliminary pressing in expellers and then the cake from the expellers is reduced to meal, heated and pressed in hydraulic presses. When expellers alone are used, single pressing is more common, the average capacity of an expeller being 5½ to 6 tons of groundnut kernels in 24 hours. The decortication of nuts is invariably done at the mills, except in the case of kernels imported from India. When Madras kernels are crushed about 5 per cent shell is often added and when Burma nuts are crushed about 5 per cent shell is left with the kernels at the time of crushing. Sometimes one bag of Burma nuts and one bag of Madras kernels are mixed.

The crushing by *chekkus*—known as *hsizons* in Burma—driven by bullocks is confined to villages remote from rail and river. The *hsizons* are made largely of wood and generally take a charge of 15 to 20 lb. kernels at one time, handling 4 to 6 charges in a day. Some *hsizons* are driven by power also and these handle about 10 charges in a day. The power driven *hsizons* are being fast replaced by expellers.

The oil is largely used, as in India, for culinary purposes and for the adulteration of sesamum oil, the local production being supplemented by imports from India. Oil imported from India is in 40/45 gallon drums but these are generally emptied for re-distribution in 4 gallon tins. Local oil is marketed mostly in second-hand tins.

The oil produced by *hsizons* is considered superior in flavour but as *hsizon* oil is produced only in remote villages and the quantities produced now form a very small proportion of the total oil production, this quality difference has ceased to be of any real difference to the trade. The quality of oil produced by different mills appears to be practically the same but the products of various mills which are often marketed under different trade brands, often fetch differential prices. The relative prices of different brands vary from time to time, as may be seen from the following table giving the average annual prices of three brands of groundnut oil at Rangoon during three years.

Average annual prices of groundnut oil of different brands at Rangoon.

(Per 100 viss.)

—	Brand A.	Brand B.	Brand C.
	Rs. A. P.	Rs. A. P.	Rs. A. P.
1935-36	64 1 5	64 14 2	63 15 4
1936-37	60 4 0	61 4 4	64 2 5
1937-38	53 15 3	55 11 10	56 0 9

It will be observed that in 1935-36 Brand B fetched the highest value and Brand C the lowest, while in 1936-37 and 1937-38 the highest prices were obtained for Brand C and lowest for Brand A.

The production of cake from 118,000 tons nuts, reckoned on the basis adopted for India, *i.e.*, 60 per cent of the weight of kernels or 42 per cent of the weight of nuts works out at nearly 50,000 tons, but as about 5 per cent shell is often left with or added to the kernels, the production of cake is estimated as 55,000 tons. The cake produced by mills is almost all exported to foreign countries, while the cake production of *hsizons* in remote villages is locally consumed for feeding to cattle. The exports of cake during the quinquennium 1933-34 to 1937-38 averaged 54,000 tons so that the cake retained for local consumption in Burma is only about 1,000 tons annually.

The course of prices of groundnut oil and groundnut cake in relation to prices of groundnuts may be seen in the diagram facing page 299, from which it will be observed that the prices of oil generally move parallel to those of nuts. On the other hand, the price of groundnut cake often takes a different course to that of oil and nuts. This is accounted for by the fact that the groundnut cake is almost all exported and is dependent on prices in the export market, while nuts and oil are consumed locally. The relation

between the prices of oil, cake and nuts may be seen from the following table :—

Relation between prices of groundnuts, groundnut oil and groundnut cake.

Year.	Ground-nuts in shell.	Groundnut oil.		Groundnut cake.	
	Average annual price.	Average annual price.	Percentage of groundnut prices.	Average annual price.	Percentage of groundnut prices.
	(Per 100 viss.)*	(Per 100 viss.)*		(Per 100 viss.)*	
1935-36	19 14 8	64 1 5	322	7 13 4	39
1936-37	19 9 8	60 4 0	307	9 13 4	50
1937-38	16 13 1	53 15 4	321	8 12 0	52
Average ..	18 12 6	59 6 11	317	8 12 11	47

* Viss = 3.5 lb.

It will be observed that taking an average of the 3 years the prices of oil averaged 317 per cent and prices of cake 47 per cent of groundnut prices as compared with 274 per cent and 42 per cent for oil and cake respectively in one market and 264 per cent and 50 per cent. oil and cake respectively in another market in India.

It, therefore, appears that the oil fetched a relatively higher price in Burma as compared with groundnuts or in other words, the share of the groundnut producer in the price paid by a consumer for groundnut oil is smaller in Burma.

[*Manufacture and distribution of
groundnut products.*]

INTER-CHAPTER TEN.

It is perhaps little known that India is now the biggest producer of groundnut oil in the world ; her share in the world trade, however, is negligible and accounts for only about 3 per cent of her production which during the quinquennium 1933-34 to 1937-38, is estimated to have averaged 336,000 tons. Of this about a third is made in villages by some 30,000 bullock-driven *chekkus*, while the remaining two-thirds are produced in power-driven factories. Madras leads in the production of oil by *chekkus*, which account for about three-fourths of her oil production. On the other hand, only about a tenth of the production in Bombay and Kathiawar States comes from *chekkus*. Hyderabad produces about a fifth of her oil by *chekkus* ; in other areas *chekkus* are little used. The cost of crushing by expellers is about Rs. 28 per ton of oil as compared with nearly Rs. 35 per ton by *chekkus*.

Groundnut oil is generally dearer than coconut oil and cotton seed oil in the United Kingdom but in India it is invariably cheaper than most other vegetable oils. This places India in a position of advantage for industries using groundnut oil as a raw material and also offers possibilities of expansion of the export trade if only the quality of the oil could be standardised. The oils made in India comprise both high quality oils having a light colour and low percentage of free fatty acids as well as dark coloured oils of poor quality with high percentage of free fatty acids. The absence of statutory grades stands in the way of superior quality oils obtaining a premium commensurate with quality. A beginning in this direction has already been made to improve the trade on the internal market by laying down grade specifications for high quality edible oils under the

Agricultural Produce (Grading and Marking) Act, 1937.

The *chekku* oil is commonly believed to be superior and commands a premium over expeller oil so much so that certain centres, which have acquired a name for *chekku* oil, import expeller oil from other centres and after mixing this with *chekku* oil market the same as pure *chekku* oil. This obviously is against the interests of the village producer and the proper marking of *chekku* oil would help to retain the premium for this village product. (It is often argued that *chekkus* being comparatively inefficient should be replaced by modern machinery but the utility of *chekkus* has to be examined by aspects other than efficiency alone. *Chekkus* besides providing employment for the cultivator place oil and cake at the door of the cultivator dispensing with a considerable amount of unnecessary transport of seed from villages to crushing centres and oil and cake back to villages. Efforts should, therefore, be directed by local Industries Departments to improving the efficiency of this useful unit in the village organisation.)

Apart from some oils used for burning in lamps in producing areas and small quantities used for industrial purposes, the bulk of groundnut oil in India is used for edible purposes—as such for culinary purposes, for the manufacture of Vanaspati and for the adulteration of other higher priced edible oils and ghee. The last mentioned outlet may appear advantageous to the groundnut oil trade but taking a long view of things is against the interests of the groundnut producer and it is desirable that serious efforts be made to stop adulteration of oils and at the same time find new uses for groundnut oil. It is encouraging to learn that as a result of researches initiated after outbreak of hostilities in Europe in 1939, it has been found that groundnut oil can be used in diesel oil engines. But it is unfortunate that the

manufacturers of oils themselves take part in the adulteration of vegetable oils by crushing groundnuts mixed with several other oilseeds and marketing the oil under the name of the higher priced oils. Statutory returns requiring the manufacturers to submit returns of quantities of different oilseeds crushed and oils sold would probably in itself provide some check on this practice.

Vanaspati, in the production of which groundnut oil is largely used, is often styled as being responsible for the deplorable widespread adulteration of ghee and measures such as compulsory colourisation have been suggested which in effect would shut off this important outlet for groundnut oil. An examination of the position of the margarine industry in other countries leads to the conclusion that an uncontrolled production of Vanaspati and utterly inadequate administration of food adulteration laws have been responsible for a considerable portion of Vanaspati being used for adulteration purposes. Steps should, therefore, be directed towards diverting Vanaspati to its proper place in the dietary of the country rather than directly or indirectly stopping its manufacture. Some sort of control on the prices of Vanaspati in relation to prices of vegetable oil appears to be indicated so as to enable the producer to get some share in the benefits resulting from an increased consumption of vegetable oils in the country.

The consumption of cake in India also offers a wide field for expansion. Out of an average annual production of about 504,000 tons, more than two-fifths are exported abroad. The value of groundnut cake as cattle feed is not only not sufficiently realised but certain prejudices against it seem to exist in certain areas. Attention may, therefore, profitably be paid by agricultural departments to carrying out propaganda to bring the usefulness of groundnut cake to the notice of the consumers and dispel erroneous notions against its use.

Besides its use as cattle food, groundnut cake is used as a manure and in this direction the rates of railway freight sometimes handicap its more extensive use.

Burma.—Groundnut oil is largely used in Burma for culinary purposes besides being frequently used for adulteration of sesamum oil. As in India, measures against adulteration are inadequate and the grading and marking of high class edible groundnut oils should help in improving the market for groundnut oil by obtaining better prices. The fact that the mills decorticate groundnuts just before crushing should enable Burma mills to produce high quality oils more easily than the mills in India. To a certain extent this is, however, made difficult by producers not drying the produce properly before selling it. The cake is all exported and the absence of a local demand for cake discourages crushing in producing areas.

CHAPTER XI—SEED.

A.—Quantities required for sowing.

The area under groundnuts varies, to some extent, from year to year, depending on a number of factors, e.g., the price of groundnuts, the relative prices of other agricultural commodities, the amount of rainfall, etc. The seed sown per acre also varies according to the type of nuts grown and in different areas, depending on the nature of soil and rainfall.

The minimum and maximum seed rates reported from different provinces and States range from 30 lb. to 90 lb. kernels per acre, but the average rate in different areas varies from 55 lb. to 80 lb. kernels per acre. The average seed rates and the quantities required for sowing in different provinces and States, taking an average of five crops, 1933-34 to 1937-38, are summarised in the table below :—

Seed required for sowing in different provinces and States of India and in Burma.

(Average 1933-34 to 1937-38.)

	Area, (Average 1933-34 to 1937- 38). (Thousand acres).	Seed rate. (lb. per acre— kernels).	Seed re- quired for sowing kernels— (tons).	Seed re- quired for sow- ing—equi- valent nuts in shell. (Thousand tons).	Produc- tion— nuts in shell. (Thousand tons).	Percent- age of produc- tion re- quired for sowing.
<i>Areas included in groundnut crop forecasts.</i>						
Madras	3,361	80	120,036	172	1,523	11.3
Bombay	1,075	70	33,594	48	474	10.1
Central Provinces and Berar	170	60	4,554	6	46	13.1
Hyderabad	1,181	60	31,634	45	394	11.5
Bombay States	729	70	22,781	33	232	14.1
Mysore	200	55	4,911	7	41	17.1
Orissa	7	60	188	..	..	..
<i>Areas not included in groundnut crop forecasts.</i>						
United Provinces	277	60	7,420	11	112	9.8
Punjab						
Bengal						
Baroda						
Gwalior						
Central India States						
Madras States						
Rajputana States						
Punjab States						
Total	7,000	72	225,118	322	2,822	11.4
Burma	717	65	20,806	30	155	19.4

It will be observed that during the period 1933-34 to 1937-38, 225,000 tons kernels were, on an average, annually used for sowing the crop. This is equivalent to nearly 322,000 tons nuts in shell and the average production during the period being 2,822,000 tons, nearly 12 per cent of the production was utilised for sowing. Similarly in Burma, 30,000 tons nuts in shell amounting to over 19 per cent. of the production were used for seed.

B.—Sources of supply.

Producers generally retain sufficient groundnuts for their seed requirements and store them carefully as referred to in Chapter VIII. In Madras, most of the seed sown is from cultivator's own stocks, in Bombay about 60 per cent of the seed comes from this source, in the Central Provinces somewhat more than a third of the seed sown is the cultivator's own seed while in Hyderabad only about 25 per cent of the producers keep seed for sowing. Again in Nawanagar (Kathiawar) and Pudukottai States most of the producers keep their own seed. It may thus be reckoned that more than 80 per cent of the seed required for sowing in India comes from cultivator's own stocks.

When a producer has no seed or not enough seed, he has recourse to buying or borrowing. The buying is done in the nearest market or from another cultivator or the village merchant and the borrowing from the village merchant, *sahukar* or commission agent, who generally lends seed on the usual *sawai* or *deorhi* systems. In the *sawai* system, one and quarter times and in the *deorhi* system, one and half times the quantity borrowed, has to be returned at the time of harvest. In some districts, *e.g.*, the south eastern districts of Hyderabad, double the quantity borrowed has to be returned. The produce has sometimes to be hypothecated as security. When a loan is taken for buying seed, the usual rate of interest varies from 12 to 18 per cent. Besides the merchants and commission agents, some oil mills, *e.g.*, a few mills in the Central Provinces are reported to sell seed for sowing to cultivators.

The Departments of Agriculture in the various provinces and States form another—in some cases an important—source of seed supply. The quantities distributed are usually small but in some cases form an appreciable proportion of the total seed requirements, *e.g.*, in the Central Provinces about a quarter of the seed sown in the province comes from the Department of Agriculture. Small quantities of seed are also supplied free of cost by the agricultural departments to popularise improved varieties, and sales are at times arranged through merchants also.

There are no private bodies specialising in seed production nor any seed growers' associations.

C.—Supply of improved quality seed and control over seed supply.

The agricultural departments of various provinces and States propagate seed of improved varieties found suitable after experimenting, or occasionally imported seed, on their departmental farms and plots under the supervision of the department, and distribute

them to the producers. The quantities of improved seed distributed in different provinces and States during the last five years will be seen in the table below :—

Quantity of improved seed distributed by the Departments of Agriculture in several provinces and States.

(Tons.)

Provinces and States.	1934-35.	1935-36.	1936-37.	1937-38.	1938-39.
Madras	1	5	10	32	27
Bombay	76	52	96	29	34
Central Provinces ..	1,084	1,087	1,620	1,920	1,837
Hyderabad	665	960	624	1,535	..
Mysore	4	3	9	5	11
United Provinces.. ..	7	9	11	26	40
Punjab	4	7	2	14	10

Taking an average for the period 1934-35 to 1937-38, the total quantity of improved seed distributed by the seven provinces and States, mentioned in the table above, amounted to 1,979 tons annually or less than 1 per cent of seed requirements which are obviously far from adequate.

There is no control over the supply of seed and the cultivator is free to sow any seed he likes, and in practice sows any seed that he has with him or manages to buy or borrow. This is a great handicap in the production of pure varieties and affects not only the quality of the produce but also the yield per acre. Experiments have definitely indicated that certain varieties thrive well under certain soil and climate conditions and in certain areas and that different varieties are suitable for different requirements, *e.g.*, Bold for edible use, Coromandel for export and Khandesh for crushing. It is, therefore, desirable that the sowing of seed should be linked up both with the suitability of local conditions and the nature of the demand. Different varieties should be concentrated in suitable areas to the exclusion of other varieties. This will make decortication easy, improve the quality of the kernels, allow the oil milling industry to develop more in areas producing kernels with a high percentage of oil and in general prevent deterioration in quality of nuts. For example, it is reported that the nuts grown in Kolhapur State, which grows mostly Bold variety of nuts, are to-day smaller than what they used to be a few years back, the deterioration in quality being ascribed to admixture of other varieties and want of care in selection of seed. The desirability of growing different varieties to suit local conditions as well as the nature of the demand, and the supreme importance of improving and maintaining the quality of Indian groundnuts, clearly indicate the necessity of centralised control of the production and distribution of seed by agricultural departments.

D.—Research.

The rapid increase in the groundnut area in India and the improvement in the quality of Indian groundnuts has, to a large extent, been possible due to the introduction of imported seed and the attention the crop has received from the Departments of Agriculture, especially in Madras, Bombay, the Central Provinces and Hyderabad. The various departmental farms and stations have carried out not only manurial, spacing, rotation and varietal tests but also a considerable amount of selection and breeding work with a view to evolve early maturing, high yielding and disease resisting varieties which produce nuts having a low proportion of shell and kernels with a high oil content. As a result of these experiments the varieties now grown in some areas are more disease-resisting and give higher yields per acre. For example, the local varieties grown in Bombay in the last century were very prone to *ticca* (a fungoid disease, *Septogium arachidis*) disease and conditions improved with the introduction of improved varieties.

The present position in different areas may be summarised thus :—

Madras.—An intensive study of groundnuts was started in 1931. After trial of a number of varieties of trailing type, a selection A.H. 25 (Saloum) was released for distribution in 1934. This selection is drought resistant, gives 15 to 25 per cent higher yield than local Coromandel, and the kernels have a fine rose coloured testa. The seed distributed by the Department of Agriculture in recent years has mostly been of this variety. Bunch varieties have also received attention but no selections have so far been released for distribution.

The course of oil formation in kernels was studied and it was found that immature kernels contain higher free fatty acids, which diminish with the gradual development of kernels and simultaneous gain in oil content and increase in the percentage of kernels.

A five year scheme of research on groundnuts in Madras, sanctioned by the Imperial Council of Agricultural Research, aimed at producing as quickly as possible groundnuts with high yield, high oil content, low fatty acid content, resistance to disease and adaptability to the different conditions of soil and climate, was inaugurated in January, 1937. The programme under this scheme includes varietal trials with four bunch varieties, *viz.*, Gudiyattam Bunch, Tennessee white, Improved Spanish 2-B and Akola 24, comparative trials of selections, inter-varietal hybridisation and study of the effect of climate and soil variations on the quality of the crop. The scheme is still running but the following general conclusions regarding the effects of soil and climate on quality appear to be borne out by the results so far obtained :—

- (i) Gudiyattam Bunch is superior to other varieties in regard to percentage of kernels.
- (ii) A selection A.H. 334 shows an increase in yield compared with A.H. 25.
- (iii) Pure line seeds give higher yields in places where the soil is rather heavy and capable of retaining moisture for

a larger period or where the rainfall is uniform and well-distributed.

- (iv) Percentage of kernels and nuts in shell is affected by the distribution of rainfall.
- (v) Oil percentage is generally high when the crop suffers from want of water. Where high yields are recorded, the percentages of oil are comparatively lower.
- (vi) Percentage of free fatty acids is not a factor inherent to different varieties but is subject to fluctuations according to seasonal conditions.

Bombay.—Some improved selections of Spanish variety have been tried in farms and Spanish 5-1 has been found to give a higher yield. Seed of Pondicherry No. 8 produced on farms has been distributed in some districts. The improvement noticed in Khandesh variety of 1937-38 and 1938-39 crops in respect of oil content and free fatty acids, has been referred to in an earlier chapter. The factors which brought about this improvement and how the same can be maintained and pressed further are matters which appear to call for investigation.

Central Provinces.—As a result of hybridisation and selection work carried out at Nagpur and Akola Experimental Stations, a strain AK 12-24 of Peanut variety was found suitable for the province and the seed was distributed in 1934. This is now well established in the province and the area under it is spreading.

Hyderabad.—Experiments carried at the experimental stations have shown that Spanish Peanut is very suitable for conditions in some parts of the State. Kanki No. 17 has also proved satisfactory. The area under these improved varieties increased from less than one thousand acres in 1931-32 to over 36,000 acres in 1935-36.

United Provinces.—A number of varieties are being tried at different experimental farms and no definite results have yet been arrived at. Akola No. 10, evolved in the Central Provinces, has generally given good results at many of the experimental farms and appears suitable.

Punjab.—The work on groundnut crop started only in 1930 and some improved selections have been obtained but further selection and hybridisation work still remains to be done before a variety or varieties suitable for the province could be recommended.

E.—Further possibilities.

Although considerable work appears to have been done in different provinces and States with a view to find varieties and selections, suitable for local conditions, very little attempt has been made to take a wider outlook of the results. By co-ordinating existing knowledge it would seem feasible to fix definite zones in different parts of India for the various varieties now grown. In doing this not only the soil and climatic conditions should be kept in view but also the requirement of oil for the population, and export trade, both for milling and edible purposes. An attempt in this direction may mean more research and study of soil conditions and of the different

varieties but the advantage to be gained and the savings to the trade by avoiding admixture of different varieties, amply indicate the need for such efforts. As an instance, the case of Kathiawar may be quoted. This tract produces nuts which are bolder, whiter and cleaner looking than nuts of the same type grown in other parts of India. Such nuts are in growing demand in export markets for edible purposes and can command a suitable premium. The growing of nuts of varieties other than those specially suitable for the edible trade in this tract may not, therefore, offer sufficient justification.

F.—Supply of seed in Burma.

It has been mentioned earlier that the average seed rate in Burma is reckoned as 65 lb. and on an average 20,806 tons of kernels or approximately 30,000 tons nuts in shell were used annually for sowing the crop. The main source of supply of seed is from cultivators' own stocks and it is estimated that about 80 per cent of the producers reserve enough produce to suffice for sowing the next crop. The rest obtain the whole or a portion of their requirements either by borrowing money at $1\frac{1}{2}$ to 2 per cent. per month or taking loans of seed, in which case the quantity borrowed is returned after harvest with 50 to 100 per cent extra as interest. The Agricultural Department has for the last few years been carrying out experiments with improved varieties and selected strains but an improved type of proved worth to replace the local variety has not yet been evolved.

INTER-CHAPTER ELEVEN.

The cultivator sows whatever seed he has or can buy or borrow. This prevents the production of pure varieties and affects not only the quality of the produce but also the yield per acre. As different varieties are suitable under different soil and climatic conditions, the cultivator is deprived of the maximum return for want of properly selected seed. The agricultural departments are responsible for the distribution of pure seed but it is to be regretted that out of 322,000 tons seed required for sowing on an average during the period 1933-34 to 1937-38, less than 2,000 tons consisted of improved varieties distributed by the departments of agriculture.

Of the different varieties, Bold appears particularly suitable for edible use, Coromandel for export and Khandesh for crushing ; if these varieties could be concentrated in different areas, keeping in view the oil requirements of the population and the soil and climatic conditions, cultivators would obtain better returns, decortication would become easier and oil mills would be able to crush kernels with the maximum amount of oil. An attempt in this direction may involve more research and study of soil conditions, but the advantage to be gained and saving to be affected by avoiding admixture of different varieties amply indicate the need for such work.

The seed rate varies from 30 lb. to 80 lb. per acre in different areas, the average for India being 72 lb. Of the total seed requirements, four-fifths are drawn from cultivator's stocks.

Burma.—The Agricultural Department has been carrying on experiments, but an improved type of proved worth to replace the local variety has not yet been evolved. The average seed rate is 65 lb.

CHAPTER XII.—WEIGHTS AND MEASURES.

A.—Weights and measures used in different parts of India.

The multifarious weights and measures met with in India, have been referred to in the earlier reports of the series on wheat, linseed, tobacco, etc. In the groundnuts' trade, there is greater diversity in the weights and measures used in the trade in nuts in shell as compared with those used for kernels, oil or cake.

(1) NUTS IN SHELL.

These are sold by weight in some places and by measure in others. In Madras, the system of measuring is in vogue in southern districts, becoming less common in northern districts. For instance, the sales are usually by weight in the Ceded districts and by measure in Chittoor, North Arcot, South Arcot and Chingleput. The common unit of weighment, the maund, varies in different districts so that a maund of groundnuts in Madras Presidency may be anything from 24 to 28 lb. For example, it is 24 lb. at Guntur, 26 lb. at Guntakal, and 28 lb. at Masulipatam. The Madras measure, called *patnam* or *pucca padi* which is made to hold 62.5 fluid ounces of water, contains about 1 1/3 lb. nuts in shell. It may be noted that the weight of the nuts contained in the measure varies with the variety of nuts. The weight of a Madras measure of Coromandel nuts is about 1 lb. 6 oz., of Peanuts 1 lb. 5 1/2 oz. and of Pollachi Red nuts 1 lb. 5 oz. The measure is usually 4.5 inches in diameter and 6.75 inches in height but measures of different dimensions for the same capacity are also used. The measures used for buying in villages are sometimes bigger and hold more than the correct quantity.

In Bombay, the Central Provinces and Hyderabad, the nuts are usually sold by weight, the railway maund being generally used, but in Mysore, both weights and measures are in vogue in different areas. The maund used for groundnuts is of 45 seers of 24 tolas each, i.e., somewhat less than 28 lb., although the standard maund in the State is 40 seers of 24 tolas, i.e., nearly 25 lb. The standard measure contains 44.5 fluid ounces of water and contains about 1 lb. groundnuts.

In the United Provinces and the Punjab, weights are invariably used although the number of seers in the maund used for weighing vary, e.g., at Madhoganj, an important market for groundnuts in the United Provinces, the maund for groundnuts is of 50 seers. On the other hand, in the States in Southern India e.g., Pudukottai, Cochin and Travancore, groundnuts are sold by measure, the common measures in these three States being the Madras measure in Pudukottai, Vellam (equal to 2 Madras measures) in Cochin and Edangali (to hold 80 cubic inches of water) in Travancore. The practice in Western India States, however, is to weigh the nuts. In Nawanagar State, the maund is of 40 seers of 40 tolas each, i.e., about half the railway maund.

(2) KERNELS.

Kernels are usually sold by weight, the cwt. and pound or the maund and its submultiples being the weights commonly used. As

has been mentioned in the case of nuts in shell, a maund is not always the same and varies not only in different provinces and States, but also within the same province and State and sometimes within the same *taluk* or district. For example, in Mysore, the maund is of 28 lb. in Bangalore and 24 lb. in Davangere. Measures for kernels are used only in some places in South India, *e.g.*, Pudukottai State. When measures are used, the weight of the kernels contained in a measure varies with the variety of kernels, *e.g.*, a Madras measure holds about 2 lb. 11 oz. Coromandel kernels, about 2 lb. 15 oz. Peanut kernels and over 3 lb. Pollachi Red kernels.

(3) GROUNDNUT OIL AND CAKE.

These are also usually sold by weight—generally by the cwt. or the railway maund. The number of seers in a maund of oil varies, *e.g.*, in the Central Provinces a maund of oil varies from 15 to 40 seers in different markets. Measures are used in some districts of Madras. The most commonly used measure is the Madras measure, with its submultiple *ollock*. 8 *ollocks* are equivalent to a measure and groundnut oil contained in a Madras measure weighs about 138 tolas. Another commonly used measure is a *kudum*, which may vary from 2 to 10 Madras measures. The gallon measure is little used in the groundnut oil trade.

An idea of the diversity of measures—their sizes and shapes—used for groundnuts and groundnut oil will be conveyed by the plate facing page 324, which shows a number of measures found in use for these commodities in different markets.

B.—Units of sale.

(1) NUTS IN SHELL.

In the Madras Presidency, nuts in shell are often quoted in terms of *putti*. A *putti*, however, may be anything from 80 Madras measures to 320 Madras measures. For instance, the *putti* at Chittoor is 80 Madras measures, at Gudiyattam 160 Madras measures and at Madanapalli 320 Madras measures. Other units of sale in vogue in different districts are *kalam*, which may be 36 to 44 Madras measures and *markal* equivalent to 4 Madras measures. For sales by weight, the prices are usually quoted per maund, per cwt. or per candy. In Bombay, the United Provinces and the Punjab, the unit of quotation is usually a maund. In the Central Provinces, the prices besides being quoted per maund are also quoted per *palla*, or per *khandi*. The *palla* at many places in the Central Provinces is 3 maunds 6 seers while a *khandi* may be $5\frac{1}{2}$ or 6 maunds. In Hyderabad, there are a number of units of sale, *e.g.*, *boja* of 96 seers at Gulbarga and Raichur, *khandi* of 260 seers at Udgir, candy of 512 lb. at Warangal and *palla* of 120 seers at Bidar. In Mysore, the unit of sale is 210 seers by measure and a *satta* of 8 Mysore maunds by weight, while in Nawanagar, a candy is equivalent to 20 maunds, *i.e.*, 800 lb.

It is interesting to note that the word candy or kandy or *khandi* stands for materially different weights, while an English candy is 531 lb., French candy is 480 French lb. equivalent to 529.109 lb. *Khandi* in the Central Provinces is $5\frac{1}{2}$ to 6 maunds, in Kathiawar

800 lb., and in Bombay 500 lb. The candy in the same place varies for different commodities. For instance, a candy of copra in Travancore is 654 lb. while a candy of groundnuts is 531 lb.

The unit for transacting delivery is generally a bag containing about 1 maund nuts in shell. In Kathiawar, the unit of delivery in the trade in handpicked selected groundnuts in shell is a bag containing 72 lb. nuts in shell for Bold quality and 82 lb. for Small quality.

(2) KERNELS.

The prices of kernels are generally quoted per cwt., per maund, per candy or per bag. In Madras, a candy of 531 lb. is the most commonly used unit though in Guntur the unit is a bag of 177 lb. In Bombay Presidency, cwt. is widely used for quoting prices, although it is customary in some places to quote price per bag which may be of 164 lb., 177 lb. or 200 lb. The position in Hyderabad is similar to that in Bombay. In Mysore, the unit is 100 seers at Bangalore and cwt. at Davangere.

(3) GROUNDNUT OIL AND CAKE.

The prices of groundnut oil are invariably quoted per cwt. or per maund and that of cake per maund, per cwt. or per ton. Oil is sometimes quoted in the Central Provinces per *tanki* of $4\frac{1}{2}$ maunds.

C.—Scales employed.

The scales used in the groundnuts trade for weighing nuts in shell and kernels are of three types, *viz.*, hand scales, beam scales and platform scales.

Hand scales made in various sizes, with pans of leather, iron or brass, are in use in villages and markets, where the nuts are handled in bulk. The usual quantity weighed at a time with hand scales in markets is 5 seers for most of the grains and oilseeds but groundnuts being of a bulky nature, $2\frac{1}{2}$ seers are generally weighed at a time.

Beam scales are used for weighing groundnuts or kernels in bags. The pans made of iron or wood are suspended from the beam by means of stout chains or ropes. Scales of this type are generally used at the decorticating establishments, oil mills and markets. An ordinary beam scale together with two other forms of scales used for weighing groundnuts may be seen in the plates facing pages 325 and 326. The wide use of these scales is largely due to their cost and simplicity of mechanism as compared with platform scales, which are almost exclusively used by the exporters, railways and steamship companies and some large mills. Weighbridges are used for weighing wagons loaded with nuts, kernels or cake and tank wagons of oil, only at some of the larger railway stations.

D.—Standardisation of weights and measures.

The question of standardisation of weights and measures has been engaging the attention of the Government of India for three quarters of a century—the first committee on the subject having been appointed in 1864—and it is noteworthy that a step towards standardisation of, at least, weights was taken in 1939. The Government of

India Act, 1935, authorises the Central Government to establish a standard of weight and permits the provincial governments to have their own legislation in respect of weights and measures.

The standards of weight have been laid down by the Central Government by the Standards of Weight Act, 1939 (Act No. IX of 1939), which lays down the standard grain as the unit of weight and that all other standard weights shall be ascertained from this unit. The standard weights defined in the Act are:—

- the standard tola, being the weight of 180 standard grains ;
- the standard seer, being the weight of 80 standard tolas or 14,400 standard grains ;
- the standard maund, being the weight of 40 standard seers ;
- the standard pound, being the weight of 7,000 standard grains ;
- the standard ounce, being one sixteenth part of the weight of a standard pound ;
- the standard hundredweight, being the weight of 112 standard pounds ;
- the standard ton, being the weight of 2,240 standard pounds.

The Act also lays down that the Central Government shall supply sets of standard weights to the different provincial governments.

The Act extends to the whole of British India and is to come in force on such date as the Central Government may, by notification in the official Gazette, appoint. This notification about the date has not yet been made. In order to bring the Act in operation, provinces and States should undertake corresponding legislation adopting the all-India standards of weight and frame rules for the administration of the Act.

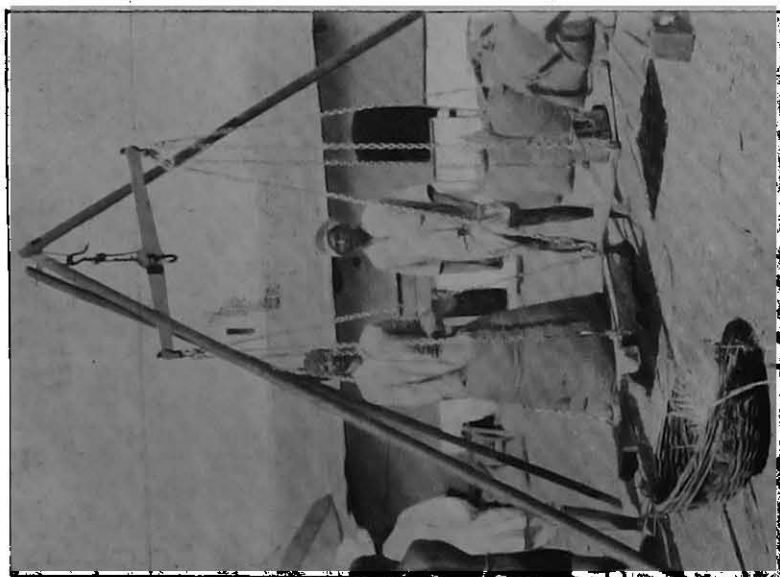
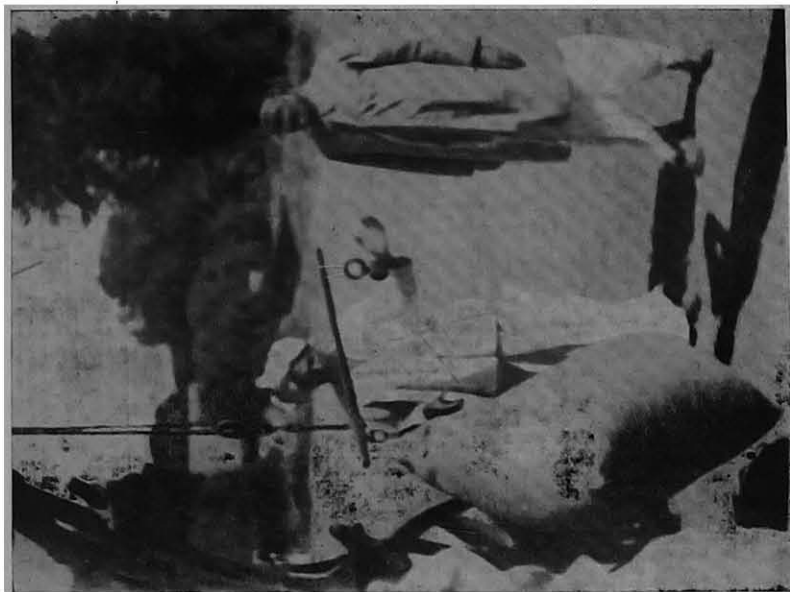
It may be recalled that the Bombay Government passed a Weights and Measures Act in 1932 and made rules in 1934 for carrying into effect the provisions of the said Act. The Act which was, in the first instance, made applicable to Bombay and 10 districts and later extended to the whole of the Presidency in 1936, defined the tola of 180 grains, seer of 80 tolas and maund of 40 seers together with their specified multiples and submultiples, as also the pound and its multiples and submultiples, as standard weights.

In addition to the standard weights, the Act also laid down following dry and liquid measures.

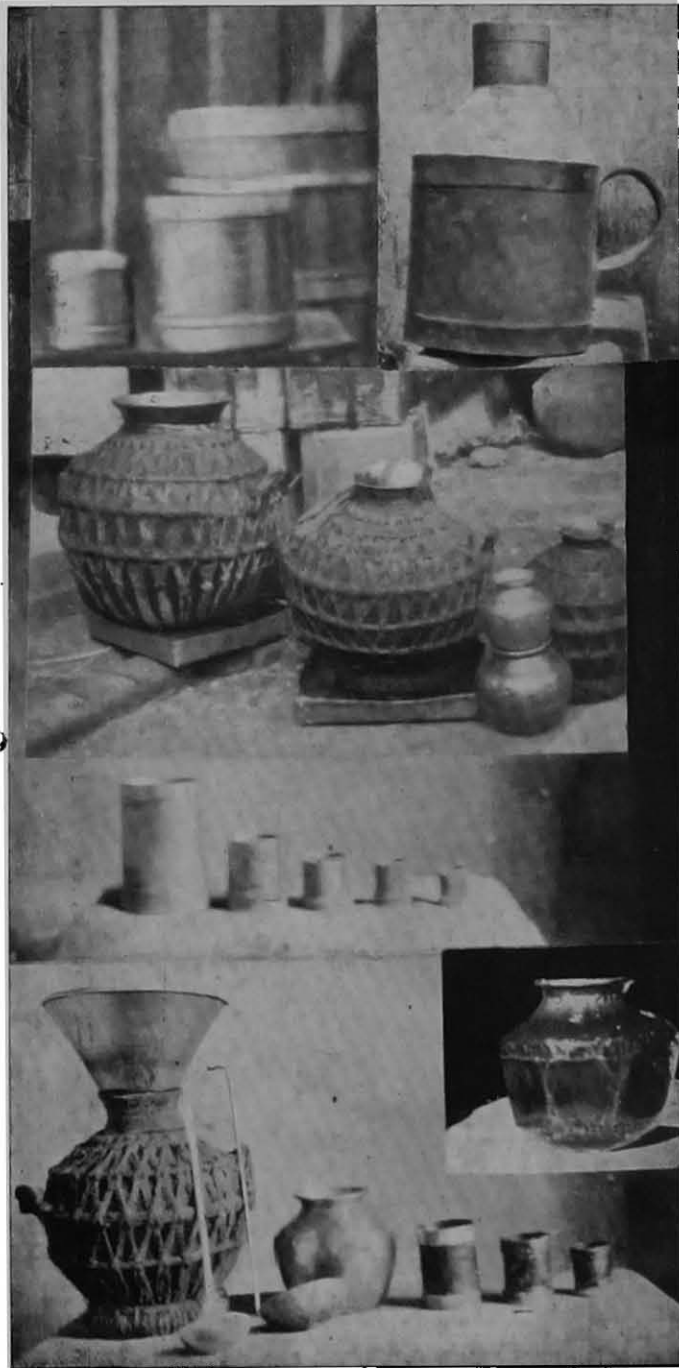
Dry measures.	Liquid measures.
The Bombay seer .. ..	.. The Bombay seer.
The sub-multiples $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{8}$ seer	.. The sub-multiples $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$ and $\frac{1}{16}$ seer, the
The Bombay <i>chattak</i> = $\frac{1}{16}$ seer	.. The multiples 2, 4 and 8 seers.
The <i>adpao</i> = $\frac{1}{8}$ seer .. ..	.. The Imperial gallon.
The <i>adholi</i> =2 seers .. ..	.. The pint= $\frac{1}{8}$ gallon.
The Bombay <i>payali</i> of 4 seers.	
The Bombay maund of 16 <i>payalis</i> .	
The Bombay <i>map</i> of 2 maunds.	

Since the Act came into operation, the weights and measures systematically inspected and verified and no weights or measu

Facing page 325.]



SCALES USED FOR WEIGHING GROUNDNUTS IN SHELL AND KERNELS.



MEASURES USED FOR GROUNDNUTS AND GROUNDNUT OIL.

other than standard weights and measures, duly verified by proper authority, are permitted to be used in the presidency. The successful working of the Act should leave no doubt on the practicability of such legislation in different provinces and States. Some other provinces and States, *e.g.*, Coorg, Mysore and Travancore have regulations governing weights but the standards fixed in all cases are not the same, *e.g.*, in Mysore the standard maund defined by regulations is of 24 lb. In order that there may be uniformity in respect of weights all over the country, it is desirable that legislation passed by different provinces and States should be essentially similar.

The question of measures in the Government of India Act was, in view of local variations, left to provincial governments and their standardisation is beset with greater difficulties, more so in the case of dry measures. The weight of produce contained in a measure of a particular volume must necessarily vary not only for different grains and oilseeds but also for the different varieties of the same grain or oilseed. It also varies depending on whether the measure is used heaped or struck. The variations due to these causes are much more pronounced in the case of groundnuts, where different varieties of nuts differ appreciably in size and shape and there is considerable variation in the amount of moisture in the nuts at different times of the year. The amount of Peanut and Coromandel varieties—both often grown in the same district—contained in the same measure differ by nearly 3 per cent in weight. Nuts in the beginning of the season, when they contain more moisture, are heavier than those in later months. Again, the quantities of nuts in shell and kernels contained in the same measure are altogether different. For instance, a Madras measure contains about $1\frac{1}{4}$ lb. nuts in shell and 3 lb. kernels.

The same measure can be made in different dimensions without changing the volume but a small change in the diameter materially affects the quantity of produce contained in a measure specially when used heaped. The extent of this will be clearly visualised by seeing the plate facing page 327. The photograph shows a *vellum* measure filled with nuts in shell together with another *vellum* measure made with slightly bigger diameter (and necessarily smaller height). When the latter measure was filled with nuts in shell an additional quantity of nuts over those contained in the measure on the left had to be put in to fill the measure having a bigger diameter. This additional quantity is seen in the photograph between the two measures.

Despite these inherent defects, measures are in vogue for buying and selling groundnuts, specially in Madras and standardisation of measures may be found necessary by some provincial governments, even if only to minimise the evil. If, however, the various provincial governments sanction different dry and liquid measures, the object of fixing standard measures would be lost to a great extent and the prices quoted on the basis of these measures would not be comparable. It is, therefore, desirable that the measures sanctioned by different provincial governments should have at least a common basis. The Imperial gallon was considered the most generally accept-

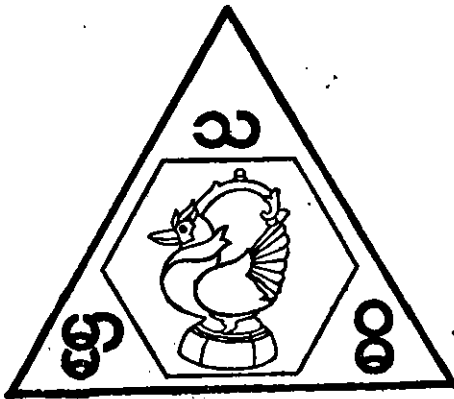
able liquid measure in the Report on the Marketing of Linseed, and the kerosene oil tin, which is seen in every part of India, appears to offer possibilities of a universal dry measure in India for use for grains and oilseeds. Its capacity is nearly 4 Imperial gallons and experiments made to determine the weight of different produce contained in it, show that a common kerosene oil container, subject to variations on account of different varieties and in different seasons, holds nearly 5 seers of dry groundnuts in shell and 6 measures may be put in an ordinary B. Twill bag. The contents of a tin are thus nearly equal to a commonly used weight in the grain and oilseeds trade, *viz.*, *panseri* or *dhari*. The prices quoted in terms of this measure would be reasonably comparable in different parts of India.

E.—Weights and measures used in Burma.

Both weights and measures are in vogue in groundnuts trade in Burma, measuring with a basket being the usual method for purchases of nuts in shell in villages. The Government standard basket is one of 9 gallons capacity holding nearly 25 lb. of groundnuts in shell, but the baskets used in groundnuts transactions in villages vary widely in capacity, and may contain anything from 19 lb. to 42 lb. of groundnuts. The standard basket is divided into 16 *pyes*, each of which is equivalent to 8 *nozibu* (condensed milk tins of the 14 oz. size, "Milkmaid" brand), which is the usual trading unit in retail sales. The nuts are, however, disposed of by weight in all the assembling centres except Magwe. The mills also make their purchases by weights. The weights are recorded in pounds or the local unit *peikhta* usually known as *viss* (140 tolas). At most of the important markets platform weighing machines are used and the beam scales are seen only at Pakoku and the smaller markets. It may be mentioned that the cultivators are, as a rule, suspicious of platform weighing machines. Some municipalities have regulations regarding weights, *e.g.*, in Pakoku, only weights tested and stamped by the municipal authorities can be used for weighing.

F.—Standardisation of weights and measures in Burma under "Thamadi" mark.

The mark reproduced on the margin, which incorporates in



Burmese character the word "Thamadi" meaning "trust" or "fair dealing", and which is intended to be adopted as the Burmese counterpart of the AGMARK in India, has been recognised by Burma Government as the authorised mark of Markets Section of the Department of Agriculture, Burma. The Section is using this mark in their move for a standard weight and a standard measure in Burma by making standard

[Facing page 326.



SCALE USED FOR WEIGHING GROUNDNUTS IN SHELL.

Facing page 327.]



TWO VELLUM MEASURES USED FOR GROUNDNUTS IN SHELL. (NOTE THE EXTRA QUANTITY OF NUTS WHICH HAD TO BE PUT IN WHEN THE MEASURE WITH THE BIGGER DIAMETER WAS USED.)

9 gallon baskets and sets of weights, tested and stamped with the "Thamadi" mark, available to the public. The work of standardisation of baskets was taken in hand in 1939 and by January 1940 over 7,000 standard baskets with "Thamadi" mark were in use in the markets of Burma.

The plan adopted to achieve the object consists of encouraging sellers in villages and buyers in markets to form themselves into societies for furthering the recognition of standard weights and measures, membership being open to any buyer or seller who associates himself with the object and promises to refrain from use of non-standard weights and measures in his dealings.

When a number of societies representing buyers' and sellers' interest have been established in a selected area, a "True Weights and Measures Committee" is set up from representatives of these societies. These committees maintain a standard set of weights and measures, against which they check all weights and measures submitted to them, and stamp those which pass the test. They also maintain a register of buyers who submit their weights and measures for check and agree to use standard weights and measures. Registration certificates are issued to such buyers and their names published for the information of sellers. True weights and measures committees then apply to Markets Section for recognition and when approved a committee is authorised to use the "Thamadi" mark. This license is issued for a year and is liable to cancellation for any breach of conditions.

The officers of the Markets Section have been helping the committees in checking and stamping the weights and measures and basket testing stations have been opened at more than 20 centres. At each station a standard basket is maintained against which all the baskets brought in are checked, adjusted by removing or adding cane splices, re-checked, sealed with "Thamadi" mark to prevent tempering, and returned to their owners. Over 8,000 baskets were submitted for test at these stations of which over 6,000 were after adjustment sealed with "Thamadi" mark. In addition to this, over 1,000 "Thamadi" mark baskets were distributed.

Weights and measures.]

INTER-CHAPTER TWELVE.

The standardisation of weights, and measures has long been recognised as an urgent measure of reform but much progress has not so far been made in this direction. The Standard of Weights Act, 1939, defined a number of standard weights—the tola, seer and maund as well as the pound, ounce, hundredweight and ton—in terms of standard grains, which is the unit of weight under the Act, but the notification to bring the Act into operation has not been made so far (December 1940). It is, therefore, only in Bombay* where Weights and Measures Act was passed in 1932 that weights and measures other than those prescribed under the Act are not permitted to be used. Everywhere else there is a diversity—rather confusion—about weights and measures, the position being worse in the case of nuts in shell. A maund of nuts may be anything from 25 lb. to 100 lb. in different places, while measures may be in vogue in others. Different varieties of nuts contained in the same measure vary appreciably while the dimensions of measures is another variable factor which considerably affects the quantity of nuts contained in a measure. The question of standard measures, in view of local variations, has been left in the Government of India Act to provincial governments, but it is desirable that the measures sanctioned by different governments should have a common basis. A common kerosene oil tin contains nearly 5 seers of nuts in shell and as this container is widely known in India, it may form a suitable basis for a dry measure.

The units of quotation are not comparable even in important markets. Hundredweights, pounds, maunds

*Legislation in respect of weights and measures also exist in Mysore, Travancore and some other States.

and candies all form the basis of quotation in different places. The variations do not stop there. A candy may be of 531 lb., 529 lb., 500 lb. or 800 lb. in different places.

Burma.—Measuring with the baskets is the usual method for the trade in the villages, but a basket may contain anything from 19 to 42 lb. nuts. A standard basket is of 25 lb. An attempt in the direction of standardisation of measures is being made by sealing baskets of 9 gallons capacity with the "Thamadi" mark, which is the Burmese counterpart of the AGMARK in India.

CONCLUSIONS AND RECOMMENDATIONS.

At present, the producer gets only about 10 annas of the rupee paid by wholesale buyers in India and about $7\frac{1}{2}$ annas from every rupee obtained from c.i.f. London sales. It has been observed that the quality of Indian kernels is not considered entirely satisfactory in export markets and better prices can be secured by improving the quality to the standard required by the buyers and at least upto the standard of quality exported by other groundnut producing countries. In the internal trade, wasteful practices and unnecessary handling are common, which indicate possibilities of bringing about economies in distribution. There is, therefore, ample scope for increasing the producer's share by improving the quality of the produce and improved marketing, for which the various suggestions made in the course of the report are summarised below :—

Increased yield per acre.

The average yield per acre in India is about 900 lb. per acre only as compared with 1,600 lb. in China. Yields at Government Research Stations in India have, in some instances, been as high as 1,700 lb. per acre for rainfed crop and over 3,000 lb. for irrigated crop. Efforts should be made by the Agriculture Departments to increase the yield per acre on cultivators' fields. (Pages 14 and 15.)

Nuts with higher proportion of kernel.

The factors, which bring about variations in the proportion of kernels and shell in nuts, are not known and their study should receive attention at research stations, with a view to producing nuts with a high percentage of kernels. (Page 20.)

Harvesting and drying of fully mature crop.

The producers by means of propaganda and demonstration should be made to realise the advantages

of harvesting the crop when fully mature as also of drying the pods before sale. (Pages 122 and 123.)

Improved seed for sowing.

Larger quantities of improved seed should be distributed to cultivators. (Page 315.)

Zoning of different varieties.

Different varieties should be concentrated in suitable areas to the exclusion of other varieties. (Page 315.)

More complete and accurate crop estimates.

Several areas, which now have appreciable acreage and production of groundnuts, are not included in the published All-India forecasts of this crop and arrangements may be made to include the figures in respect of the United Provinces*, the Punjab, and Baroda and Gwalior States. (Page 7.)

Standard yields have not been worked out for several important groundnut producing areas. In order to make more accurate estimates of production possible, experiments should be made by Agricultural Departments to work out standard yields for different areas. (Page 10.)

Better statistics of movement and crushings.

Nuts in shell and kernels are simply added together in published statistics of exports abroad and movements by rail within the country. In order to remove this source of error, figures for nuts in shell and kernels should be recorded separately. (Pages 35, 78 and 111.)

Statistics regarding crushing of oilseeds are completely lacking. Factories crushing groundnuts (and other oilseeds) should be required to furnish statutory returns of quantities of different oilseeds crushed by

*Since included.

them. This would help not only in knowing the position about the quantities crushed and estimating stocks, but would also serve as a step towards checking adulteration of oils. (Pages 60, 224 and 278.)

Information about stocks is very meagre and attempts should be made to co-ordinate estimates of stocks made by various trade agencies and publish them for the use of the trade. (Page 224.)

Improved decortication.

As quality of groundnut kernels is often spoiled by harmful practices and lack of adequate care at decortication factories, a system of licensing decortication factories should be introduced (as in the case of cotton ginneries), laying down certain standards of efficiency for the grant of a licence. (Page 127.)

Reduction of impurities.

Considerable amount of impurities move along with groundnuts—both nuts in shell and kernels—from producers to assembling centres, from assembling centres to ports or consuming markets, and from ports to foreign countries. Producers and merchants should be made to realise the advantages of marketing clean produce and an incentive provided by introducing mutual terms in all contracts and by not subjecting clean produce to fixed customary deductions. (Pages 146, 193 and 198.)

Avoiding admixture of castor seed.

Steps should be taken, specially in Hyderabad State, to prevent the sowings of castor plants on the edges of groundnut fields and the storing of groundnut kernels and castor seed together in the same place in the market or godown. (Page 194.)

Reduction in the percentage of free fatty acids.

The high percentage of free fatty acids is one of the main causes of complaint, specially in export markets, against Indian groundnut kernels and steps should be taken to prevent the development of free fatty acids, to which a number of factors contribute. (Pages 196 to 198.)

Reduction in market charges and establishment of regulated markets.

The multifarious market charges and deductions, made from producers, clearly indicate the necessity for regulated markets, where only approved market charges may be levied and standard weights and measures used. (Pages 140 and 143.)

Necessity of reviewing octroi and terminal taxes.

The terminal tax and octroi duties on groundnuts are in some cases unusually high and in many cases higher than those on other oilseeds. The widely divergent rates of taxes and conflicting local interests indicate the necessity of octroi and terminal tax rates being reviewed by an all-India body concerned with economic development. (Pages 145 and 297.)

Reduction in harvest depression in prices.

The violent fall in prices at harvest is a matter of serious consequence to producers. Apart from producers being encouraged to help in minimising these fluctuations by harvesting their crop when fully mature and drying the same before taking it to the market, co-operative and other organisations should be set up to undertake decortication and provide cultivators facilities for finance. Grading, standardisation of contracts and establishment of properly regulated " futures " markets are further steps in the direction of improving the present methods of financing the marketing of the produce. (Page 106 and 109.)

Establishment of " futures " trading.

Organised " futures " trading in Coromandels (which form the bulk of the Indian crop) at Madras, should help to bring the influence of supply, demand and international values to bear more closely on prices and prove beneficial to producers. At Bombay, the shifting of February option to January and August option to September should help to moderate fluctuations in prices. (Page 109.)

Dissemination of market news.

Producers generally benefit but little from available market news about prices, the position being worse in respect of nuts in shell. Arrangements should be made for prices at key markets being made widely known in rural areas. (Page 112.)

Adoption of a standard contract.

The variations in the contract terms of various buyers are not conducive to orderly marketing as also the existence of non-mutual terms leave no incentive to market higher quality produce. The position can be considerably improved by the adoption of an All-India Standard Contract with mutual terms in respect of impurities, etc. Terms of standard contracts have already been drawn up by the Central Marketing Staff in consultation with the trade both for groundnuts for crushing and handpicked selected nuts and kernels for edible requirements. These have been adopted by several trade associations but should be more universally applied. (Page 204.)

Abolition of unfixed contracts.

The position regarding the system of unfixed contracts which involve considerable speculative element should be examined by the trade with a view to its abolition. (Page 203.)

Modification of terms of Marseilles contract.

The exports of groundnut kernels are made on the basis of the Incorporated Oil Seed Association contract and the Marseilles contract. The basis being "pure" in the former and "2 per cent impurities non-mutual" in the latter, exporters in India have to prepare goods on two different standards. As the goods are not purchased separately at upcountry agencies, the goods have to be manipulated differently at ports depending on whether a particular shipment is to be made on the Incorporated Oil Seed Association contract or the Marseilles contract. In the latter case, clay and other impurities are sometimes added. It is desirable that attempts should be made to get the Marseilles contract modified by altering the basis either to "pure" or to "2 per cent. tolerance mutual". (Pages 169 and 239.)

Expansion of market for edible nuts in India.

The *per capita* consumption of groundnuts for edible purposes in India being very low, there is considerable room for expansion. Nuts specially suitable for edible requirements and properly graded should be put on the Indian market and kernels from roasted nuts attractively packed should also be offered for sale—especially in urban areas. Side by side with this, propaganda should be carried on about the merits of the nuts and the preparations that may be made from them. This may be the concern of an all-India body, established to increase the consumption of nuts and cake in India, to help in developing the export trade in groundnut oil and to devise measures for exercising control over decorticating factories and looking after the zoning of different varieties. (Pages 58 and 128.)

Developing export trade in handpicked selected nuts and kernels.

The trade in handpicked selected nuts and kernels being in its infancy, there is considerable scope for ex-

APPENDICES.

APPENDIX I.

Area and production of groundnuts (in shell) in the world.

Name of countries.	Acreage (thousand acres).			Production—nuts in shell (thousand tons).		
	Average 1928—32.	Average 1933—37.	1938 (a).	Average 1928—32.	Average 1933—37.	1938.
BRITISH EMPIRE:						
India (b) ..	6,092	7,000	8,927	2,457	2,822	3,308
Burma ..	533	717	880	157	155	180
Nigeria ..	633 ⁽¹⁾	895 ⁽²⁾	..	213	337	255
Gambia ..	<i>Not available.</i>	300 ⁽⁴⁾	..	63	60	47
Tanganyika ..	82 ⁽³⁾	169	..	16	25	5
Other Empire countries*.	183	255	..	25	25	..
Total ..	7,523	9,336	..	2,931	3,424	..
FOREIGN COUNTRIES:						
China ..	<i>Not available.</i>	3,574	..	<i>Not available.</i>	2,672	..
French West Africa— Senegal ..	1,512	1,636	..	437	538	..
Other colonies*	652	1,469	..	178	255	..
United States of America.	1,419	1,661	1,898	423	540	636
Netherland East Indies.	529	534	647	222	226	288
Argentina ..	136	218	..	62	88	..
Other foreign countries*.	764	923	..	400	460	..
Total ..	5,012	10,015	..	1,722	4,779	..
Grand total ..	12,535	19,351	..	4,653	8,203	..

Adapted from International Review of Agricultural Statistics 1938-39 and Statistics for Vegetable Oils and Oilseeds published by Imperial Economic Committee.

(a) The year to which the figures refer is the year in which the crop was harvested.

(b) In India, the crop shown in official statistics as 1938-39 crop is harvested in 1938 and is shown here under 1938. The crops for other years have also been similarly taken for working out averages. Revised figures of acreage and production discussed in the report have been used.

* Where figures for any of the years have not been available, estimates have been formed on the basis of previous year's figures.

⁽¹⁾ Average 4 years 1928—31. ⁽²⁾ Average 4 years 1929—32. ⁽³⁾ Area in 1931.

⁽⁴⁾ Estimate.

APPENDIX II.

Exports of groundnuts from the main producing countries and imports of groundnuts into the main consuming countries of the world.

(Thousand tons).

	Exports.				Imports.		
	Average 5 years 1928—32.	Average 5 years 1933—37.	1938.		Average 5 years 1928—32.	Average 5 years 1933—37.	1938.
From India*—							
British ports	642	585	835	Into France (a)	307	409	382
Portuguese ports	139	96	141	(b)	361	369	452
French ports	62	59	51	Into Germany (a)	70	33	85
Kathiawar States ports	18†	54	162	(b)	464	269	299
From Nigeria (b)	149	236	180	Into Italy (a)	} 110	} 114	1
From Gambia (a)	63	60	46	(b)			51
(b) .. .. .	..	..	1	Into United Kingdom (a)	40	18	7
From Tanganyika (b)	11	18	4	(b)	82	153	320
From French West Africa (a)	396	427	363	Into Netherlands (a)	} 95	} 143	26
(b)	1	82	167	(b)			149
From China (a)	60	33	23	Into Belgo-Luxemburg (a)	} 26	} 47	17
(b)	104	80	34	(b)			70
From Manchuko (a)	21	29	22	Into Czechoslovakia	31	43	32
(b)	21	58	59	Into Denmark	29	33	35
From Mozambique (b)	28	26	12				
From Portuguese Guinea (a) & (b)	22	23	31				
From Netherland East Indies (a)	3	2	3				
(b)	16	16	18				

* Exports from India are for official years April to March, 1938-39 figures being shown under 1938 and similarly for other years. Exports from India to Burma are not included in the figures.

† Average of 2 years 1931-32 and 1932-33. (a) Undecorticated. (b) Decorticated.

Source.—International Year Book of Agricultural Statistics, Annual Statement of the Sea-borne Trade of British India, Kathiawar Trade Statistics, and statistics received from Pondicherry and Goa.

APPENDIX III.

Area under groundnuts in the main producing areas of India and in Burma.
(Thousand acres).

Year.	India.							Total.	Burma (e).
	Madras (a).	Bombay (b).	Central Pro- vinces and Berar.	Bombay States (c).	Hyderabad.	Mysore.	Orissa (d).		
1900-01	230	64	..	..	..	..	..	294	..
1901-02	338	97	..	..	..	..	..	435	..
1902-03	421	70	..	..	..	..	..	491	..
1903-04	384	90	..	..	..	..	..	474	..
1904-05	366	93	..	..	..	..	..	459	..
1905-06	393	93	..	..	..	..	..	486	..
1906-07	511	111	..	..	..	..	..	622	..
1907-08	602	130	..	..	..	..	..	732	137
1908-09	719	134	..	..	..	..	..	853	259
1909-10	740	162	..	..	..	..	..	902	146
1910-11	687	186	..	..	..	..	..	853	99
1911-12	806	269	..	..	..	..	..	1,075	139
1912-13	924	190	..	53	..	..	..	1,167	200
1913-14	1,605	202	..	52	..	..	..	1,859	247
1914-15	1,866	222	..	56	..	..	..	2,144	273
1915-16	1,136	213	..	53	..	..	..	1,402	262
1916-17	1,796	220	..	56	..	..	..	2,072	261
1917-18	1,415	215	..	57	..	68	..	1,755	249
1918-19	1,001	136	11	21	..	46	..	1,215	250
1919-20	1,144	136	7	26	68	53	..	1,434	281
1920-21	1,600	205	10	19	66	73	..	1,973	303
1921-22	1,459	203	15	20	156	86	..	1,989	306
1922-23	1,754	330	18	37	148	90	..	2,377	332
1923-24	1,807	359	23	41	194	102	..	2,526	390
1924-25	1,904	344	30	41	227	128	..	2,674	462
1925-26	2,599	596	60	89	198	213	..	3,755	499
1926-27	2,680	602	44	211	306	195	..	4,038	523
1927-28	3,337	740	70	324	485	254	..	5,210	540
1928-29	3,679	1,000	103	423	610	310	..	6,125	599
1929-30	3,209	1,068	139	281	744	325	..	5,766	571
1930-31	3,575	999	148	604	691	316	..	6,333	565
1931-32	2,635	989	164	518	774	271	..	5,351	408
1932-33	3,517	1,195	185	588	1,118	284	..	6,887	522
1933-34	3,779	1,292	194	683	1,384	254	..	7,586	640
1934-35	2,351	862	149	654	962	163	..	5,141	625
1935-36	2,520	892	134	405	1,059	187	10	5,207	660
1936-37	3,495	987	149	880	1,063	198	12	6,784	765
1937-38	4,658	1,344	224	1,022	1,438	198	14	8,898	896
1938-39	3,772	1,435	280	1,266	1,520	214	19	8,506	840
1939-40	3,618	1,516	228	1,009	1,675	222	19	8,287	760
1940-41(f)	3,820	1,434	226	950	1,686	221	20	8,357	766

Source.—Estimates of Area and Yield of Principal Crops in India, Agricultural Statistics of India and Final Forecasts of Groundnut Crop, 1939-40 and 1940-41.

(a) The figures up to 1906-07 relate only to *ryotwari* villages and since that year estimates for certain *zamindari* and whole *tanam* villages have been added.

(b) The figures up to 1913-14 relate only to the chief groundnut growing districts while those for other districts have been added from 1914-15. The figures up to 1911-12 include Bombay States.

(c) Bombay States include Western India States, other Gujarat States, Deccan States (Akalkot and others) and Karnatak States (Kolhapur and others).

(d) Figures for Orissa, prior to 1937-38, were included with Bihar and not used for crop forecasts.

(e) The figures up to 1911-12 relate to the chief groundnut growing districts only while those for other districts have been added from 1912-18.

(f) United Provinces have been included in the forecast from 1940-41, area under groundnuts in the year being reported as 159,000 acres.

Note.—Where the figures given in Estimates of Area and Yield differed from those given in Agricultural Statistics, the latter figures have been used.

APPENDIX IV.

Acreage under groundnuts in India in areas not included in groundnut crop forecasts.
(Thousand acres).

	1933-34.	1934-35.	1935-36.	1936-37.	1937-38.	Average (1933-34 to 1937-38)	1938-39.	1939-40.
BRITISH INDIA :								
United Provinces ..	40	56	88	107	132	85	132 (3)	123
Punjab	1	5	13	26	34	16	31	22
Bengal	2	(a)	3	3	3	2	2	3
Bihar	1	1	(a)	(a)	(a)	(a)	(a)	(a)
INDIAN STATES :								
<i>Madras States—</i>								
Pudukottai ..	19	15	18	19	23	19	23(3)	23(3)
Banganapalle ..	20	10	8	7	16	12	8	4
Cochin	(a)	(a)	8	12	14	7	8	8 (4)
Sandur	2	1	1	1	2	1	1	1 (4)
<i>Central India States—</i>								
Indore	20	20	18	20	24	20	24	24(4)
Dhar	2	3	4	5	5	4	6	6 (4)
Other Central India States (1)	4	8	7	8	9	7	9	9 (4)
<i>Rajputana States—</i>								
Jaipur	5	6	9	10	10	8	10	7
Kotah	2	2	2	3	4	3	4 (3)	4 (3)
Other Rajputana States (2)	3	4	5	4	5	4	5	5 (4)
<i>Punjab State—</i>								
Patiala	(a)	1	3	7	10	4	11	11
Baroda	48	50	52	81	112	69	131	131(4)
Gwalior	13	14	15	19	20	16	16	17
Total ..	182	196	254	332	423	277	421	404

(a) 500 acres or less.

(1) Barwani, Bhopal, Dewas (Sr.), Jaora, Khilchipur, Naraingarh, Orcha and Rajgarh.

(2) Alwar, Bharatpur, Bikaner, Bundi, Dholpur, Jhalawar, Karauli, Partabgarh and Tonk.

(3) 1937/38 figures.

(4) 1938/39 figures.

APPENDIX V.

Production of groundnuts (in shell) in the main producing areas of India and in Burma.

(Thousand tons).

Year.	India.							Total.	Burma.
	Madras.	Bombay (a).	Central Provinces.	Bombay States.	Hyderabad.	Mysore.	Orissa (b).		
1900-01	93	29	..	..	..	..	..	122	..
1901-02	137	63	..	..	..	..	..	200	..
1902-03	171	62	..	..	..	..	..	233	..
1903-04	156	94	..	..	..	..	..	250	..
1904-05	152	63	..	..	..	..	..	215	..
1905-06	175	37	..	..	..	..	..	212	..
1906-07	189	85	..	..	..	..	..	274	..
1907-08	202	83	..	..	..	..	..	285	68
1908-09	247	130	..	..	..	..	..	377	120
1909-10	222	173	..	..	..	..	..	395	65
1910-11	254	207	..	..	..	..	..	461	42
1911-12	306	248	..	..	..	..	..	554	51
1912-13	341	240	..	..	..	..	..	581	89
1913-14	411	254	..	..	..	..	..	665	88
1914-15	580	279	..	..	..	..	..	859	88
1915-16	633	309	..	..	..	..	..	942	116
1916-17	825	260	..	..	..	..	..	1,085	111
1917-18	680	272	..	..	..	..	..	952	104
1918-19	442	85	..	..	..	..	..	527	99
1919-20	569	151	..	..	..	..	..	720	102
1920-21	740	167	..	..	..	..	..	907	115
1921-22	678	177	..	..	9	..	..	864	95
1922-23	823	267	..	20	16	..	..	1,126	110
1923-24	744	165	..	18	12	..	..	939	115
1924-25	948	204	..	27	11	..	..	1,190	165
1925-26	1,264	275	..	51	21	..	..	1,611	165
1926-27	1,207	313	..	108	25	..	..	1,653	165
1927-28	1,671	398	..	157	42	..	..	2,268	166
1928-29	1,830	626	..	178	81	..	..	2,615	163
1929-30	1,522	426	..	87	145	..	..	2,180	182
1930-31	1,765	487	..	175	165	..	..	2,592	174
1931-32	1,234	498	33	173	213	..	..	2,151	117
1932-33	1,729	679	45	173	320	..	..	2,846	151
1933-34	1,777	643	53	263	374	76	..	3,186	144
1934-35	920	375	38	156	224	27	..	1,740	144
1935-36	1,202	418	35	144	287	28	..	2,114	144
1936-37	1,657	407	46	252	316	36	..	2,714	142
1937-38	2,059	524	58	347	476	37	..	3,501	200
1938-39	1,613	581	72	368	537	41	7	3,219	180
1939-40	1,703	553	64	297	493	48	7	3,165	186
1940-41 (c)	1,761	599	63	299	613	63	7	3,405	195

Source.—Estimates of Area and Yield of Principal Crops in India and Final Forecasts of Groundnut Crop, 1939-40 and 1940-41.

(a) Figures up to 1921/22 include Bombay States.

(b) Figures prior to 1937-38 were included with Bihar and not used for crop forecasts

(c) United Provinces have been included in the crop forecast from 1940-41, the production of groundnuts in this year being reported as 68,000 tons,

APPENDIX VI.

Estimated production of groundnuts (in shell) in India in areas not included in groundnut crop forecasts.

(Thousand tons).

	1933-34.	1934-35.	1935-36.	1936-37.	1937-38.	Average.	1938-39.	1939-40.
BRITISH INDIA :								
United Provinces ..	22	31	49	59	73	47	73*	73*
Punjab	1	1	7	12	15	7	14	13
Bengal	1	1	1	1	1	1	2	2
Bihar	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)
INDIAN STATES :								
Madras States ..	14	0	12	13	19	13	18	17
Central India States ..	4	5	5	6	8	6	9	9
Rajputana States ..	1	1	2	2	2	2	3	3
Punjab States ..	(a)	1	2	3	3	2	2	2
Baroda	21	22	22	32	45	28	53	53†
Gwalior	4	4	5	8	9	6	5	5†
Total	68	75	105	136	175	112	179	177

(a) 500 tons or less.

*1937/38 figures.

†1938/39 figures.

Note.—Where figures for production for individual States have not been available for any year, previous year's figures have been taken.

APPENDIX VII.

Estimated production of different varieties of groundnuts (in shell) in India.

Name of province or State.	Production. (Average 1933-34 to 1937-38).	Coromandel.		Bold.		Peanuts (a).		Red Natal.		Other varieties.	
		Proportion.	Quantity.	Proportion.	Quantity.	Proportion.	Quantity.	Proportion.	Quantity.	Proportion.	Quantity.
		Thou- sand tons.	Per cent.	Thou- sand tons.	Per cent.	Thou- sand tons.	Per cent.	Thou- sand tons.	Per cent.	Thou- sand tons.	Per cent.	Thou- sand tons.
<i>British India.</i>											
Madras ..	1,523	88	1,340.2	..	..	10	152.3	2	30.5	..	..
Bombay ..	474	28	123.2	27	128.0	42	199.1	2	9.5	3	14.2
Central Provinces and Berar.	46	..	..	11	5.1	33	15.2	42	19.3	14	6.4
United Provinces	47	..	..	47	22.1	3	1.4	..	..	50	23.5
Punjab and other provinces.	8	..	..	25	2.0	10	.8	..	..	65	5.2
<i>Indian States.</i>											
Hyderabad ..	394	20	78.8	33	130.0	47	185.2	..	..	..	..
Mysore ..	41	50	20.5	..	..	49	20.1	..	..	1	.4
Bombay States	232	..	..	85	197.2*	11	25.5	1	2.3	3	7.0
Madras States ..	13	89	11.5	..	..	9	1.2	2	.3	..	..
Gwalior ..	6	..	..	85	5.1	3	.2	2	.1	10	.6
Baroda ..	28	..	..	45	13.0	55	15.0	..	..	..	..
Other States ..	10	..	..	30	3.0	20	2.0	..	..	50	5.0
Total ..	2,822	55.8	1,574.2	18.0	505.5	21.9	618.0	2.2	62.0	2.2	62.3
<i>Burma</i> ..	165	97	150.3	..	..	2	3.1	..	..	1	1.0

(a) Includes varieties known in trade as Khandesh and Khandesh Quality.

* Includes 139,000 tons Superior Bold grown in Kathiawar.

APPENDIX VIII.

Monthly arrivals of groundnuts at markets, despatches from railway stations and arrivals at ports, expressed as percentages of the respective annual arrivals and despatches.

Month.	Arrivals at markets.				Despatches from railway stations.							Arrivals at ports.		
	Madras (2 ware- houses). (a)	Bombay (3 mar- kets). (b)	Hyder- abad (3 markets) (c)	C. P. (3 markets) (d)	Madras (49 sta- tions). (e)	Madras (Polla- chi). (f)	Mysore (2 sta- tions). (g)	Bombay (2 sta- tions). (h)	Hyder- abad (2 stations). (i)	C. P. (3 sta- tions). (j)	U. P. (3 sta- tions). (k)	Madras port.	Bombay port.	Calcutta port.
April	1.1	3.2	4.6	2.1	2.0	..	1.5	6.6	5.5	3.9	3.4	8.7	6.1	4.0
May	1.9	1.9	6.5	2.7	6.2	..	3.7	5.5	9.0	4.6	5.5	10.0	8.3	3.4
June	6.4	0.9	2.7	1.6	2.9	..	2.3	4.0	5.1	5.6	2.7	7.1	4.8	2.0
July	6.4	0.4	3.9	0.3	6.1	..	2.6	5.8	5.9	4.4	4.8	5.9	4.4	3.1
August	9.2	0.7	4.3	0.3	8.0	5.2	2.4	8.0	4.9	3.2	1.5	4.6	4.8	5.2
September	5.8	0.3	4.0	2.1	5.7	42.2	1.0	3.2	3.9	6.5	3.0	3.8	4.7	3.3
October	4.6	14.5	7.5	45.6	2.5	16.2	16.4	5.0	5.3	14.8	2.3	3.5	6.7	4.6
November	14.9	14.5	17.4	21.6	3.4	9.3	28.2	9.0	9.6	32.0	13.3	6.8	9.3	11.4
December	26.2	25.7	16.0	8.6	16.8	23.8	15.4	20.9	21.0	10.6	37.4	13.9	16.1	16.1
January	15.6	21.0	11.7	7.7	24.6	1.0	15.8	18.8	17.1	9.4	11.0	14.0	19.5	17.3
February	5.5	11.3	12.1	4.8	15.7	1.4	6.3	6.1	6.4	3.4	9.2	9.6	8.8	9.6
March	2.4	5.6	9.3	2.6	6.1	0.9	4.4	7.1	6.3	1.6	5.9	12.1	6.5	20.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) Cuddalore Co-operative Warehouse and Resipuram Co-operative Warehouse.

(b) Kolhapur, Dhulia and Sangli.

(c) Latur, Raichur and Warangal.

(d) Akola, Khamgaon and Malkapur.

(e) 49 stations in North Arcot, South Arcot, Coimbatore, Salem, Trichinopoly, Tan-
jore, Madura and Ramnad districts.

(f) Pollachi.

(g) Davangere and Tumkur.

(h) Barwi and Dondicha.

(i) Latur and Khamam.

(j) Akola, Nagpur and Khandwa.

(k) Bareilly, Shahmatganj and Madhoganj.

APPENDIX IX.

Imports of groundnuts into India (through British India ports) and into Burma.
(The imports are mostly in the form of nuts in shell.)

(Tons).

Year.	Imports into India*.					Imports into Burma†.
	Bengal.	Bombay.	Sind.	Madras.	Total.	
1900-01	1	205 (a)	..	6	212	..
1901-02	..	166	..	..	166	29
1902-03	..	33	3	4	40	97
1903-04	..	9	..	..	9	107
1904-05	..	1	1	..	2	86
1905-06	..	..	..	..	..	59
1906-07	..	..	..	2	2	114
1907-08	..	7	..	..	7	127
1908-09	13	..	..	..	13	166
1909-10	..	44	..	..	44	159
1910-11	..	2	..	..	2	181
1911-12	43	..	..	..	43	214
1912-13	..	9	..	..	9	126
1913-14	..	..	..	..	..	19
1914-15	3	607 (b)	..	..	610	227
1915-16	22	22	..	..	44	102
1916-17	1	..	..	1	2	25
1917-18	..	65	..	4	69	15
1918-19	1	..	..	..	1	17
1919-20	..	39	3	..	42	7
1920-21	..	463 (c)	7	10	480	2
1921-22	..	227 (d)	..	..	227	362
1922-23	..	..	..	..	..	2
1923-24	..	5	..	6	11	4
1924-25	101 (e)	..	..	..	101	2
1925-26	8	4	..	1	13	40
1926-27	..	..	..	..	..	18
1927-28	(e)	1	..	4	5	55
1928-29	..	..	10	..	10	51
1929-30	119	..	..	1	120	12
1930-31	..	..	..	..	..	30
1931-32	..	36	..	..	36	30
1932-33	..	..	..	..	..	5
1933-34	..	..	..	..	..	1
1934-35	..	5	..	..	5	4
1935-36	..	..	..	..	..	1
1936-37	..	13	..	..	13	2
1937-38	..	..	..	18	18	1
1938-39	..	..	..	..	Nil	..
1939-40 (10 months)	..	..	..	..	..	..

Not available.

Source.—Annual Statement of the Sea-borne Trade of British India.

(a) From Portuguese East Africa 168 tons, German East Africa 21 tons, British East Africa 6 tons and other countries 10 tons.

(b) From Portuguese East Africa 296 tons, Aden and dependencies 309 tons, and other countries 2 tons.

(c) From Portuguese East Africa 366 tons and other countries 97 tons.

(d) From Portuguese East Africa 175 tons, Tanganyika Territory 51 tons and other countries 1 ton.

(e) From Straits Settlements.

* Excluding imports from Burma.

† Excluding imports from India.

APPENDIX X.
Exports of groundnuts from India and from Burma.
(The exports are mostly in the form of kernels).
(Thousand tons).

Year.	From India†.				Total.	From Burma*.
	Through British India ports.	Through Kathiawar States ports.	Through French ports. in India.	Through Portuguese ports. in India.		
	(a)	(b)	(c)	(d)		
1900-01 ..	12	Not available.	Not available.	Not available.	12	(e)
1901-02 ..	54	"	"	"	54	..
1902-03 ..	52	"	"	"	52	(e)
1903-04 ..	96	"	64	"	160	(f)
1904-05 ..	81	"	64	"	145	3
1905-06 ..	64	"	34	"	98	5
1906-07 ..	74	"	43	"	117	12
1907-08 ..	65	"	36	"	101	11
1908-09 ..	80	"	50	"	130	9
1909-10 ..	156	"	90	"	246	6
1910-11 ..	180	"	85	"	265	5
1911-12 ..	188	"	67	"	255	3
1912-13 ..	229	"	112	"	341	14
1913-14 ..	251	"	106	"	357	27
1914-15 ..	136	"	52	"	188	2
1915-16 ..	175	"	42	"	217	(e)
1916-17 ..	145	"	..	"	145	2
1917-18 ..	114	"	6	"	120	1
1918-19 ..	17	"	1	"	18	(e)
1919-20 ..	111	"	31	"	142	1
1920-21 ..	99	"	15	1	115	5
1921-22 ..	236	"	42	1	279	(e)
1922-23 ..	267	"	38	1	306	(e)
1923-24 ..	257	"	58	58	373	..
1924-25 ..	376	"	61	12	449	(e)
1925-26 ..	455	"	52	28	535	(f)
1926-27 ..	368	"	65	59	492	(e)
1927-28 ..	613	"	80	117	810	..
1928-29 ..	787	"	80	154	1,021	1
1929-30 ..	714	"	97	153	964	(e)
1930-31 ..	601	"	70	180	851	..
1931-32 ..	672	22	37	132	863	(e)
1932-33 ..	433	10	25	78	546	(e)
1933-34 ..	546	30	42	196	814	(e)
1934-35 ..	511	37	56	99	703	(e)
1935-36 ..	413	61	45	48	567	(e)
1936-37 ..	739	52	76	86	953	(e)
1937-38 ..	614†	91	76	53	834†	(e)
1938-39 ..	823†	162	51	141	1,177†	(f)
1939-40 ..	427(1)	85(2)	75(2)	36(2)	623	..

Source.—

- (a) Annual Statements of the Sea-borne Trade of British India, Volume I.
 (b) Trade Statistics relating to the maritime States in Kathiawar.
 (c) Annual Statements of the Sea-borne Trade of British India, Volume II. up to 1932-33 and Chamber of Commerce, Pondicherry, from 1933-34 to 1938-39.
 (d) By courtesy of Customs Manager, Castle Rock. (e) Less than 100 tons.
 (f) Between 100 and 300 tons. * Excluding exports to India.
 † Excluding exports to Burma, 5,000 tons were exported from India to Burma in 1937-38 and 12,000 tons in 1938-39.
 (1) Up to 31st January, 1940, excluding 8,000 tons exported to Burma.
 (2) Up to 14th February 1940. (3) Up to 7th January, 1940.

APPENDIX XI.

Exports of groundnuts to different countries from British India ports.

(The exports are mostly in the form of kernels).

(Thousand tons).

Destination.	1923-24.	1924-25.	1925-26.	1926-27.	1927-28.	1928-29.	1929-30.	1930-31.	1931-32.	1932-33.	1933-34.	1934-35.	1935-36.	1936-37.	1937-38.†	1938-39.	1939-40.† (10 months)
United Kingdom ..	16	35	10	17	25	48	53	47	78	32	53	134	62	135	95	96	79
Other British possessions	1	1	(b)	1	1	12*	3	2	2	2	8	8	6	8	11	34	8
Total British Empire ..	17	36	10	18	26	60	56	49	80	34	61	142	68	143	106	130	87
France	191	198	204	125	151	216	211	172	223	219	188	99	141	173	72	150	123
Germany	11	40	91	87	218	241	210	120	122	48	97	65	71	110	108	115	44
Netherlands ..	15	39	75	77	112	132	154	167	147	88	101	115	95	175	146	232	73
Italy (including Fiume) ..	9	22	37	50	80	121	56	77	80	28	72	54	18	76	112	35	11
Belgium	6	16	12	6	15	9	8	2	5	9	13	14	9	39	44	56	29
Egypt	(a)	(b)	(a)	(a)	2	(b)	6	(a)	1	3	2	3	(b)	(b)	5	..	..
Other foreign countries ..	8	25	26	5	9	8	13	14	14	4	12	19	11	23	21	95	60
Total foreign countries	240	340	445	350	587	727	658	552	592	399	485	369	345	596	508	693	340
Grand total ..	257	376	455	368	613	787	714	601	672	433	546	511	413	739	614	823	427
Exported from ports in Madras Presidency.	224	330	370	318	471	584	583	457	496	350	455	436	332	638	560	754	358
Exported from ports in Bombay Presidency.	83	46	85	50	142	203	131	144	176	83	91	75	81	101	54	69	69
Exported from ports in other provinces.	(b)	(b)	(b)	(a)	(a)	(a)	(b)	(b)	(a)	(a)	(b)	(b)	(a)	(a)	1	(b)	(c)

Source.—Annual Statement of the Sea-borne Trade of British India, Vol. I. (a) Less than 100 tons. (b) Less than 500 tons, (c) 533 tons.

*Including 11,000 tons to Straits Settlements,

†Excluding exports to Burma.

APPENDIX XII.

Exports of groundnuts to different countries from Kathiawar States Ports.

(The exports are both in the form of nuts in shell and kernels).

(Thousand tons).

Destination.	1931-32.	1932-33.	1933-34.	1934-35.	1935-36.	1936-37.	1937-38.	1938-39.	1939-40 (10 months).
United Kingdom	4.6	4.3	5.1	4.1	16.7	11.2	67.3	105.8	51.2
France	2.6	1.7	0.3	0.8	8.7	13.0	1.6	5.9	2.2
Germany	2.7	0.5	3.1	1.0	11.4	8.8	1.5	3.9	0.2
Netherlands ..	6.2	1.5	16.7	8.8	6.6	9.3	1.7	5.1	2.3
Italy	3.2	..	2.4	5.5	(a)	1.4	2.5	..	..
Belgium	2.7	1.6	0.5	1.6	1.1	1.4	0.6	4.7	4.1
Egypt .. .. .	..	..	1.7	14.2	12.8	6.5	14.9	33.1*	24.0
Others	0.1	0.2	0.1	0.6	4.0	0.3	1.0	3.5†	0.8
Total ..	22.1	9.8	29.9	36.6	61.3	51.9	91.1	162	84.8
Exported from Bhavnagar State ports	5.2	0.4	2.8	2.6	13.8	17.8	5.3	2.8	0.9
Exported from Nawanagar State ports	10.2	5.6	12.7	15.5	28.9	11.3	18.6	41.3	32.1
Exported from Junagadh State ports	6.7	3.8	14.4	18.5	18.6	20.3	41.5	68.1	39.5
Exported from Porbandar State ports	(a)	(a)	(a)	(a)	(a)	2.5	25.7	49.8	12.3
Exported from Baroda State ports ..	..	..	(a)	(a)	(a)	..	(a)	(a)	..

Sources.—Trade Statistics relating to the Maritime States in Kathiawar and the State of Travancore.

*Including 7,000 tons "for orders" cargo.

†Including 2,700 tons "for orders" cargo.

(a) Less than 100 tons.

APPENDIX XIII.

Exports of groundnuts to different countries from French ports in India.

(The exports are mostly in the form of kernels).

(Thousand tons).

—	1933-34.	1934-35.	1935-36.	1936-37.	1937-38.	Average.	1938-39.
United Kingdom	..	..	..	..	0.2	..	0.6
France ..	29.0	24.4	27.6	35.4	8.9	25.1	31.9
Germany ..	0.4	3.5	4.0	0.7	11.1	4.0	9.8
Netherlands ..	0.3	9.8	..	12.7	12.1	7.0	..
Italy ..	1.8	1.4	..	13.2	15.9	6.4	3.0
Belgium ..	0.1	1.6	6.0	0.7	7.1	3.1	5.9
Egypt ..	10.6	14.7	3.3	1.0	14.4	8.8	..
Others ..	..	1.0	3.6	11.8*	6.1	4.5	..
Total ..	42.2	56.4	44.5	75.5	75.8	58.9	51.2

Source.—Chamber of Commerce, Pondicherry.

*Includes 7,600 tons to French West Africa.

Exports of groundnuts to different countries from Portuguese ports in India.

(The exports are mostly in the form of kernels).

(Thousand tons).

—	1933-34.	1934-35.	1935-36.	1936-37.	1937-38.	Average.	1938-39.
United Kingdom	43.3		3.3	33.9		16.1	23.4
France ..	33.4		5.7	11.4		10.1	14.8
Germany ..	91.4		12.9	21.2		25.1	25.9
Netherlands ..	51.2		11.0	5.7		13.6	29.4
Italy ..	44.0		..	26.4		14.8	5.5
Belgium ..	13.6		10.2	5.3		5.8	1.3
Egypt ..	9.9		1.8	29.8		8.3	24.9
Others ..	8.3		3.0	5.2		3.3	11.3
Total ..	295.1		47.9	138.9		96.4	141.5

Source.—Customs Manager, Castle Rock.

APPENDIX XIV.

*Exports of groundnuts from different ports in India.**
(The exports are mostly in the form of kernels).
(Thousand tons).

	1930-31.	1931-32.	1932-33.	1933-34.	1934-35.	1935-36.	1936-37.	1937-38.	Average 1933-34 to 1937-38.	1938-39.	1939-40. (10 months.)
BRITISH INDIA PORTS :											
<i>Madras ports—</i>											
Madras	208	238	112	154	150	111	128	148	138	186	97
Cuddalore ..	42	66	60	72	69	69	117	99	85	128	72
Coomada ..	87	88	52	45	100	21	63	32	52	105	34
Masulipetam ..	1	..	12	56	31	44	157	110	60	180	81
Negapatam ..	25	30	25	34	28	23	43	44	34	43	22
Calicut	34	27	34	41	18	13	34	32	28	33	14
Bimlipatam ..	20	15	24	20	18	18	44	24	25	21	9
Vizagapatam ..	29	23	26	14	11	13	25	49	22	41	9
Calingapatam ..	..	..	..	15	10	19	26	21	18	15	11
Porto Novo ..	8	8	4	3	(a)	..	..	..	1	..	..
Other ports ..	3	1	1	1	1	1	1	1	1	2	9
Total Madras ports	457	496	350	455	436	332	638	560	484	754	358
Bombay	144	176	83	91	75	81	101	53	80	69	89
Karachi .. ..	..	(b)	(b)	(b)	(b)	(b)	(b)	1	1	..	..
Total British India ports	601	672	433	546	511	413	739	614	565	823	427
KATHIAWAR STATES PORTS :											
Veeraval (Junagadh)	Not available.	7	4	14	19	18	20	41	22	66	40
Bhavnagar ..	..	5	(b)	3	8	14	18	5	9	3	1
Porbandar ..	..	(b)	(b)	(b)	(b)	(b)	3	26	6	50	12
Nawanagar ..	..	10	6	13	15	29	11	19	17	41	32
Total Kathiawar States ports .. ..	..	22	10	30	37	61	52	91	54	162	85
FOREIGN PORTS :											
Pondicherry ..	70	37	25	42	56	45	76	76	59	52	75 ⁽¹⁾
Goa	180	132	78	196	99	49	86	53	96	141	36 ⁽²⁾
Total foreign ports in India	250	169	103	238	155	93	162	129	155	193	11 ⁽¹⁾
Grand total	851	863	546	814	703	507	953	834	774	1,177	623

Source.—Annual Statement of the Sea-borne Trade of British India, Trade Statistics relating to the Maritime States of Kathiawar, Chamber of Commerce, Pondicherry, Customs Manager, Castle Rock and figures from Customs Office, Madras.

(a) 500 tons. Included with figures for other ports.

(b) Less than 500 tons.

(1) Upto 14th February, 1940.

* Excluding exports to Burma

(2) Up to 7th January, 1940.

APPENDIX XV.

Imports of groundnut oil into India (through British India ports only) and into Burma.

(Tons).

Year.	Imports into India*.					Imports into Burma†.
	Bengal.	Bombay.	Sind.	Madras.	Total.	
1909-10	15	..	..	(d)	15	14
1910-11	12	..	..	2	14	21
1911-12	13	..	..	(d)	13	27
1912-13	12	..	..	..	12	32
1913-14	9	(d)	..	2	11	36
1914-15	11	(d)	..	..	11	35
1915-16	8	..	..	..	8	30
1916-17	8	..	..	..	8	40
1917-18	8	1	..	..	9	21
1918-19	4	(d)	..	..	4	16
1919-20	7	(d)	..	..	7	8
1920-21	9	(d)	..	..	9	19
1921-22	3	(d)	..	(d)	4	40
1922-23	2	(d)	..	..	2	6
1923-24	3	(d)	..	(d)	4	12
1924-25	2	3	..	..	5	12
1925-26	2	25	..	..	27(a)	12(a)
1926-27	(d)	1	..	3	4	10
1927-28	..	(d)	..	..	(d)	19
1928-29	1	(d)	..	..	1	22
1929-30	2	(d)	..	..	2	6
1930-31	..	..	..	..	..	6
1931-32	(d)	(d)	..	..	(d)	11
1932-33	2	3	..	..	5	6
1933-34	41	3	(d)	..	44(b)	4
1934-35	..	..	..	..	..	4
1935-36	..	2	(d)	..	2	5
1936-37	..	(d)	..	..	(d)	6
1937-38	26	1	(d)	(d)	27(c)	..
1938-39	..	..	..	..	..	..

(a) From United Kingdom into India and Burma.

(b) 41 tons from Ceylon.

(c) 26 tons from Ceylon.

* Excluding imports from Burma.

(d) Less than 1 ton.

† Excluding imports from India

Exports of groundnut oil from
(1a)

Year.	Destinations of exports						
	United Kingdom.	Ceylon.	Straits Settlements.	Natal.	Mauritius and Dependencies.	Germany.	Netherlands.
1900-01	..	6	21	74	64	..	..
1901-02	..	*	35	108	156	..	..
1902-03	..	*	27	109	212	..	..
1903-04	..	1	26	66	101	..	..
1904-05	..	6	100	26	14	..	..
1905-06	..	*	12	9	10	..	..
1906-07	..	4	4	13	46	..	..
1907-08	..	3	30	21	138	..	..
1908-09	..	38	24	2	312	..	..
1909-10	..	191	23	3	138	..	..
1910-11	..	364	1	20	268	..	..
1911-12	..	347	7	6	375	..	..
1912-13	..	396	1	2	525	..	..
1913-14	..	655	21	4	442	..	..
1914-15	..	260	31	2	624	..	..
1915-16	..	387	430	36	554	..	..
1916-17	..	3,166	319	96	406	..	..
1917-18	..	2,580	254	394	536	..	..
1918-19	..	1,533	71	285	407	..	..
1919-20	..	1,282	62	449	417	..	..
1920-21	..	108	77	207	129	..	..
1921-22	..	*	57	2	108	..	..
1922-23	..	*	48	2	61	..	..
1923-24	..	*	78	4	108	..	..
1924-25	..	1	61	4	51	..	..
1925-26	76	84	518	..	..
1926-27	86	7	66	..	..
1927-28	139	10	194	..	..
1928-29	148	1,327	158	2	..
1929-30	..	*	119	287	239	*	1
1930-31	..	40	76	8	409	*	..
1931-32	..	1,153	42	49	174	103	160
1932-33	..	2,732	20	8	219	219	249
1933-34	..	2,087	68	177	139	17	25
1934-35	..	368	77	24	322	..	..
1935-36	..	739	59	14	153	..	..
1936-37	..	634	66	190	208	25	*
1937-38	..	564	172	698	568	118	..
1938-39	..	377	260	172	1,456	424	..
1939-40 (10 months)	..	497	(a)	(a)	(a)	(a)	(a)

Source.—Annual Statement of the Sea-borne

*Indicates less

(a) Not avail

(1) Includes 695 tons to Italy

(2) Includes 445 tons to Federated Malaya States,

†Excluding exports to Burma. Exports from India to Burma

‡ Excluding exports

DIX XVI.

India (British India ports) and from Burma.
tons).

from India and Burma.			Exported from India.					Exported from Burma.
Belgium.	Others.	Total.	Madras.	Bombay.	Bengal.	Others.	Total.	
..	1	166	46	22	104	..	166	*
..	1	300	50	108	142	..	300	..
..	1	349	63	..	286	..	349	..
..	14	208	74	16	118	..	208	..
..	53	199	114	7	47	..	168	31
..	1	32	12	3	17	..	32	*
..	1	68	7	21	39	..	67	1
..	72	264	185	9	67	..	261	3
..	7	363	235	19	108	..	362	21
..	20	378	310	1	29	..	340	38
..	2	659	602	3	50	..	655	4
..	5	740	713	2	25	..	740	*
..	10	934	898	4	32	..	934	*
..	64	1,186	1,152	1	17	..	1,170	16
..	2	919	836	35	41	..	912	7
..	124	1,533	1,081	103	31	..	1,215	318
..	39	4,042	1,826	99	80	..	2,005	2,037
..	582	4,351	2,577	47	501	*	3,125	1,226
..	120	2,429	1,109	545	459	..	2,113	316
..	1,176(1)	3,386	94	110	323	..	527	2,859
..	62	593	218	35	112	..	365	228
..	70	237	102	73	62	..	237	100
..	103	217	147	26	42	2	217	*
..	37	237	119	67	50	..	236	1
..	31	155	88	17	46	..	151	4
..	42	720	115	101	74	..	290	430
..	11	170	94	54	1	..	149	21
..	2	52	397	176	13	..	379	18
..	4	173	236	1,410	17	26	1,689	123
..	4	70	130	589	3	1	723	*
..	10	139	682	83	593	5	682	*
..	77	1,871	43	1,820	5	2	1,870	1
..	141	187	36	3,735	43	..	3,771	4
..	*	434	2,947	93	2,671	9	2,784	163
..	..	340	1,131	84	994	25	1,104	27
..	..	232	1,197	76	1,083	33	1,196	1
..	..	637	1,760	425	1,288	47	1,760*	..
..	..	1,124(2)	3,244	..	3,215	..	3,215†	29
..	..	997	3,686	..	3,686	..	3,686†	(a)
..	(a)	4,204	4,691	..	4,691	..	4,691	..

Trade of British India.

than 1 ton.

able.

and 344 tons to Egypt.

264 tons to Iraq, 163 tons to Aden and 86 tons to Italy.
were 6,320 tons in 1937-38 and 12,313 tons in 1938-39.
to India.

APPENDIX XVII.

Exports of groundnut cake from India and Burma.
(Thousand tons).

Year.	From India.			From Burma.
	From British India ports.	From Kathiawar States ports.	Total.	
1912-13	36	<i>Not available.</i>	36	26
1913-14	32	"	32	30
1914-15	22	"	22	42
1915-16	43	"	43	39
1916-17	27	"	27	27
1917-18	48	"	48	2
1918-19	50	"	50	6
1919-20	35	"	35	45
1920-21	17	"	17	31
1921-22	24	"	24	32
1922-23	22	"	22	42
1923-24	27	"	27	38
1924-25	43	"	43	52
1925-26	32	"	32	51
1926-27	62	"	62	65
1927-28	102	"	102	46
1928-29	112	"	112	51
1929-30	119	"	119	54
1930-31	133	"	133	49
1931-32	145	24	169	39
1932-33	120	18	138	39
1933-34	146	29	175	44
1934-35	207	43	250	55
1935-36	140	27	167	54
1936-37	183	31	214	55
1937-38	251	42	293	63
1938-39	365	54	419	72
1939-40 (10 months)	190	43	233	..

Source.—Annual Statement of the Sea-borne Trade of British India and Trade Statistics relating to the maritime States of Kathiawar.

APPENDIX XVIII.

Exports of groundnut cake to different countries from British India ports.
(Thousand tons).

Destinations.	1928-29.	1929-30.	1930-31.	1931-32.	1932-33.	1933-34.	1934-35.	1935-36.	1936-37.	1937-38.	1938-39.	1939-40 (10 months).
United Kingdom	22	29	49	38	19	70	116	95	104	142	183	111
Ceylon	24	25	22	17	5	10	9	6	8	8	6	15
Germany	35	25	34	49	58	24	32	15	37	59	80	17
Netherlands	18	26	18	27	25	27	11	6	12	14	29	4
Belgium	13	13	8	12	12	11	21	16	19	17	22	12
Other countries .. ..	..	1	2	2	1	4	18*	2	3	11	45	31
Total ..	112	119	133	145	120	146	207	140	183	251	365	190
Exported from —												
Bombay ports	86	95	116	116	94	114	150	97	113	161	225	..
Madras ports	24	14	9	25	26	31	50	39	62	82	127	..
Bengal ports	2	10	8	4	..	1	7	4	8	8	13	..

Source.—Annual Statement of the Sea-borne Trade of British India.

*Including 7,000 tons for Egypt and 5,000 tons for United States of America.

APPENDIX XVII
Exports of groundnut cake from India and Burma.
(Thousand tons).

Year.	From India.			From Burma.
	From British India ports.	From Kathiawar States ports.	Total.	
1912-13	36	<i>Not available.</i>	36	28
1913-14	32	"	32	30
1914-15	22	"	22	42
1915-16	43	"	43	39
1916-17	27	"	27	27
1917-18	48	"	48	2
1918-19	50	"	50	6
1919-20	35	"	35	45
1920-21	17	"	17	31
1921-22	24	"	24	32
1922-23	22	"	22	42
1923-24	27	"	27	38
1924-25	43	"	43	52
1925-26	32	"	32	51
1926-27	62	"	62	65
1927-28	102	"	102	46
1928-29	112	"	112	51
1929-30	119	"	119	54
1930-31	133	"	133	49
1931-32	145	24	169	39
1932-33	120	18	138	39
1933-34	146	29	175	44
1934-35	207	43	250	55
1935-36	140	27	167	54
1936-37	183	31	214	55
1937-38	251	42	293	63
1938-39	365	54	419	72
1939-40 (10 months)	190	43	233	..

Source.—Annual Statement of the Sea-borne Trade of British India and Trade Statistics relating to the maritime States of Kathiawar.

APPENDIX XX.

Exports of groundnut cake to different countries from Burma.

(Thousand tons).

Destinations.	1928-29.	1929-30.	1930-31.	1931-32.	1932-33.	1933-34.	1934-35.	1935-36.	1936-37.	1937-38.
United Kingdom	44	48	45	31	25	40	55	53	50	61
Ceylon	1	1	(a)	3	3	(a)	..	..	(a)	..
Germany	4	3	2	3	8	1	..	..	..	..
Netherlands .. .. .	..	..	..	..	1	..	..	..	3	..
Other countries.	2	2	2	2	2	3	..	1	2	2
Total	51	54	49	39	39	44	55	54	55	63

Source.— Customs authorities, Rangoon.

(a) 500 tons or less.

APPENDIX

Trade (rail and river-borne) in groundnuts

(Average 1933-34

(in

Whence despatched.	Arrivals					
	Assam.	Bengal.	Bihar and Orissa.	Bombay.	Central India.	Central Provinces and Berar.
Assam .. ..	..	10.5	2.0	..	..	..
Bengal	218.7	..	621.8	..	..	0.1
Bihar and Orissa ..	14.2	344.6	..	0.8	..	1.5
Bombay .. ..	..	23.5	4.2	..	464.6	1,352.1
Central India ..	0.1	18.6	0.5	93.7	..	24.7
Central Provinces and Berar.	0.1	1.1	39.5	440.4	246.0	..
Hyderabad .. ..	..	722.4	..	93,333.5	0.3	205.8
Kashmir .. ..	..	..	..	..	..	..
Madras .. ..	..	4,759.4	59.6	39,091.8	..	10.6
Mysore .. ..	..	..	..	12,901.6	..	..
Punjab .. ..	..	364.2	17.7	77.4	..	0.9
Rajputana	0.1	151.8	19.7	75.2	279.7	2.7
Sind and British Baluchistan.	..	..	..	0.2	3.2	..
United Provinces	1.1	1,060.4	938.7	254.4	12.9	0.4
Total ..	234.3	7,456.5	1,703.7	146,269.0	1,006.7	1,598.8

Source.—Compiled from Accounts relating to the

XXI.

between different provinces and States of India.

to 1937-38.)

tons).

in.

Hyderabad.	Kashmir.	Madras.	Mysore.	Punjab.	Rajputana.	Sind and British Baluchistan.	United Provinces.	Total.
..	..	..	..	..	..	..	..	12.5
..	..	..	..	7.8	..	..	4.8	853.2
..	..	172.9	..	..	..	0.2	4.5	538.7
15.4	..	15.5	107.0	380.1	94.1	0.7	84.4	2,541.6
..	..	..	..	275.5	189.9	0.3	655.3	1,258.6
2.8	1.2	6.4	0.9	367.3	62.5	..	541.1	1,709.3
..	..	22,841.4	310.3	0.1	0.4	2.2	0.5	117,416.9
..	..	..	..	0.7	..	..	..	0.7
98.5	..	..	2,010.6	1.6	0.1	..	2.2	46,034.4
..	..	6,711.7	..	0.1	..	..	..	19,613.4
..	46.6	..	..	..	35.1	16.6	97.0	655.5
..	..	..	..	805.3	..	5.1	260.4	1,600.0
..	0.1	..	..	225.5	3.7	..	0.2	232.9
..	2.8	..	..	878.2	45.0	0.3	..	3,194.2
116.7	50.7	29,747.9	2,428.8	2,942.2	430.8	25.4	1,650.4	195,661.9

Inland (rail and river-borne) Trade of India.

APPENDIX XXII.

Trade (coastal) in groundnuts between different provinces of India.*

(Thousand tons).

Province.	Arrivals.								Despatches.							
	1933-34.	1934-35.	1935-36.	1936-37.	1937-38.	Average.	1938-39.	1939-40.	1933-34.	1934-35.	1935-36.	1936-37.	1937-38.	Average.	1938-39.	1939-40.
Madras	0.2	0.3	0.9	0.2	†	0.3	†	†	2.4	27.8	5.2	7.5	14.4	11.5	4.5	9.2
Bombay	4.5	8.8	2.5	7.4	12.5	7.1	4.6	10.5	2.3	2.5	2.4	1.7	1.4	2.1	1.4	14.0
Bengal	2.6	18.5	4.8	3.7	7.7	7.5	1.9	2.0	..	†	†	†	..	†	..	†
Sind	1.8	3.2	2.2	1.7	3.0	2.4	5.1	7.8	†	†	†	†	†	†	†	†
Total	9.1	30.8	10.4	13.0	23.2	17.3	11.6	20.3	4.7	30.3	7.6	9.2	15.8	13.6	5.9	23.2

Source.—Adapted from Accounts relating to the Coasting Trade and Navigation of British India.

* Including arrivals from and despatches to non-British ports in India (Kathiawar States ports, French and Portuguese ports in India).

† Less than 100 tons.

APPENDIX XXIII.

Average monthly prices of groundnut kernels (Coromandel—machine decorticated) at London.

(Per ton).

Month.	1928-29.	1929-30.	1930-31.	1931-32.	1932-33.	1933-34.	1934-35.	1935-36.	1936-37.	1937-38.	1938-39.	1939-40.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
April	20 7 6	18 0 0	16 6 8	12 3 2	15 18 9	10 13 2	8 2 10	14 10 4	13 17 10	15 0 9	10 3 2	10 9 5
May	21 0 0	17 18 9	15 11 0	11 0 0	15 8 5	11 5 8	8 18 2	15 5 0	13 11 0	14 1 3	10 5 0	11 14 2
June	21 2 0	17 15 0	14 9 2	11 5 4	13 19 5	11 15 9	8 11 6	14 10 11	14 2 6	14 9 1	10 7 11	11 19 9
July	21 12 6	19 13 9	14 15 0	12 1 6	15 1 6	11 13 9	8 16 3	13 10 5	15 5 9	15 1 6	10 16 3	11 11 3
August	21 10 0	20 5 0	14 9 0	11 18 5	15 3 2	10 15 8	10 5 6	14 14 0	15 19 1	13 15 8	10 9 8	12 1 3
September	21 11 3	20 15 0	13 5 0	12 11 7	14 19 3	10 3 6	10 19 8	14 0 8	15 4 1	13 6 11	10 9 9	12 2 6*
October	20 18 9	19 11 3	12 7 0	14 1 6	13 16 7	9 15 4	11 14 8	15 2 6	14 3 0	13 12 3	10 3 9	12 2 6†
November	20 10 0	18 12 0	12 8 2	14 3 5	13 5 0	9 15 4	10 15 3	13 12 9	14 12 10	12 5 11	10 0 8	13 7 6‡
December	20 1 3	18 0 0	11 1 8	13 3 6	13 7 2	9 6 3	11 12 6	13 14 5	16 4 8	11 14 0	10 2 3	14 13 6‡
January	19 3 9	16 17 0	9 19 6	14 11 11	13 6 11	8 17 6	14 9 5	14 7 9	16 3 9	11 4 1	10 5 4	14 15 6‡
February	19 5 0	16 2 6	10 18 9	17 5 8	12 4 8	8 12 2	15 2 2	13 16 3	14 14 11	10 12 10	10 7 6	14 17 6‡
March	18 7 6	15 11 3	12 6 11	17 13 9	11 5 0	8 4 0	13 9 0	13 14 1	15 6 3	10 9 1	10 6 3	15 3 6‡
Annual average	20 9 2	18 5 2	13 3 2	13 10 0	13 19 8	10 1 6	11 1 5	14 4 11	14 18 10	12 19 5	10 6 6	12 16 3

* One quotation on 1st September, 1939.

† Government controlled price.

‡ Average of government controlled prices for first 2 weeks and shippers' quotations for the other 2 weeks.

§ Shippers' quotations on the basis of government insurance and freight from 17th November, 1939.

Source.—Indian Trade Journal up to August, 1939, and Oilseed and Grain Reporter, London, from September, 1939.

APPENDIX XXIV.

Average monthly prices of groundnut kernels (Coromandel—machine decorticated) at Madras.

(Per ton).

Month.	1928-29.	1929-30.	1930-31.	1931-32.	1932-33.	1933-34.	1934-35.	1935-36.	1936-37.	1937-38.	1938-39.	1939-40.	1940-41.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
April ..	257 4 0	201 10 0	183 11 0	131 1 0	132 5 0	109 13 0	79 0 0	165 15 0	152 4 0	163 4 0	107 5 0	110 0 0	148 4 0
May ..	257 10 0	209 11 0	193 1 0	122 1 0	173 14 0	117 15 0	90 1 0	175 8 0	150 8 0	154 11 0	120 6 0	124 7 0	145 0 0
June ..	260 2 0	193 5 0	190 6 0	115 10 0	132 6 0	123 6 0	88 12 0	170 7 0	160 7 0	155 4 0	112 15 0	133 1 0	124 5 0
July ..	263 9 0	208 7 0	184 13 0	129 15 0	135 1 0	122 11 0	93 8 0	156 6 0	172 3 0	159 3 0	119 4 0	126 6 0	107 4 0
August ..	262 15 0	231 13 0	170 4 0	131 1 0	165 10 0	111 18 0	105 10 0	164 4 0	181 3 0	145 15 0	113 9 0	129 14 0	107 12 0
September ..	258 3 0	234 10 0	156 1 0	126 0 0	160 5 0	104 13 0	115 10 0	154 4 0	167 0 0	132 8 0	107 15 0	130 12 0	111 9 0
October ..	259 0 0	232 2 0	133 1 0	139 12 0	151 14 0	97 9 0	126 12 0	161 6 0	153 10 0	134 6 0	105 4 0	133 2 0	108 15 0
November ..	248 5 0	218 15 0	134 6 0	143 2 0	135 15 0	97 10 0	117 2 0	145 3 0	157 10 0	124 11 0	103 7 0	137 10 0	93 13 0
December ..	248 10 0	222 14 0	118 3 0	130 1 0	136 12 0	91 14 0	120 11 0	146 10 0	165 4 0	120 3 0	108 2 0	134 14 0	91 4 0
January ..	244 7 0	211 11 0	110 14 0	151 8 0	141 10 0	87 0 0	157 9 0	156 1 0	174 4 0	114 3 0	109 3 0	132 10 0	88 3 0
February ..	240 13 0	192 15 0	119 0 0	170 4 0	138 4 0	84 4 0	172 11 0	149 6 0	156 9 0	110 10 0	109 13 0	132 13 0	86 1 0
March ..	213 1 0	181 7 0	132 3 0	187 1 0	120 10 0	80 1 0	157 12 0	149 3 0	163 8 0	110 9 0	108 15 0	139 3 0	93 3 0
Annual average	251 3 0	211 10 0	152 3 0	139 12 0	152 14 0	102 6 0	118 12 0	157 15 0	162 14 0	135 7 0	110 8 0	130 6 0	108 13 0

Source.—Indian Trade Journal. Prices per 500 lb. converted to per ton, to nearest anna.

APPENDIX XXV.

Average monthly prices of groundnut kernels (Bombay Bold—machine decorticated) at Bombay.

(Per ton).

Month.	1928-29.	1929-30.	1930-31.	1931-32.	1932-33.	1933-34.	1934-35.	1935-36.	1936-37.	1937-38.	1938-39.	1939-40.	1940-41.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
April ..	230 15 0	210 3 4	188 10 8	180 0 0	181 12 4	115 0 0	82 6 4	169 1 0	156 14 0	171 4 0	105 18 4	109 2 8	152 8 0
May ..	240 0 0	206 14 0	180 8 4	121 7 4	172 8 0	120 6 8	90 0 0	174 4 4	156 12 4	166 4 0	109 13 6	125 0 0	149 4 0
June ..	246 12 4	200 15 0	168 7 0	123 7 0	157 8 0	123 10 4	87 6 4	165 10 0	174 9 4	162 3 0	114 3 6	128 2 0	129 4 0
July ..	251 14 0	220 15 0	170 5 0	134 12 8	172 3 0	123 5 4	90 8 4	157 13 0	193 2 0	161 0 8	119 6 0	121 9 0	121 15 0
August ..	247 7 0	229 1 0	166 14 0	136 0 8	169 1 0	114 11 0	104 4 4	165 3 4	217 8 0	149 6 0	109 11 0	126 10 8	108 15 0
September ..	253 12 0	237 18 0	151 9 0	132 3 0	160 15 0	107 1 4	112 1 4	152 8 0	222 8 0	136 3 4	105 3 4	135 3 4	113 2 0
October ..	244 6 0	219 1 0	130 10 0	155 15 0	143 7 0	98 12 0	125 5 0	157 3 0	166 14 0	134 4 4	104 6 0	135 0 0	117 8 0
November ..	221 7 4	207 4 8	132 3 0	145 15 0	137 11 4	100 15 0	118 0 4	151 15 8	160 0 0	123 2 0	104 6 0	150 5 0	112 1 0
December ..	218 2 0	202 8 0	113 2 0	135 15 0	139 7 8	95 11 8	139 11 0	152 3 0	166 15 8	121 5 8	112 8 0	161 7 4	105 15 0
January ..	216 10 8	193 0 4	108 12 0	155 0 0	146 14 0	92 13 0	178 2 0	158 5 4	175 15 0	118 7 0	111 4 0	151 9 0	103 9 0
February ..	215 10 0	188 0 4	121 10 8	201 14 0	136 4 0	92 11 4	172 8 0	151 7 4	167 3 0	113 5 4	110 2 6	145 5 0	102 0 0
March ..	212 4 8	174 1 0	135 0 0	203 2 0	123 2 0	86 2 4	160 0 0	154 9 4	172 8 0	112 6 4	108 13 8	148 15 4	115 15 0
Annual average	233 4 5	207 7 9	147 2 4	147 15 8	153 6 0	105 15 0	121 11 1	159 2 11	177 0 1	139 0 4	109 10 11	136 8 5	119 5 0

Source.—Adapted from Indian Trade Journal.

APPENDIX XXVI.

Number of occasions on which the weekly closing "futures" prices were at a premium (+) or discount (-) as compared with "ready" prices at Bombay.

Month.	1931-32.			1932-33.			1933-34.			1934-35.			1935-36.		
	Feb- ruary delivery.	May delivery.	August delivery.	Feb- ruary delivery.	May delivery.	August delivery.	Feb- ruary delivery.	May delivery.	August delivery.	Feb- ruary delivery.	May delivery.	August delivery.	Feb- ruary delivery.	May delivery.	August delivery.
	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -
April .. .. .	..	2 0	1 0	..	..	..	..	3 1	3 0	..	2 1	3 0	..	2 1	2 0
May .. .. .	..	1 2	3 1	..	..	..	..	1 2	4 0	..	3 1	4 0	..	3 1	5 0
June .. .. .	..	..	4 0	..	..	..	..	..	5 0	1 0	..	5 0	..	..	3 1
July .. .. .	..	..	2 2	..	..	..	4 0	..	2 2	3 0	..	1 2	0 3	..	0 3
August	0 2	..	2 2	0 2	..	..	2 0	..	2 0	4 0	..	0 3	0 4	..	1 3
September	0 4	..	..	0 5	..	..	5 0	..	..	3 0	..	..	0 4	..	..
October	0 5	..	..	0 4	..	..	4 0	..	..	3 0	..	..	0 4	..	..
November	0 4	..	..	0 2	..	..	3 0	..	..	4 0	..	..	0 4	..	..
December	1 3	..	..	0 5	..	..	5 0	..	..	4 0	..	..	4 0	..	..
January .. .. .	..	..	..	1 3	2 0	..	4 0	..	..	2 2	3 0	..	4 1	3 0	..
February	1 3	..	..	2 2	3 1	..	1 2	3 0	..	3 1	4 0	..	0 3	3 0	..
March .. .. .	..	..	..	..	4 0	..	..	4 0	..	..	4 0	..	..	4 0	..
Annual total	2 21	8 2	12 5	3 23	9 1	..	28 2	11 3	16 2	27 3	16 2	13 5	8 23	15 2	11 7

APPENDIX XXVI—contd.

Month.	1936-37.			1937-38.			1938-39.			1939-40.			Monthly total for 9 seasons.		
	Feb- ruary delivery.	May delivery.	August delivery.	Feb- ruary delivery.	May delivery.	August delivery.	Feb- ruary delivery.	May delivery.	August delivery.	Feb- ruary delivery.	May delivery.	August delivery.	Feb- ruary delivery.	May delivery.	August delivery.
	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -
April .. ..	..	3 0	1 0	..	2 2	3 0	..	4 0	3 0	..	3 0	..	..	21 5	16 0
May .. ..	..	3 1	4 1	..	0 3	4 0	..	2 2	4 0	..	2 1	3 0	..	15 13	31 2
June .. ..	..	..	4 0	..	..	4 0	..	..	4 0	..	..	4 0	1 0	..	33 1
July	0 1	..	2 0	0 4	..	3 2	3 0	..	2 2	..	..	1 2	10 8	..	13 15
August	0 2	..	2 0	0 3	..	0 3	3 0	..	1 2	0 1	..	0 1	9 14	..	8 14
September	0 2	..	..	1 3	..	..	5 0	..	..	2 0	..	..	16 18	..	..
October	0 3	..	..	0 4	..	..	3 0	..	..	4 0	..	..	14 20	..	..
November	2 0	..	..	2 1	..	..	4 0	..	..	3 0	..	..	18 11	..	..
December	5 0	..	..	5 0	1 0	..	4 0	..	..	3 0	..	..	31 8	1 0	..
January	2 2	3 0	..	3 1	4 0	..	4 0	3 0	..	4 0	1 0	..	24 9	19 0	..
February	0 3	4 0	..	3 1	4 0	..	2 1	4 0	..	1 1	3 1	..	13 17	23 2	..
March .. ..	..	4 0	..	..	4 0	..	..	4 0	..	..	2 0	..	..	30 0	..
Annual total ..	9 13	17 1	13 1	14 17	15 5	14 5	23 1	17 2	14 4	17 2	11 2	8 3	136 105	114 20	101 32

APPENDIX XXVII.

Average monthly "ready" and "futures" prices of groundnut kernels (Bold) at Bombay.
(Per cwt.)

Month.	1931-32.			1932-33.			1933-34.					
	"Ready."	"Futures."			"Ready."	"Futures."			"Ready."	"Futures."		
		February.	May.	August.		February.	May.	August.		February.	May.	August.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
April	6 8 0	..	6 9 6	6 11 10	9 1 5	..	..	..	5 12 0	..	5 14 4	6 4 5
May	6 1 2	..	6 1 2	6 4 4	8 10 0	..	..	..	6 0 5	..	6 0 3	6 7 10
June	6 2 9	..	..	6 4 2	7 12 9	..	..	..	6 2 11	..	..	6 9 0
July	6 11 11	..	..	6 12 2	8 9 10	..	..	..	6 2 2	6 6 11	..	6 2 5
August	6 12 11	5 10 11	..	6 12 5	6 7 2	7 0 2	..	..	5 11 9	5 15 11	..	5 10 10
September	6 9 9	5 12 1	..	..	8 0 10	7 2 2	..	..	5 5 2	5 2 4	..	..
October	7 12 10	6 7 0	..	..	7 2 9	6 11 2	..	..	4 15 0	5 2 5	..	..
November	7 4 9	6 10 4	..	..	6 14 2	6 9 5	..	..	5 0 9	5 2 10	..	..
December	6 12 10	6 11 4	..	..	6 15 7	6 12 9	..	..	4 12 7	4 15 10	..	..
January	7 12 0	..	..	..	7 5 6	7 4 4	7 5 4	..	4 10 2	4 12 5	..	..
February	10 1 6	9 14 7	..	..	6 12 0	6 11 2	6 12 2	..	4 10 2	4 10 2	4 15 0	..
March	10 2 6	..	..	..	6 2 6	..	6 9 2	..	4 5 11	..	4 9 1	..

Source.—Seed Traders Association.

APPENDIX XXVII—contd.

Average monthly "ready" and "futures" prices of groundnut kernels (Bold) at Bombay—contd.
(Per cwt.)

Month.	1934-35.				1935-36.				1936-37.			
	"Ready."	"Futures."			"Ready."	"Futures."			"Ready."	"Futures."		
		February.	May.	August.		February.	May.	August.		February.	May.	August.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
April	4 1 11	..	4 2 11	4 6 3	8 7 3	..	8 7 7	8 14 0	7 13 6	..	7 15 9	8 2 2
May	4 8 0	..	4 8 10	4 13 0	8 11 2	..	8 12 4	9 1 0	7 13 5	..	7 14 10	7 15 3
June	4 5 11	4 13 10	..	4 8 9	8 4 6	..	..	8 4 11	8 11 8	..	..	9 1 6
July	4 8 5	5 0 1	..	4 7 8	7 14 3	6 10 6	..	7 13 6	9 10 6	7 13 10	..	10 4 3
August	5 3 5	5 9 2	..	4 12 10	8 5 2	6 12 5	..	8 4 5	10 14 0	8 11 10	..	11 3 7
September	5 9 8	6 2 0	..	..	7 10 0	6 10 11	..	..	11 0 8	7 14 3	..	..
October	6 4 3	6 8 7	..	..	7 13 9	7 5 4	..	..	8 5 6	7 10 6	..	..
November	5 14 5	6 6 11	..	..	7 9 7	7 4 2	..	..	8 0 0	8 2 6	..	..
December	6 15 9	7 4 1	..	..	7 9 9	7 12 9	..	..	8 5 7	8 14 6	..	..
January	8 14 6	9 1 8	9 10 8	..	7 14 3	8 0 5	8 1 7	..	8 12 9	8 14 0	9 2 3	..
February	8 10 0	8 10 4	9 1 11	..	7 9 2	7 8 1	7 11 9	..	8 5 9	8 6 0	8 10 11	..
March	8 0 0	..	8 4 11	..	7 11 8	..	7 14 8	..	8 10 0	..	8 12 11	..

Source.—Seed Traders Association.

APPENDIX XXVII—concl'd.

Average monthly "ready" and "futures" prices of groundnut kernels (Bold) at Bombay—concl'd.
(Per cwt.)

Month.	1937-38.				1938-39.				1939-40.			
	"Ready."	"Futures."			"Ready."	"Futures."			"Ready."	"Futures."		
		February.	May.	August.		February.	May.	August.		February.	May.	August.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
April	8 9 0	..	8 9 8	8 13 4	5 4 8	..	5 6 10	5 10 10	5 7 4	..	5 7 9	..
May	8 5 0	..	8 4 4	8 8 8	5 7 11	..	5 7 1	5 10 5	6 4 0	..	6 4 1	6 10 3
June	8 1 9	..	..	8 2 10	5 11 5	..	..	5 13 0	6 6 6	..	..	6 9 1
July	8 0 10	7 11 9	..	8 1 2	5 12 5	6 3 6	..	5 13 2	6 1 3	..	..	6 3 11
August	7 7 6	6 15 9	..	7 3 3	5 7 9	5 13 7	..	5 7 9	6 5 4	6 3 0	..	6 4 10
September	6 12 2	6 10 5	..	..	5 4 2	5 6 9	..	..	6 12 2	7 1 0	..	..
October	6 11 5	6 8 5	..	..	5 3 6	5 5 1	..	..	6 12 0	7 4 6	..	..
November	6 2 6	6 4 7	..	..	5 3 5	5 5 0	..	..	7 8 3	8 1 0	..	..
December	6 1 0	6 3 5	6 4 5	..	5 9 11	5 11 8	..	..	8 1 2	9 0 6	..	..
January	5 14 9	5 15 8	6 3 8	..	5 9 2	5 10 7	5 13 4	..	7 9 3	7 15 3	8 3 5	..
February	5 10 8	5 11 0	5 14 7	..	5 8 2	5 8 2	5 11 10	..	7 4 3	7 7 3	7 10 5	..
March	5 9 11	..	5 12 4	..	5 7 2	..	5 9 7	..	7 7 2	..	7 14 1	..

Source.—Seed Traders Association.

APPENDIX XXVIII.

Market charges on groundnuts in shell in certain assembling markets in the Madras Presidency.
(Per 100 rupees).

Items.	Adoni.	Bezwada.	Hindupur.	Tuticorin.	Virudhu- nagar.	Average.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
<i>Payable by seller—</i>						
Tolls and taxes (terminal tax, octroi, market cess, etc.) ..	0 4 3	..	0 4 5	..	..	0 1 9
Commission and brokerage	1 9 0	1 9 10	3 10 4	2 9 6	2 13 6	2 7 3
Handling and weightment charges	0 10 6	0 15 3	0 11 0	0 11 0	0 13 3	0 12 2
Charities	0 2 0	0 1 4	0 12 6	0 4 0	0 4 0	0 4 9
Quality allowance	(a)	(a)	(a)	(a)	(a)	(a)
Miscellaneous	0 6 1	..	1 7 7	..	..	0 5 11
Total payable by seller	2 15 10	2 10 5	6 13 10	3 8 6	3 14 9	3 15 10
<i>Payable by buyer—</i>						
Commission and brokerage .. .. .	..	..	..	..	2 13 6	0 9 1
Handling and weightment charges .. .. .	..	..	..	..	..	..
Charities .. .. .	..	..	..	..	..	..
Total payable by buyer .. .. .	..	..	..	..	2 13 6	0 9 1
Grand total	2 15 10	2 10 5	6 13 10	3 8 6	6 12 3	4 8 11

(a) Quality taken into consideration in offering prices.

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APPENDIX XXIX.

Market charges on groundnuts in shell and kernels in certain assembling markets in the Bombay Presidency. ¹⁴

(Per 100 rupees).

	Groundnuts in shell.						Kernels.
	Dhulia.	Amalner.	Jalgaon.	Bijapur.	Kolhapur.	Average.	Sholapur.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
<i>Payable by seller—</i>							
Tolls and taxes (terminal tax, octroi, market cess, etc.)	...	0 3 6	0 4 3	1 6 3	1 1 0	0 9 5	0 10 0
Commission and brokerage	2 9 0	2 1 6	1 6 3	3 2 0	3 2 0	2 7 4	..
Handling and weightment charges	0 13 9	1 1 0	1 1 0	1 3 6	0 8 3	0 15 1	0 10 0
Charities	0 2 9	0 11 0	0 11 0	0 8 3	0 2 9	0 7 2	0 0 10
Quality allowance	7 4 9	7 4 9	8 8 0	7 4 9	4 12 6	7 0 7	1 13 5
Miscellaneous .. .. .	..	..	..	..	0 5 6	0 1 1	..
Total payable by seller ..	10 14 3	11 5 9	11 14 6	13 8 9	10 0 0	11 8 8	3 2 3
<i>Payable by buyer—</i>							
Commission and brokerage .. .. .	..	..	..	..	..	..	..
Handling and weightment charges .. .. .	..	..	..	..	..	..	..
Charities .. .. .	..	..	..	..	..	..	..
Total payable by buyer ..	..	..	..	..	..	..	..
Grand total	10 14 3	11 5 9	11 14 6	13 8 9	10 0 0	11 8 8	3 2 3

APPENDIX XXX.

Market charges on groundnuts in shell in certain assembling markets in the Central Provinces.

(Per 100 rupees).

	Akola.	Burhanpur.	Khamgaon.	Khandwa.	Malkapur.	Average.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
<i>Payable by seller—</i>						
Tolls and taxes (terminal tax, octroi, market cess, etc.) ..	1 15 0	1 15 0	0 10 0	1 6 0	0 6 3	1 4 1
Commission and brokerage	1 11 0	1 9 0	1 2 0	0 10 0	1 6 6	1 4 6
Handling and weightment charges	1 15 0	2 13 0	0 10 9	1 8 0	0 9 0	1 7 11
Charities	2 8 0	2 8 0	3 14 0	2 10 6	2 8 0	2 12 11
Quality allowance	10 0 0	(a)	10 0 0	(a)	(a)	4 0 0
Miscellaneous .. .. .	..	..	..	..	..	..
Total payable by seller	18 1 0	8 13 0	16 4 9	6 2 6	4 13 9	10 13 5
<i>Payable by buyer—</i>						
Commission and brokerage	1 15 0	1 0 0	0 2 0	..	..	0 9 10
Handling and weightment charges .. .. .	..	..	0 5 0	..	0 2 9	0 1 6
Charities .. .. .	..	..	0 2 0	..	..	0 0 5
Total payable by buyer	1 15 0	1 0 0	0 9 0	..	0 2 9	0 11 9
Grand total	20 0 0	9 13 0	16 13 9	6 2 6	5 0 6	11 9 2

(a) Quality taken into consideration in offering prices.

APPENDIX XXXI.

Market charges on groundnuts in shell in certain assembling markets in Hyderabad.
(Per 100 rupees).

	Unregulated markets.						Regulated markets.					
	Bidar.	Gulbarga.	Tandur.	Vijapur.	Yadgir.	Average.	Aurangabad.	Jalna.	Latur.	Raichur.	Warangal.	Average.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
<i>Payable by seller—</i>												
Tolls and taxes (terminal tax, octroi, market cess, etc.)	0 6 9	0 8 10	0 12 6	0 2 5	..	0 6 1	0 1 3	0 7 9	0 6 9	0 11 0	0 4 6	0 6 3
Commission and brokerage	2 12 0	2 0 0	2 1 3	1 4 0	1 8 0	1 14 8	2 4 0	1 4 0	1 13 0	1 0 0	1 4 0	1 8 2
Handling and weighment charges .. ..	..	0 2 6	0 9 3	0 7 3	0 8 8	0 5 7	0 4 10	0 4 6	..	0 8 10	1 0 9	0 6 7
Charities	0 1 9	0 3 0	0 4 0	0 8 0	0 3 9	0 4 1	..	..	0 2 3	0 0 3	..	0 0 6
Quality allowance .. ..	..	5 0 0	1 14 0	..	..	1 6 0	..	..	..	5 0 0	..	1 0 0
Miscellaneous .. ..	..	..	..	..	..	..	..	..	..	..	..	..
Total payable by seller..	3 4 6	7 14 4	5 9 0	2 5 8	2 4 5	4 4 5	2 10 1	2 0 3	2 6 0	7 2 1	2 9 3	3 5 6
<i>Payable by buyer—</i>												
Commission and brokerage .. ..	..	..	..	..	..	..	..	..	..	0 12 0	..	0 2 5
Handling and weighment charges .. ..	..	..	..	..	0 8 8	0 1 9	..	..	..	0 6 10	..	0 1 4
Charities .. ..	..	..	..	..	..	..	..	..	..	0 0 3	..	0 0 1
Total payable by buyer	..	..	..	..	0 8 8	0 1 9	..	..	..	1 3 1	..	0 3 10
Grand total ..	3 4 6	7 14 4	5 9 0	2 5 8	2 13 1	4 6 2	2 10 1	2 0 3	2 6 0	8 5 2	2 9 3	3 9 4

APPENDIX XXXII.

Market charges on groundnuts in shell in certain assembling markets in the United Provinces, Mysore, Central India, Baroda and Kathiawar States.

(Per 100 rupees).

	Madhoganj (United Provinces).	Lakhimpur (United Provinces).	Tumkur (Mysore).	Indore (Central India).	Shivpuri* (Gwalior).	A market in Baroda State.	A market in Jamnagar State.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
<i>Payable by seller—</i>							
Tolls and taxes (terminal tax, octroi, market cess, etc.)	0 2 6	0 9 6	.. .. .	.. .. .	0 4 0	0 2 9	3 8 9
Commission and brokerage	1 5 0	1 14 0	3 2 0	1 11 0	1 2 0	3 4 0	2 4 0
Handling and weightment charges	0 10 0	1 13 6	0 9 6	1 11 3	0 5 0	2 2 9	0 6 9
Charities	0 8 0	1 9 0	0 2 0	.. .. .	0 1 0	2 8 0	.. .. .
Quality allowance	0 9 6	.. .. .	6 4 0	2 8 0	.. .. .	.. .. .	.. .. .
Miscellaneous	0 4 3	0 7 2	0 8 6	.. .. .	.. .. .	.. .. .	.. .. .
Total payable by seller	3 7 3	6 5 2	10 10 0	5 14 3	1 12 0	8 1 6	6 3 6
<i>Payable by buyer—</i>							
Commission and brokerage .. .. .	.. .. .	.. .. .	.. .. .	0 4 0	0 2 0	.. .. .	.. .. .
Handling and weightment charges	1 9 0	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .
Charities	0 1 3	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .
Total payable by buyer	1 10 3	.. .. .	.. .. .	0 4 0	0 2 0	.. .. .	.. .. .
Grand total	5 1 6	6 5 2	10 10 0	6 2 3	1 14 0	8 1 6	6 3 6

*Regulated market.

APPENDIX XXXIII.

Price spreads from producer to consumer in the marketing of groundnuts in shell.

	Producer— Dhulia market— oil mill, Dhulia.	Producer— Khamgaon market— agent of oil mill at Khamgaon— oil mill, Nagpur.	Producer— Madhoganj market— wholesale merchant, Madhoganj— <i>arkhaya</i> , Cawnpore— oil mill, Cawnpore.	Producer— Mainpuri market— wholesale merchant, Mainpuri— wholesale merchant, Delhi— retailer— consumer, Delhi.	Producer— Kandorana market— wholesale merchant, Kandorana— Bedi port— <i>arkhaya</i> , Karachi— retailer— consumer, Karachi.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Producer's price for 1 maund of nuts in shell at his holding	3 8 0 (88·0)	3 4 0 (67·7)	2 15 6 (77·4)	3 3 0 (49·4)	2 12 0 (42·8)
Handling and cartage charges from village to assembling centre (market or decortivating factory)	0 0 9	0 0 9	0 0 9	0 1 0	0 1 0
Producer's price at assembling centre	3 8 9 (89·1)	3 4 9 (68·7)	3 0 3 (78·7)	3 4 0 (50·4)	2 13 0 (43·8)
Charges paid by seller at assembling centre	0 6 2	0 8 7	0 1 8	0 5 3	0 2 10
Charges paid by buyer at assembling centre .. .. .	..	0 0 3	0 0 10	..	..
Total charges at assembling centre	0 6 2	0 9 0	0 2 6	0 5 3	0 2 10
Cost at assembling centre	3 14 11 (98·8)	3 13 7 (80·2)	3 2 9 (82·7)	3 9 3 (55·5)	3 15 10 (46·5)
Handling and cartage from assembling centre to buyer's godown	0 0 9	..	0 0 2	0 0 6	0 1 0
Wholesaler's or decortivating factory's margin .. .. .	..	..	..	0 1 3	..

Bagging, handling, taxes and cartage from assembling centre to railway station .. .. .	..	0 5 0	..	..	..
Bagging, handling, taxes and cartage from godown, exporter's agency or decorticating factory to railway station .. .. .	..	..	0 3 11	0 4 11	1 0 0*
Cost f.o.r. railway station at assembling centre .. .. .	..	4 2 7 (86.7)	3 6 10 (89.4)	3 15 11 (82.0)	4 0 10 (83.1)
Railway freight on a maund nuts in shell .. .. .	..	0 7 6	0 2 2	0 5 2	0 3 0†
Cost f.o.r. railway station at destination .. .. .	..	4 10 1 (96.4)	3 9 0 (92.9)	4 5 1 (87.0)	4 3 10 (86.0)
Handling and transport charges from railway station to consumer's or exporter's or commission agent's godown .. .. .	..	0 2 9‡	0 2 6‡	0 2 1‡	0 4 0
Charges paid for sale at destination .. .. .	..	..	0 1 10	..	0 1 0
Price of 1 maund nuts in shell at consumer's godown or exporter's port godown	3 15 8 (100.0)	4 12 10 (100.0)	3 18 4 (100.0)	..	..
Cost of 1 maund nuts in shell at wholesale market's or commission agent's godown .. .. .	..	..	..	4 7 2 (89.0)	4 8 10 (70.8)
Wholesaler's margin and handling and transport to retailer's shop .. .. .	..	..	..	0 12 0	0 12 0
Cost at retail merchant's shop .. .. .	..	..	..	5 3 2 (80.6)	5 4 10 (82.5)
Retailer's margin .. .. .	..	..	..	1 4 0	1 2 0
Consumer's price .. .. .	..	..	..	6 7 2 (100.0)	6 6 10 (100.0)

* Including transport from Kandorana to Bedi port and charges at Bedi port.

† Steamer freight.

‡ Including terminal tax.

§ Including expenses at Karachi port.

NOTE.—Figures in brackets represent percentage of consumer's price.

APPENDIX XXXIV.

Price spreads from producer to consumer (or exporter) in the marketing of groundnut kernels.

	Producer— decorticat- ing factory, Salem— exporter's agency— exporter's godown, Cuddalore.	Producer— Dhulia market— wholesale merchant, Dhulia— adalya, Bombay— oil mill, Bombay.	Producer— decorticat- ing factory, Gulbarga— exporter's agency, Gulbarga— exporter's godown, Bombay.	Producer— Raichur market— wholesale merchant, Raichur— oil mill, Raichur.	Producer— Davangere market— wholesale merchant, Davangere— exporter's agency, Davangere— Maringao.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Producer's price for 1 maund of nuts in shell at his holding	2 14 0 (75·7)	3 8 0 (73·6)	3 15 0 (70·0)	3 6 0 (81·4)	3 0 0 (70·9)
Handling and cartage charges from village to assembling centre (market or decorticating factory)	0 0 9	0 0 9	0 0 6	0 1 6	0 1 0
Producer's price at assembling centre	2 14 9 (77·0)	3 8 9 (74·5)	2 15 6 (70·8)	3 7 6 (83·7)	3 1 0 (72·4)
Charges paid by seller at assembling centre	0 2 0	0 6 2	0 3 9	0 4 7*	0 4 3
Cost at assembling centre	3 0 9 (80·2)	3 14 11 (82·7)	3 3 3 (76·4)	3 12 1 (90·6)	3 5 3 (78·7)
Handling and cartage from assembling centre to decorticating factory ..	..	0 0 6	..	0 0 9	0 0 5
Decortication charges	0 1 6	0 0 9	0 1 0	0 1 0	0 1 6
Cost of 28 seers kernels	3 2 3 (82·7)	4 0 2 (84·3)	3 4 3 (77·9)	3 13 10 (93·2)	3 7 2 (81·5)

Wholesaler's or decorticating factory's margin .. .. .	..	0 1 0	..	0 1 6	1 1 0
Bagging, handling, taxes and cartage from decorticating factory to consumer's godown .. .. .	..	..	..	0 2 3	..
Bagging, handling, taxes and cartage from godown, exporter's agency or decorticating factory to railway station	0 3 8	0 2 5	0 5 9	..	0 2 9
Agency commission	0 0 3	..	0 0 3	..	0 0 3
Cost f.o.r. railway station at assembling centre	3 6 11 (92.0)	4 3 7 (88.8)	3 11 0 (88.0)	..	3 11 3 (87.4)
Railway freight on 26 secr kernels	0 5 1	0 6 9	0 7 7	..	0 8 4
Cost f.o.r. railway station at destination	3 12 0 (98.8)	4 10 4 (97.7)	4 2 7 (99.3)	..	4 3 6 (99.6)
Handling and transport charges from railway station to consumer's or exporter's or commission agent's godown	0 0 9	0 0 6	0 0 6	..	0 0 3
Charges paid for sale at destination .. .. .	..	0 1 3	..	0 0 9	..
Price of 26 secr kernels at consumer's godown or exporter's port godown i.e., consumer's price	3 13 9 (100.0)	4 12 1 (100.0)	4 3 1 (100.0)	4 2 4 (100.0)	4 3 8 (100.0)
Consumer's price per maund of kernels	5 6 10	6 12 8	5 15 10	5 14 9	6 0 8

* Includes 8 pice paid by buyer.

N.B.—Figures in brackets represent percentage of consumer's price.

APPENDIX XXXV.

Oil content, percentage of moisture and free fatty acids in commercial samples of groundnut kernels collected from different parts of India.

Variety and province or State.	Oil content (calculated on dry weight of clean kernels).			Moisture.			Free fatty acids.		
	Maximum. (Per cent).	Minimum. (Per cent).	Average. (Per cent).	Maximum. (Per cent).	Minimum. (Per cent).	Average. (Per cent).	Maximum. (Per cent).	Minimum. (Per cent).	Average. (Per cent).
<i>Peanuts (including Khandesh and Khandesh Quality)—</i>									
Madras	53.9	41.1	50.2	19.9	3.8	6.5	2.10	0.09	0.69
Bombay	55.5	50.5	52.0	6.1	3.5	5.3	2.40	0.12	1.05
Hyderabad	51.9	48.9	50.2	5.6	3.3	4.5	1.80	0.11	0.78
Central Provinces .. .. .	..	..	54.6	..	..	5.1	..	..	0.14
Mysore .. .. .	..	..	51.4	..	..	4.7	..	..	0.21
Average .. .. .	..	..	51.1	..	..	5.6	..	..	0.83
<i>Coromandel (including Karad)—</i>									
Madras	56.9	43.6	50.7	13.0	3.5	5.3	7.10	0.10	1.35

Bombay	..	..	..	54.9	47.0	50.5	5.8	4.8	5.2	1.6	0.56	0.89
Hyderabad	..	..	..	52.1	49.8	50.9	4.7	4.3	4.5	1.80	0.69	1.25
Mysore	..	..	..	..	..	45.5	..	..	5.5	..	..	0.10
Average	..	..	..	..	..	50.7	..	..	5.1	..	..	1.32
<i>Red Natal (including Pollachi Red and Small Japan)—</i>												
Madras	..	..	..	50.8	47.6	48.8	6.7	5.8	6.2	6.80	1.20	3.84
Bombay	..	..	..	..	..	51.5	..	..	5.2	..	..	2.80
Central Provinces	..	..	..	..	..	54.0	..	..	5.5	..	..	0.34
Average	..	..	..	..	..	49.9	..	..	5.9	..	..	3.19
<i>Bold—</i>												
Bombay	..	..	..	52.8	45.6	49.1	6.5	4.7	4.8	3.17	0.14	0.64
Hyderabad	..	..	..	52.2	45.7	50.0	6.1	3.6	5.2	0.66	0.07	0.26
Average	..	..	..	..	..	49.5	..	..	5.0	..	..	0.51

53
25

APPENDIX XXXVI.

Damaged, slightly damaged, shrivelled and immature and split and broken kernels, nooks and impurities in commercial samples of groundnut kernels collected from different parts of India.

Variety and province or State.	Damaged kernels.			Slightly damaged kernels.			Shrivelled and immature kernels.			Split and broken kernels.			Nooks.			Impurities.			Total of averages under different items.
	Max. (Per cent).	Min. (Per cent).	Average (Per cent).	Max. (Per cent).	Min. (Per cent).	Average (Per cent).	Max. (Per cent).	Min. (Per cent).	Average (Per cent).	Max. (Per cent).	Min. (Per cent).	Average (Per cent).	Max. (Per cent).	Min. (Per cent).	Average (Per cent).	Max. (Per cent).	Min. (Per cent).	Average (Per cent).	
<i>Peanuts (including Khandesh and Khandesh Quality)—</i>																			
Madras	12.5	NH	0.6	3.2	NH	0.5	15.7	0.6	6.0	53.7	NH	11.6	5.3	NH	0.5	5.5	0.1	1.4	20.6
Bombay	10.1	NH	1.3	5.5	NH	1.8	8.0	0.8	3.5	57.8	8.8	25.6	3.5	NH	1.2	9.0	0.4	3.2	36.6
Hyderabad	15.8	NH	2.0	4.8	NH	1.5	5.4	0.4	3.1	69.6	NH	42.0	10.2	NH	1.1	12.8	0.2	3.8	53.5
Central Provinces .. .. .	..	..	NH	..	..	NH	..	..	3.0	..	..	16.4	..	..	1.1	..	..	0.4	20.9
Mysore .. .. .	..	..	NH	..	..	NH	..	..	3.0	..	..	21.4	..	..	..	..	..	1.0	25.4
Average .. .. .	..	..	1.2	..	..	1.1	..	..	4.4	..	..	25.1	..	..	0.9	..	..	2.6	35.3
<i>Coromandel (including Karad)—</i>																			
Madras	13.3	NH	1.7	12.7	NH	1.2	20.0	NH	5.6	70.5	NH	16.0	10.5	NH	1.5	9.2	NH	1.4	27.4
Bombay	6.6	NH	1.1	4.1	NH	1.5	8.0	1.9	4.4	43.0	5.8	23.8	3.9	NH	1.4	5.3	NH	3.2	35.4
Hyderabad	2.7	NH	0.7	1.2	NH	0.4	9.8	1.4	4.4	40.2	1.2	12.8	1.3	NH	0.5	2.3	0.3	0.9	10.7
Mysore .. .. .	..	..	1.5	..	..	0.7	..	..	3.4	..	..	32.7	..	..	4.5	..	..	1.7	44.5
Average .. .. .	..	..	1.6	..	..	1.2	..	..	5.5	..	..	16.4	..	..	1.5	..	..	1.5	27.7

Red Natal (including Pollachi Red
and Small Japan)—

Madras	8.1	<i>Nil</i>	3.1	3.7	<i>Nil</i>	1.1	11.9	3.4	5.9	26.1	<i>Nil</i>	8.5	1.3	<i>Nil</i>	0.4	3.1	0.1	1.6	20.6
Bombay	0.4	<i>Nil</i>	0.7	5.6	<i>Nil</i>	1.9	3.6	0.6	2.0	26.4	17.7	22.9	4.8	0.3	1.8	3.1	1.6	2.2	31.5
Central Provinces .. .. .	..	..	..	..	..	..	..	..	..	..	..	14.7	..	..	0.7	..	..	0.4	15.8
Average .. .. .	..	..	1.9	..	..	1.2	..	..	5.1	..	..	11.8	..	..	0.7	..	..	1.6	22.3
Bold—																			
Bombay	2.6	<i>Nil</i>	0.5	3.4	<i>Nil</i>	1.1	19.0	0.7	3.7	39.4	1.3	16.5	9.5	<i>Nil</i>	1.7	8.9	<i>Nil</i>	2.4	25.9
Hyderabad	3.1	<i>Nil</i>	0.3	2.3	<i>Nil</i>	0.4	6.5	0.7	3.0	45.4	0.8	13.1	6.5	<i>Nil</i>	0.6	5.4	0.3	1.4	19.8
Average .. .. .	..	..	0.4	..	..	0.7	..	..	3.3	..	..	14.7	..	..	1.1	..	..	1.9	22.1

APPENDIX XXXVII.

Note on results of experiment to determine the rate of development of free fatty acids in whole kernels, immature and shrivelled kernels, broken and split kernels, damaged kernels and nooks.

One lot of five bags of Coromandel groundnut kernels and another lot of five bags of Peanuts, both of commercial quality, were kept in an exporter's godown at Madras under ordinary storage conditions. Similarly, a lot of 5 bags of Khandesh groundnut kernels and another lot of 5 bags Bold kernels were stored under ordinary conditions in an exporter's godown at Bombay. A sample was drawn from each of the four lots every 15 days—a record being maintained of the weather conditions during the intervening periods—and sent to Coimbatore for examination. The sampling was started in February 1939 and continued upto September 1939 so that 16 fortnightly samples were drawn from each lot, the last set of samples being drawn when the goods had been under storage for 7½ months.

Each sample, on arrival at Coimbatore, was sorted into five components, viz., (i) "wholes", i.e., fully developed sound whole kernels, (ii) "immatures", i.e., partly developed, shrivelled or immature whole kernels, (iii) "damaged", i.e., internally discoloured kernels, (iv) "splits", i.e., kernels broken into two halves or smaller pieces, and (v) nooks, i.e., pieces, ¼th or less than ¼th of a kernel. The percentage of each of the five components in each sample as well as the moisture and fatty acid content of each component was determined. The results obtained from the samples drawn from the four lots referred to above are given on pages 390 to 393. The kernels in the samples drawn in the beginning of the experiment were bright and of good colour, while those towards the end of the experiment appeared rather dull with varying degrees of insect attack, suggesting that the goods had gone out of condition.

The lot of Coromandel kernels, kept for storage at Madras, showed 4.83 per cent moisture and .63 per cent free fatty acids when the first sample was drawn in February. The free fatty acids at this time were .32 per cent in "wholes", 1.40 per cent in "nooks" and 12.63 per cent in "damaged kernels". During the two following fortnights, the weather was dry but the nights were cool and damp with heavy dew at times and the kernels gained .87 per cent moisture in a month's storage. The free fatty acids during this month increased by .19 per cent only. During the fortnight preceding the 4th sample, the weather was hot, both during day and night and the kernels lost .59 per cent moisture. The free fatty acids during this fortnight alone increased by .45 per cent. In subsequent fortnights, samples showed fluctuations in moisture content from 4.80 to 6.50 per cent, but the percentage of free fatty acids increased more or less progressively. The sample drawn after four months' storage showed 5.29 per cent moisture, i.e., a net gain of .46 per cent, that drawn after 6 months' storage showed 5.90 per cent, i.e., a net gain of 1.07 per cent, while that drawn after 7½ months' storage contained 5.72 per cent or a net gain of .89 per cent only. The free fatty acids, on the other hand, increased by .51 per cent after 2 months, 1.61 per cent after 4 months, 2.87 per cent after 6 months and 3.16 per cent after 7½ months' storage. The development of free fatty acids showed a marked difference between the different components. After 7½ months' storage, the free fatty acids increased by nearly 2 per cent in "wholes" and "immatures", 4 per cent in "splits" 12 per cent in "nooks" and as much as nearly 23 per cent in "damaged" kernels.

The lot of Peanuts at Madras behaved in a very similar way. The moisture, which was 4.76 per cent in the first sample, showed a gain in the samples drawn in the second and third weeks and a loss in the 4th fortnight's sample. In subsequent weeks, the moisture content fluctuated from 4.99 to 6.38 per cent. The free fatty acids progressively increased by .20 per cent after 2 months, .88 per cent after four months, 1.29 per cent after 6 months and 1.83 per cent after 7½ months' storage. Among the different components, the increase in free fatty acids after 7½ months' storage amounted to about 1 per cent in "wholes" and "immatures", about 6 per cent in "splits", 13 per cent in "nooks" and over 24 per cent in "damaged" kernels.

The lot of Bombay Bold stored at Bombay had 4.61 per cent moisture and .34 per cent free fatty acids when the first sample was drawn in February. The moisture generally increased when there was an increase in the humidity both during the preceding fortnight and the day of sampling, reaching over 6 per cent in 4 samples. The free fatty acids progressively increased by .31 per cent after 2 months, .64 per cent after 4 months, 1.32 per cent after 6 months and 2.05 per cent after 7½ months' storage. Among the components, as at Madras, the "damaged" kernels and "nooks" showed a considerably higher development of free fatty acids as compared with "wholes" but unlike Madras, the increase was maximum, not in the case of "damaged" kernels, but "nooks". The increase at the end of the experiment amounted to more than 1 per cent in "wholes", 2 per cent in "immatures", 4 per cent in "splits", 13 per cent in "damaged" kernels and nearly 16 per cent in "nooks".

The lot of Khandesh variety at Bombay had 4.75 per cent moisture and .64 per cent free fatty acids when the first sample was drawn. The moisture, as in the case of other varieties, varied in samples drawn at different times, reaching over 6 per cent in 3 samples. The free fatty acids progressively increased by .33 per cent after 2 months, .99 per cent after 4 months, 2.20 per cent after 6 months and 2.85 per cent after 7½ months' storage. Among the components, the free fatty acids at the end of the experiment increased by less than 1 per cent in "wholes", 2 per cent in "immatures", 7 per cent in splits, 6 per cent in damaged kernels and nearly 19 per cent in nooks.

The increase in the free fatty acids in the different varieties after different periods of storage may, therefore, be summarised as under:—

Increase in free fatty acids in groundnut kernels of different varieties after various periods of storage at Madras and Bombay.

	Period of storage.			
	2 months.	4 months.	6 months.	7½ months.
Coromandel—Madras .. ..	.51	1.61	2.87	3.16
Peanuts—Madras .. ..	.20	.88	1.29	1.83
Bold—Bombay .. ..	.31	.64	1.32	2.05
Khandesh—Bombay .. ..	.33	.99	2.20	2.85
Average for 4 lots .. ..	.34	1.03	1.92	2.47

The approximate increase in free fatty acids in the different lots and their different components after 7½ months' storage may be summarised as in the table below :—

Development of free fatty acids in groundnut kernels of different varieties after 7½ months' storage at Madras and Bombay.

	Percentage of free fatty acids.				
	Coro-mandel.	Peanuts.	Bold.	Khandesh.	Average.
Wholes	2	1	1	1	1.25
Immatures	2	1	2	2	1.75
Splits	4	6	4	7	5.25
Damaged kernels ..	23	24	13	6	16.50
Nooks	12	13	16	19	12.00
Average for entire sample	3	2	2	3	2.5

The following conclusions may, therefore, be drawn from the results of the experiment.

1. The moisture content in groundnut kernels varies at different times during storage and appears to be affected by temperature and humidity at the place of storage.*

2. The free fatty acids increase progressively during storage. The rate of development of free fatty acids is slow during the first two months and becomes faster as the period of storage increases. As the rate of increase also appears to be accelerated by higher temperatures, the increase during a certain length of storage will vary according to the season.

3. The "damaged" kernels and "nooks" develop fatty acids much more and considerably faster than "wholes" and "immatures". "Damaged" kernels deteriorate more quickly at Madras, while "nooks" deteriorate more rapidly at Bombay.

4. The Khandesh variety develops free fatty acids somewhat more rapidly than Bold at Bombay. The sample of Coromandel at Madras showed more increase than Peanuts owing to the former containing a higher percentage of damaged kernels specially in the later samples.

*It may be noted that in the results obtained by examination of different samples during the experiment, the percentage of moisture in different samples was also affected by the weather conditions prevailing during the period of transit from Madras or Bombay to Coimbatore, and the interval between the arrival and analysis of the sample at Coimbatore.

It is thus essential that if quality of groundnut kernels has to be maintained during long-period storage (or transport), the "damaged" kernels, "nooks" and "splits" should be minimised as much as possible—by picking in the case of "damaged" kernels, by sieving in the case of "nooks" and use of properly adjusted decorticators for avoiding high percentage of "splits". Steps are also necessary to avoid insect pests, as they, besides otherwise deteriorating quality, help to increase the proportion of "nooks" and "damaged" kernels, which contribute to deterioration in quality.

APPENDIX XXXVII—contd.

Results of analysis of samples of groundnut kernels drawn after different periods of storage from a lot of Coromandel variety stored at Madras.

Period of storage.	Weather conditions in the preceding fortnight.	Proportion of different components in the samples.						Percentage of moisture.						Percentage of free fatty acids.					
		W.	S.	I.	D.	N.	Impurities†	W.	S.	I.	D.	N.	Entire sample	W.	S.	I.	D.	N.	Entire sample
*	Dry	50.36	29.17	6.89	1.97	0.75	0.86	4.87	4.78	5.39	4.51	4.53	4.83	0.32	0.50	0.97	12.63	1.40	0.63
1 fort-night.	Dry; night cool and damp	61.20	28.40	5.33	2.13	0.30	2.64	5.22	5.26	6.57	5.08	4.89	5.16	0.64	0.50	1.60	17.78	1.56	1.00
2 "	Days dry; heavy dew at nights	59.61	26.64	8.52	1.75	0.31	3.17	5.74	5.88	6.91	5.72	6.21	5.70	0.51	0.59	0.69	16.80	1.78	0.82
3 "	Hot both during day and night	66.62	24.56	5.56	3.20	0.31	..	5.03	5.12	5.87	5.24	5.68	5.11	0.49	1.01	0.96	19.84	2.41	1.27
4 "	Hot and sultry	68.06	24.16	5.71	1.26	0.17	0.64	6.60	6.47	7.42	5.99	7.55	6.50	0.70	1.23	1.46	22.10	1.81	1.14
5 "	Rainy, changes into very hot and sultry	65.51	22.27	6.64	2.49	0.12	2.97	6.30	6.21	7.80	6.22	6.82	6.19	0.83	1.45	1.87	21.99	2.86	1.54
6 "	Hot and sultry	57.69	26.73	11.32	1.56	0.24	2.46	5.74	5.05	6.08	5.76	6.22	5.68	1.21	2.83	1.53	31.39	5.80	1.69
7 "	Very hot and warm winds during day	63.43	24.12	7.45	2.47	0.22	2.31	5.47	5.71	6.86	5.28	6.03	5.50	1.06	2.91	1.72	24.51	7.15	2.12
8 "	.....	63.05	24.78	8.26	2.26	0.19	1.46	5.17	5.51	6.55	5.14	6.22	5.29	0.97	3.36	2.05	26.96	7.51	2.24
9 "	Alternately fine and hot with occasional drizzles	66.82	22.75	6.38	2.18	0.23	1.64	5.31	5.36	6.67	5.49	5.89	5.33	1.39	3.22	2.49	26.15	7.20	2.41
10 "	Cool weather	61.08	27.17	7.39	2.35	0.22	1.79	5.59	5.96	7.75	5.75	6.65	5.76	0.99	4.04	2.52	23.97	9.58	2.47
11 "	Cloudy with drizzles for the major part	58.95	28.52	7.37	2.73	0.19	2.24	4.68	5.10	6.06	4.78	5.54	4.80	1.09	3.74	2.76	25.69	9.07	2.63
12 "	Hot and sultry with heavy winds and passing clouds	60.78	26.58	8.71	2.18	0.43	1.32	5.73	6.11	7.30	5.79	6.99	5.90	2.53	3.81	2.38	31.45	11.85	3.50
13 "	Cloudy	55.82	33.83	6.98	1.69	0.41	1.27	6.05	5.77	7.60	6.08	6.17	5.99	1.98	3.37	2.58	33.59	9.67	3.03
14 "	Hot	61.02	25.84	7.91	3.04	0.43	1.76	5.63	5.75	7.27	6.27	6.34	5.71	1.83	4.02	3.82	24.40	11.99	3.25
15 "	Hot; rainy towards the end	65.80	23.78	5.70	2.41	0.21	2.10	5.60	5.92	7.27	8.31	6.56	5.72	2.49	4.58	2.89	36.01	13.06	3.79

W—"Wholes"—fully developed sound kernels. S—"Splits"—split or broken kernels. I—"Immatures"—small or partly developed kernels.

D—"Damaged"—damaged kernels. N—"Nooks"—pieces 1/8th or less than 1/8th of a kernel.

*Sample drawn at the beginning of the experiment in February. † Impurities have been calculated by difference.

APPENDIX XXXVII—contd.

Results of analysis of samples of groundnut kernels drawn after different periods of storage from a lot of Peanut variety stored at Madras.

Period of storage.	Weather conditions in the preceding fortnight.	Proportion of different components in the samples.						Percentage of moisture.						Percentage of free fatty acids.					
		W.	S.	I.	D.	N.	Impurities†	W.	S.	I.	D.	N.	Entire sample	W.	S.	I.	D.	N.	Entire sample
*	Dry	67.54	18.24	11.44	0.66	0.35	1.77	4.68	4.89	5.75	5.30	5.07	4.76	0.29	0.34	1.78	10.40	1.23	0.53
1 fort-night.	Dry; night cool and damp	68.26	18.01	9.50	0.86	0.30	3.07	5.52	5.08	6.92	5.60	5.12	5.40	0.22	0.33	1.52	15.66	0.69	0.49
2 "	Days dry; heavy dew at nights	70.50	17.36	6.73	0.56	0.35	4.50	6.03	5.98	7.25	6.12	5.77	5.83	0.24	0.52	0.74	21.01	1.84	0.43
3 "	Hot both during day and night	72.04	15.63	8.80	0.62	0.18	2.73	4.82	4.77	5.67	4.59	4.69	4.75	0.38	0.86	0.76	19.49	2.38	0.60
4 "	Hot and sultry	71.20	16.78	9.79	0.21	0.17	1.85	6.34	6.15	7.70	7.06	7.06	6.83	0.49	1.03	1.53	25.03	2.10	0.73
5 "	Rainy; changes into very hot and sultry.	72.14	14.78	7.76	0.87	0.17	4.58	6.21	6.20	8.03	6.52	5.65	6.07	0.63	1.88	0.83	22.21	5.06	0.03
6 "	Hot and sultry	69.50	17.22	10.16	0.45	0.16	2.51	5.95	5.56	6.53	6.19	6.06	5.79	0.67	2.30	1.36	27.52	6.65	1.13
7 "	Very hot and warm winds during day	71.83	15.48	9.46	0.49	0.12	2.62	5.45	5.76	6.68	6.04	5.98	5.48	0.72	3.43	1.23	30.66	6.55	1.32
8 "	.....	68.71	17.40	10.22	0.55	0.19	2.93	5.13	5.28	6.40	5.80	6.35	5.14	0.74	3.54	1.27	24.76	8.43	1.41
9 "	Alternately fine and hot with occasional drizzles.	69.37	16.22	9.00	0.54	0.12	2.75	5.05	5.19	6.34	6.03	6.19	5.06	0.68	2.56	1.73	28.83	7.18	1.26
10 "	Cool weather	68.95	18.76	10.03	0.63	0.14	1.49	5.89	5.89	7.32	5.97	6.68	5.95	0.70	5.04	1.10	40.86	12.20	1.81
11 "	Cloudy with drizzles for the major part	70.89	18.75	6.78	0.53	0.18	2.87	5.08	5.11	5.82	5.33	5.53	4.99	0.87	5.34	1.64	29.56	11.80	1.91
12 "	Hot and sultry with heavy winds and passing clouds	70.96	15.29	12.23	0.40	0.29	0.83	5.30	5.72	6.77	4.61	3.79	5.49	0.79	4.81	2.88	34.41	10.28	1.82
13 "	Cloudy	67.10	18.59	11.75	0.68	0.28	1.60	5.96	5.62	7.75	6.84	5.42	6.02	2.35	5.45	1.37	28.64	14.13	2.99
14 "	Hot	69.02	16.96	10.36	0.48	0.14	3.05	5.67	5.62	6.89	6.48	6.74	5.62	0.74	3.61	1.47	31.77	8.71	1.44
15 "	Hot; rainy towards the end	66.70	19.59	10.60	0.41	0.20	2.50	5.92	5.40	7.40	5.66	5.81	5.83	1.19	6.07	1.98	34.97	14.31	2.37

W—"Wholes"—fully developed sound kernels. S—"Splits"—split or broken kernels. I—"Immatures"—small or partly developed kernels. D—"Damaged"—damaged kernels. N—"Nooks"—pieces 1/8th or less than 1/8th of a kernel.

*Sample drawn at the beginning of the experiment in February. † Impurities have been calculated by difference.

APPENDIX XXXVII—contd.

Results of analysis of samples of groundnut kernels drawn after different periods of storage from a lot of Bold variety stored at Bombay.

Period of storage.	Weather conditions in the preceding fortnight.				Proportion of different components in the samples.							Percentage of moisture.						Percentage of free fatty acids.					
	Humidity		Temperature.		W.	S.	I.	D.	N.	Impurities†	W.	S.	I.	D.	N.	Entire sample	W.	S.	I.	D.	N.	Entire sample	
	Maximum.	Minimum.	Maximum.	Minimum.																			
*	80	56	87	65	74.64	15.81	6.38	0.46	0.66	2.15	4.50	5.12	6.04	5.30	4.96	4.61	0.28	0.30	0.63	8.15	0.38	0.34	
1 fortnight	86	57	90	68	74.11	16.15	6.28	0.21	0.36	2.91	4.73	4.57	5.36	4.78	4.55	4.61	0.29	0.28	0.40	8.45	0.68	0.31	
2 "	82	42	89	67	71.11	19.12	6.31	0.11	0.57	2.78	5.35	5.03	6.13	5.10	5.15	5.20	0.39	0.51	0.60	12.01	0.95	0.43	
3 "	83	63	92	69	74.74	17.37	5.26	0.12	0.42	2.09	5.18	5.23	6.61	5.29	5.87	5.16	0.57	0.82	0.84	8.17	1.93	0.63	
4 "	83	69	90	73	74.47	16.92	4.17	0.10	0.57	3.77	5.68	5.56	6.89	6.22	5.61	5.50	0.58	0.91	0.96	11.54	2.16	0.65	
5 "	82	61	91	73	73.26	20.05	4.81	0.09	0.35	1.44	4.79	5.25	6.62	5.29	5.81	4.91	0.53	1.19	0.81	23.79	3.01	0.70	
6 "	79	42	96	76	71.80	18.87	6.20	0.06	0.83	2.24	5.17	4.95	6.06	4.70	5.11	5.07	0.72	1.53	1.22	21.84	4.06	0.93	
7 "	75	64	91	79	72.18	15.05	5.87	0.10	0.60	6.20	4.99	4.95	6.10	5.60	5.70	4.75	0.71	1.71	1.04	22.06	4.59	0.88	
8 "	90	67	94	75	71.90	20.00	4.05	0.07	0.55	3.43	6.10	6.05	7.94	6.44	6.87	5.96	0.74	1.81	1.21	9.38	5.55	0.98	
9 "	91	73	91	77	69.28	22.84	5.13	0.09	0.63	2.03	5.90	6.44	8.55	7.30	6.97	6.05	0.93	2.81	1.85	18.94	6.57	1.44	
10 "	95	83	88	72	65.82	23.72	6.53	0.07	0.41	3.45	5.64	5.56	7.17	6.36	5.64	5.53	0.97	2.51	1.80	8.58	7.10	1.39	
11 "	97	80	87	74	66.00	23.75	7.55	0.07	0.65	1.98	6.30	6.22	7.87	7.00	6.98	6.28	1.03	2.98	1.61	14.56	9.24	1.59	
12 "	90	75	89	75	67.39	23.78	5.71	0.15	0.49	2.48	5.86	5.99	8.62	6.71	6.55	5.91	1.01	2.98	3.34	21.53	10.28	1.66	
13 "	94	83	87	72	70.26	20.26	5.41	0.20	0.45	3.42	6.10	6.27	8.41	7.50	6.75	6.06	1.44	4.58	2.23	17.39	12.77	2.15	
14 "	92	72	86	73	67.16	21.96	7.12	0.07	0.71	2.98	5.82	5.83	7.98	7.09	6.02	5.81	1.36	4.30	2.53	29.79	16.13	2.17	
15 "	97	73	87	73	67.36	23.16	6.32	0.12	0.76	2.28	6.35	6.07	8.34	7.44	6.86	6.27	1.50	4.50	2.95	21.30	16.90	2.39	

W—"Wholes"—fully developed sound kernels. S—"Splits"—split or broken kernels. I—"Immatures"—small or partly developed kernels.
 D—"Damaged"—damaged kernels. N—"Nooks"—pieces 1/8th or less than 1/8th of a kernel.

* Sample drawn at the beginning of the experiment in February. † Impurities have been calculated by difference.

APPENDIX XXXVII—conold.

Results of analysis of samples of groundnut kernels drawn after different periods of storage from a lot of Khandesh variety stored at Bombay.

Period of storage.	Weather conditions in the preceding fortnight.				Proportion of different components in the samples.						Percentage of moisture.						Percentage of free fatty acids.					
	Humidity.		Temperature.		W.	S.	I.	D.	N.	Impurities†	W.	S.	I.	D.	N.	Entire sample	W.	S.	I.	D.	N.	Entire sample
	Maxi-mum.	Mini-mum.	Maxi-mum.	Mini-mum.																		
"	80	56	87	66	68.40	22.53	4.71	1.11	0.51	2.74	4.88	4.62	6.01	5.59	4.79	4.75	0.42	0.68	0.85	13.60	1.95	0.84
1 fortnight	86	57	90	68	71.94	22.90	2.55	0.61	0.71	1.29	4.27	4.45	5.56	4.89	4.32	4.29	0.36	0.84	1.35	11.98	1.68	0.57
2 "	82	42	89	67	65.28	26.95	4.66	0.33	0.57	2.21	5.01	4.68	5.81	4.77	4.67	4.84	0.41	1.10	0.70	15.20	3.62	0.87
3 "	83	63	92	69	64.74	26.58	4.00	0.28	0.84	3.56	4.96	4.64	6.04	5.73	5.18	4.67	0.46	1.28	0.90	18.30	4.06	0.76
4 "	83	69	90	73	68.00	26.88	2.74	0.32	0.84	1.32	5.56	5.16	6.96	5.65	4.90	5.42	0.53	1.70	1.25	22.10	5.24	0.97
5 "	82	61	91	73	67.85	26.34	3.07	0.27	0.57	1.90	5.40	4.91	7.16	6.24	5.57	5.23	0.53	2.28	1.14	19.32	5.93	1.08
6 "	79	42	96	76	65.92	27.44	3.66	0.31	0.83	2.04	4.99	4.56	5.84	5.52	4.69	4.77	0.81	2.58	1.13	11.30	6.34	1.37
7 "	75	64	91	79	65.30	28.93	3.19	0.30	0.53	1.75	4.88	4.80	5.85	5.64	4.90	4.81	0.82	2.48	1.32	18.97	6.91	1.39
8 "	90	67	94	75	64.04	27.93	4.25	0.24	0.73	2.81	6.07	5.65	7.52	8.12	5.98	5.85	0.90	3.21	1.32	19.10	8.10	1.63
9 "	91	73	91	77	61.31	31.18	3.48	0.33	0.80	2.90	6.51	6.24	8.24	7.79	6.54	6.30	0.82	4.02	1.49	19.64	10.56	1.96
10 "	95	83	88	72	63.96	28.96	3.37	0.22	0.64	2.85	5.58	5.29	7.13	6.11	5.51	5.39	1.02	4.02	1.79	19.17	11.41	1.99
11 "	87	80	87	74	65.00	27.99	4.38	0.22	0.47	1.94	6.48	6.25	7.93	8.21	6.92	6.36	1.11	4.29	2.03	25.93	13.53	2.13
12 "	90	75	89	75	63.11	30.16	3.60	0.24	0.67	2.22	6.12	6.99	7.76	7.40	6.43	6.01	1.34	5.79	2.73	19.30	16.88	2.84
13 "	94	83	87	72	63.46	29.13	3.38	0.32	0.78	2.93	5.89	6.07	8.86	7.41	6.29	5.88	1.10	6.83	2.83	19.85	20.55	3.01
14 "	92	72	86	73	62.12	30.53	4.06	0.29	0.89	2.11	6.17	5.50	7.44	5.95	6.11	5.89	1.31	6.98	2.80	26.35	23.60	3.35
15 "	97	73	87	73	61.84	30.26	3.16	0.30	2.11	2.33	6.00	5.99	7.76	7.01	6.56	5.93	1.15	7.27	2.75	19.18	20.63	3.49

W—"Wholes"—fully developed sound kernels. S—"Splits"—split or broken kernels. I—"Immatures"—small or partly developed kernels.

D—"Damaged"—damaged kernels. N—"Nooks"—pieces 1/8th or less than 1/8th of a kernel.

* Sample drawn at the beginning of the experiment in February. † Impurities have been calculated by difference.

APPENDIX

Comparison of terms of groundnut kernels contracts of certain associations and of the basis of admixture

	Incorporated Oil Seed Association, London.	Exporters.		
		A.	B.	C.
Description	Dry decorticated Coromandel (or Bombay groundnut kernels, fair average quality of their description.	Decorticated by machine out of thoroughly dry unshelled nuts, new crop, fair average of the season, fully dried to the satisfaction of buyers.		
Basis ..	Pure	2% foreign matter and 2% damaged seeds.	2% foreign matter and 2% touched seeds	2% foreign matter and 2% damaged seeds.
Foreign matter ..	Buyer to get an allowance equal to the percentage of admixture. When allowance exceeds 3%, the excess of 3% shall be double.	Over 2% up to 3%—seller to pay proportionate allowance. Below 2%—buyer to pay proportionate allowance.	2% mutual ..	Over 2% up to 3% seller to pay proportionate allowance. Below 2%—buyer to pay proportionate allowance.
Nuts in shell		Free from unshelled nuts.		
Damaged .. seeds.	If kernels are not equal to fair average quality or be damaged by sea or otherwise, they are to be taken with an allowance fixed by agreement or arbitration.	2% free, over 2% up to 6%—allowance @ $\frac{1}{4}$ th of the contract price. § Over 6% up to 10%—allowance @ $\frac{1}{2}$ of the contract price.	Nothing free ..	2% free. Over 2% up to 10%—allowance @ $\frac{1}{4}$ of the contract price.

* For " futures "

† Total of foreign matter (dirt, stones, shell, other seeds, etc.) plus such proportions of

‡ See

§ This has since been revised to

|| or Superior

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exporters, and the All-India Standard Contract in respect and scale of allowances.

Seeds Traders' Association, Ltd., Bombay.	Grain Merchants' Association, Bombay.		All-India Standard Contract.
	In force up to 1939/40 crop.	Revised with effect from 1940/41 crop.	
Bold*, Groundnut seeds. Sholapur/Bawli, Kolhapur, Karad, Kathiawar and/or goods of Gujrat district	Bold, Khandesh, Madras and Karad groundnut kernels.	Types.—Same as in Standard Contract—Karad groundnuts to be classed as Bold. Fair average quality of the above mentioned types and in thoroughly dry condition.	Types.—(i) Khandesh, (ii) Khandesh Quality (Peanuts), (iii) Bold, (iv) Kathiawar Bold, (v) Coromandel and (vi) Red Natal.
Refraction† 4% mutual. Over 4% up to 8%—proportionate allowance. Over 8%—proportionate allowance plus cleaning charge @ Rs. 3-8-0 per 100 bags.		Refraction 4% mutual. Over 4% up to 8%—proportionate allowance. Over 8% proportionate allowance plus cleaning charge @ Rs. 3 per 100 bags.	Refraction 4% mutual. Over 4% up to 8%—proportionate allowance. Over 8%—proportionate allowance plus cleaning charge @ Rs. 3-8-0 per 100 bags.
Included in calculating retraction.			
Up to 10%—reckoned as 1/4th dirt. Over 10% up to 20% reckoned as 3/8th dirt. Over 20%—rejection at buyer's option.	Up to 10%—reckoned as 1/4th dirt. Over 10% up to 25% reckoned as 3/8th dirt. Over 25%—rejection at buyer's option.	Nothing free. Up to 10% by weight the amount of shell shall be calculated and reckoned as dirt. Over 10% up to 15%—1 1/2 times the weight of shell reckoned as dirt. Over 15%—rejection at buyer's option.	Nothing free. Up to 10% by weight, the amount of shell shall be calculated and reckoned as dirt. Over 10%—rejection at buyer's option.
Nothing free. Reckoned as 1/4th dirt.		2% free. Over 2% up to 4%—reckoned as 1/4th dirt. Over 4% up to 10%—reckoned as 1/2 dirt. Over 10%—rejection at buyer's option.	2% free. Over 2% up to 4%—whole reckoned as 1/4th dirt. Over 4% up to 10%—whole reckoned as 1/2 dirt. Over 10%—rejection at buyer's option.

trading.
damaged kernels, shrivelled kernels, nooka, broken and splits, etc., as are reckoned as dirt.
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allowance @ 1/2 contract price.
Bold.

APPENDIX

Comparison of terms of groundnut kernels contracts of certain associations of admixture and

	Incorporated Oil Seed Association, London.	Exporters.		
		A.	B.	C.
Slightly damaged (touched) seeds.	If kernels are not equal to fair average quality or be damaged by sea or otherwise, they are to be taken with an allowance fixed by agreement or arbitration.	..	2% non-mutual allowance as per buyer's scale.	
Shrivelled seeds.		Nothing specified.		2% free. Over 2%—allowance @ $\frac{1}{4}$ th of the contract price.
Nooks ..		Nothing specified.		5% free. Over 5%—allowance @ $\frac{1}{4}$ th of the contract price.
Brokens or splits.		Nothing specified.		
Admixture with other varieties.	Do. ..	Khandesh variety under Coromandel contract. Up to 6%—quality allowance @ $\frac{1}{8}$ th of the contract price. Over 6% up to 10%—quality allowance @ $\frac{1}{4}$ th of the contract price.		Khandesh variety under Coromandel contract. 1% free. Over 1% up to 6%—quality allowance @ $\frac{1}{8}$ th of the contract price. Over 6% up to 10%—quality allowance @ $\frac{1}{4}$ th of the contract price. Red Natal, under Khandesh contract. 1% free. Over 1% to 10%—allowance @ $\frac{1}{4}$ th of the contract price.
Castor seed	..	Buyers entitled to reject, if traces of castor bean detected.		

† In the revised Grain Merchants' Association Contract $\frac{1}{16}$ th part of a kernel or a part less than $\frac{1}{8}$ th

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and exporters, and the All-India Standard Contract in respect of the basis scale of allowances—contd.

Seeds Traders' Association, Ltd., Bombay.	Grain Merchants' Association, Bombay.		All-India Standard Contract.
	In force up to 1939/40 crop.	Revised with effect from 1940/41 crop.	
Nothing free. Reckoned as 1/8th dirt.			Included with damaged.
..	..	2% free. Excess over 2%—reckoned as 1/8th dirt.	
5 % free. Over 5% up to 15%—reckoned as 1/8th goods. Over 15% rejection at buyer's option. Nothing	25% free. Over 25% reckoned as 1/8th dirt. specified.	5% free. Over 5% up to 10%—excess reckoned as 1/8th dirt. Over 10%—rejection at buyer's option. Splits, 25% free. Excess over 25%—reckoned as 1/16th dirt. Brokens, 10% free. Excess over 10%—reckoned as 1/8th dirt. Red Natal in Khandedh—5% free. Over 5% up to 10%—excess reckoned as 1/8th dirt. Over 10%—rejection at buyer's option. Red Natal in other types—2% free. Over 2% up to 5%—excess reckoned as 1/8th dirt. Over 5%—rejection at buyer's option. Any type (except Red Natal) in any other type—same as in Standard Contract.	
Nothing specified ..	Karad accepted under Bold.	Red Natal in any other type—1% free. Over 1% up to 5%—excess reckoned as 1/8th dirt. Over 5%—rejection at buyer's option. Any type (except Red Natal) in any other type—5% free. Excess over 5% up to 10% to be reckoned as 1/8th dirt. Over 10%—rejection at buyer's option.	
For more than 8 seeds in a bag, cleaning charge @ 1 anna per bag and more than 36 seeds in a bag, cleaning charge @ 2 annas per bag.			Nothing free. Buyer's option to clean at seller's expense subject to a maximum cleaning charge of 2 annas per bag.

smaller than it is termed a nook. In the Standard Contract nooks are defined as pieces 1/8th or of a kernel.

APPENDIX XXXIX.

Copy of a form used for recording weightment of bags and analysis of samples of groundnut kernels.

PORT PASS.

Running No. _____ Date _____ Godown No. _____ Basket No. _____

Quality Corp Station No. of Bags Invoice No. B/E No. Date of B/R

Wagon No. Tra. Wna. No. No. of Bags S/Agency B/R Advice No.

Despatch No. Purchase No. Bags No. = Bags No. = Bags. Total No. of Bags.

Date Unloaded Wagon No. Godown No. of bags Quality Crop

Short delivered by Railway Bags. Damaged In transit Bags. Nature of damage.

Weighment Gross.						Refraction.					H. O. Remarks.	
No.	Lb.	Dec.	No.	Lb.	Dec.	Dirt. Dead seeds.	Age- ncy. %	Po- rt. %	Fin- al. %	Toler- ance. %	Allow- ance. %	
1			21									
2			22									
3			23			Total. Less. Dirt basis. Recoverable.						
4			24									
5			25			Special Allowance.						
6			26									
7			27			Broken. Nooks. Peanuts. Dryage. Quality. Smell. Weevilled.						
8			28									
9			29			Condition of gunnies _____						
10			30									
11			31			Gunny allowance per 100 = Ra. _____						
12			32									
13			33									
14			34									
15			35									
16			36									
17			37									
18			38									
19			39									
20			40									
Av. Nett Wgt. p. bag lb. _____												
Lb. _____												
Total Nett Wgt. _____												
Cwt. lb.												
Despatch Wgt. lb. _____ p. bag. _____												
Weighed by _____												
Sampled by _____												
Godown Superintendent _____												
Passed by _____												

APPENDIX XL.

Note on the experiment of drawing samples of groundnut kernels by alternative methods.

Samples of groundnut kernels were drawn by the following 3 methods.

Method 1.

10 per cent bags from a consignment were picked out with a minimum of 5 bags and a maximum of 10 bags. These bags were laid horizontally and their seams cut open. From the contents of each bag 3 scoops were taken out—one from the bottom, another from the middle and a third from the top. The quantities so taken from the different bags were put in one container and formed the basis of the sample to be analysed. The whole sample was cleaned for dirt. For further analysis 100 tolas were taken out with small scoops from the cleaned sample. From these 100 tolas, damaged kernels, slightly damaged kernels, split and broken kernels and nocks were separated and weighed.

Method 2.

5 per cent of the bags were taken for sampling. The bags were placed lengthwise and the seams cut open. 3 scoops were taken from each bag, one from each of the extremities of the bags and the third from the centre. The weight of the sample was more than 100 tolas.

Method 3.

5 per cent of the bags were taken for sampling. The bags were cut open and the contents heaped. 6 scoops were drawn from each bag and mixed. From this, 13 small scoops were drawn and a sample of 100 tolas taken.

Samples in triplicate were drawn by each of the three methods from ten lots, so that 90 samples in all were drawn. Each sample was tested for the undermentioned 7 items :—

- (i) Dirt, (ii) damaged kernels, (iii) touched kernels, (iv) split kernels,
- (v) broken kernels, (vi) nocks, and (vii) shrivelled kernels.

The results obtained from the 90 samples are given on pages 400 to 402.

These results were statistically analysed for variance and the following conclusions drawn.

“Of the seven factors examined, dirt per cent, damaged seeds per cent, split per cent, and shrivel per cent gave fairly low sampling errors. The lots in almost all the cases showed significant variation. Of the three methods examined, method 1 gave almost the lowest sampling variation and may be considered the best from the point of view of consistency of the samples. Between method 2 and method 3, there is not much to choose.”

APPENDIX XL—contd.

Results of analysis of groundnut samples drawn by different methods.

Method No. 1.

Particulars.	Dirt.	Damaged kernels.	Touched kernels.	Split kernels.	Broken kernels.	Nooks.	Shrivelled kernels.	Remarks.
	(Per cent).	(Per cent).	(Per cent).	(Per cent).	(Per cent).	(Per cent).	(Per cent).	
<i>Lot No. 1.</i>								
1st sample ..	1.14	2.40	0.50	63.00	5.70	3.40	2.90	
2nd sample ..	0.96	3.30	0.20	63.10	7.80	4.10	2.90	
3rd sample ..	1.25	3.10	0.30	62.30	5.90	3.10	3.70	
<i>Lot No. 2.</i>								
1st sample ..	1.89	2.90	0.10	59.40	3.60	2.80	3.40	
2nd sample ..	2.05	2.10	0.10	58.90	4.10	3.20	3.50	
3rd sample ..	1.95	2.30	..	57.90	3.00	2.50	3.70	
<i>Lot No. 3.</i>								
1st sample ..	1.81	3.00	0.60	37.80	6.20	2.00	1.80	
2nd sample ..	1.62	2.10	0.10	39.40	6.00	1.50	1.90	
3rd sample ..	1.61	3.10	..	39.10	8.60	2.70	1.80	
<i>Lot No. 4.</i>								
1st sample ..	1.82	1.80	0.20	20.50	4.20	1.40	3.00	
2nd sample ..	2.01	1.70	0.40	19.10	5.80	1.50	3.00	
3rd sample ..	2.18	1.70	0.20	17.00	3.20	1.30	3.10	
<i>Lot No. 5.</i>								
1st sample ..	1.05	2.50	0.10	30.30	4.00	1.10	2.90	
2nd sample ..	1.20	3.00	0.30	31.20	3.20	0.80	2.40	
3rd sample ..	1.21	2.40	0.20	27.10	3.30	1.00	2.90	
<i>Lot No. 6.</i>								
1st sample ..	1.66	4.00	0.30	41.00	4.50	7.90	2.40	
2nd sample ..	1.47	4.00	..	39.10	4.50	7.10	2.30	
3rd sample ..	1.46	4.30	1.10	34.20	5.30	6.20	2.50	
<i>Lot No. 7.</i>								
1st sample ..	1.68	3.00	0.20	37.90	2.40	2.00	2.50	
2nd sample ..	1.47	3.40	..	32.10	3.70	2.40	2.50	
3rd sample ..	1.53	2.70	0.30	38.90	3.90	1.70	2.30	
<i>Lot No. 8.</i>								
1st sample ..	1.90	2.80	..	37.10	3.30	4.20	2.00	
2nd sample ..	1.77	3.10	0.10	34.60	2.50	3.90	1.80	
3rd sample ..	1.80	2.50	..	36.50	2.70	4.40	2.10	
<i>Lot No. 9.</i>								
1st sample ..	0.57	2.90	..	38.60	5.20	3.00	2.40	
2nd sample ..	0.62	2.50	0.10	35.40	5.20	2.50	2.90	
3rd sample ..	0.59	1.90	0.50	42.30	4.40	1.90	2.40	
<i>Lot No. 10.</i>								
1st sample ..	2.46	2.90	..	17.30	1.80	0.70	4.60	
2nd sample ..	2.00	1.90	0.30	17.80	1.50	0.50	3.60	
3rd sample ..	2.03	2.10	0.20	17.80	1.50	0.90	3.70	

APPENDIX XI—contd.

Results of analysis of groundnut samples drawn by different methods—contd.
Method No. 2.

Particulars.	Dirt.	Damaged kernels.	Touched kernels.	Split kernels.	Broken kernels.	Nooks.	Shrivelled kernels.	Remarks.
	(Per cent).	(Per cent).	(Per cent).	(Per cent).	(Per cent).	(Per cent).	(Per cent).	
<i>Lot No. 1.</i>								
1st sample ..	1.49	2.70	0.70	55.30	9.20	5.20	2.70	
2nd sample ..	1.66	2.80	0.20	58.20	8.80	4.00	2.50	
3rd sample ..	1.19	3.20	0.30	62.00	5.80	4.60	3.40	
<i>Lot No. 2.</i>								
1st sample ..	2.21	3.00	0.20	57.80	4.00	4.00	3.00	
2nd sample ..	1.90	1.90	0.20	57.20	3.30	2.70	2.60	
3rd sample ..	1.92	2.40	..	58.50	3.70	2.70	3.40	
<i>Lot No. 3.</i>								
1st sample ..	1.27	3.20	0.30	41.10	3.90	3.20	1.80	
2nd sample ..	1.79	2.20	0.20	44.20	6.10	2.30	1.80	
3rd sample ..	1.80	2.80	0.10	38.90	8.40	0.40	1.70	
<i>Lot No. 4.</i>								
1st sample ..	2.17	1.90	0.20	16.80	4.00	1.10	2.80	
2nd sample ..	2.02	1.60	0.20	19.90	5.30	1.60	2.80	
3rd sample ..	1.88	1.90	0.10	20.20	4.20	1.40	3.20	
<i>Lot No. 5.</i>								
1st sample ..	1.27	2.40	0.30	32.00	3.70	0.50	2.40	
2nd sample ..	0.91	3.00	0.20	32.00	3.20	0.90	2.40	
3rd sample ..	1.13	2.30	0.30	32.10	2.90	0.50	2.70	
<i>Lot No. 6.</i>								
1st sample ..	1.35	3.60	0.40	33.40	4.90	4.50	2.60	
2nd sample ..	1.39	4.20	0.10	37.30	5.80	6.40	2.20	
3rd sample ..	1.58	4.00	1.00	39.50	6.70	6.00	2.30	
<i>Lot No. 7.</i>								
1st sample ..	1.52	3.10	0.40	39.90	3.40	3.70	2.20	
2nd sample ..	1.67	3.20	0.60	38.50	3.20	2.70	2.10	
3rd sample ..	1.45	2.50	0.50	41.40	3.80	2.50	2.20	
<i>Lot No. 8.</i>								
1st sample ..	1.70	2.20	..	42.00	8.30	1.20	2.00	
2nd sample ..	1.53	2.90	0.40	36.80	4.40	2.70	2.40	
3rd sample ..	1.59	2.20	0.10	42.40	4.60	2.20	1.90	
<i>Lot No. 9.</i>								
1st sample ..	0.60	2.40	0.20	37.40	4.80	2.70	1.70	
2nd sample ..	0.98	2.20	0.20	35.70	2.70	0.90	2.60	
3rd sample ..	0.87	2.00	0.30	34.40	4.90	0.50	2.20	
<i>Lot No. 10.</i>								
1st sample ..	2.72	2.50	0.20	16.30	1.60	1.70	4.90	
2nd sample ..	2.36	1.90	0.20	18.50	1.50	2.50	3.70	
3rd sample ..	2.39	2.00	0.10	20.50	2.00	1.40	3.60	

APPENDIX XI—concl'd.

Results of analysis of groundnut samples drawn by different methods—concl'd.

Method No. 3.

Particulars.	Dirt.	Damaged kernels.	Touched kernels.	Split kernels.	Broken kernels.	Nooks.	Shrivelled kernels.	Remarks.
	(Per cent).	(Per cent).	(Per cent).	(Per cent).	(Per cent).	(Per cent).	(Per cent).	
<i>Lot No. 1.</i>								
1st sample ..	1.68	3.20	0.30	59.00	5.40	5.80	2.60	
2nd sample ..	1.27	3.00	0.10	62.50	5.20	3.30	2.20	
3rd sample ..	1.30	2.90	0.30	55.40	6.50	4.20	3.50	
<i>Lot No. 2.</i>								
1st sample ..	1.53	2.70	0.30	58.50	3.50	3.00	4.00	
2nd sample ..	1.61	2.50	0.30	58.40	4.40	1.40	3.10	
3rd sample ..	2.00	1.80	0.30	54.90	3.20	1.70	3.50	
<i>Lot No. 3.</i>								
1st sample ..	1.61	2.60	0.40	43.30	8.20	0.90	1.90	
2nd sample ..	1.46	3.00	..	41.10	6.00	1.10	1.70	
3rd sample ..	1.58	2.90	0.20	41.60	6.20	0.80	1.90	
<i>Lot No. 4.</i>								
1st sample ..	1.81	2.00	0.20	18.00	5.10	1.00	2.40	
2nd sample ..	1.90	1.90	..	18.20	5.50	0.80	2.60	
3rd sample ..	2.26	1.50	0.20	20.30	4.00	1.00	2.50	
<i>Lot No. 5.</i>								
1st sample ..	1.21	2.80	0.20	29.40	3.70	0.90	2.20	
2nd sample ..	1.40	3.40	0.30	31.40	2.10	2.00	2.90	
3rd sample ..	1.23	2.00	0.30	30.50	1.90	0.70	2.80	
<i>Lot No. 6.</i>								
1st sample ..	1.69	3.70	..	36.50	6.50	4.40	2.10	
2nd sample ..	1.65	3.40	0.30	38.00	4.70	4.00	2.40	
3rd sample ..	1.34	4.20	0.30	41.70	5.10	7.10	2.50	
<i>Lot No. 7.</i>								
1st sample ..	1.45	3.20	0.20	37.00	3.00	2.40	2.30	
2nd sample ..	1.56	4.00	..	36.80	3.30	2.50	2.30	
3rd sample ..	1.41	2.60	0.40	36.50	3.10	1.50	1.70	
<i>Lot No. 8.</i>								
1st sample ..	1.89	2.40	..	34.60	3.10	2.80	2.00	
2nd sample ..	1.86	3.00	0.30	38.70	3.20	3.20	2.30	
3rd sample ..	1.63	2.50	0.20	38.10	3.50	5.20	1.70	
<i>Lot No. 9.</i>								
1st sample ..	0.64	3.20	0.30	40.20	6.20	2.60	2.30	
2nd sample ..	0.87	2.40	..	36.30	5.10	1.80	2.20	
3rd sample ..	0.73	2.40	0.30	41.50	6.80	2.00	2.40	
<i>Lot No. 10.</i>								
1st sample ..	2.26	2.00	0.20	18.30	2.00	1.70	3.80	
2nd sample ..	2.82	2.30	..	15.10	1.50	1.80	3.50	
3rd sample ..	2.29	2.20	..	18.50	1.70	0.90	3.50	

APPENDIX XLI

Extracts from the Incorporated Oil Seed Association Contract for Coromandel groundnut kernels to the United Kingdom.

* * * * *

Coromandel groundnut kernels (dry decorticated), *vis.*, _____ tons say _____ tons (of 2,240 lb. each) shipment from a port or ports on the Coromandel Coast and/or Bombay as per Bill or Bills of Lading, dated or to be dated _____ by steamer or steamers direct or indirect with or without transhipment via Sues Canal. At _____ per ton of 2,240 lb. net, delivered sound, ~~on~~ ^{on} ship, in _____, including the usual 2½ lb. B twill bags and/or 2½ lb. heavy O bags at sellers' option at an allowance to the buyers of one-half penny per bag.

* * * * *

Warranty.

2. The kernels are warranted to be of the fair average quality of their description at the time of shipment, to be decided by the standard average of the Incorporated Oil Seed Association for the month in which the kernels are shipped. In the event of no standard average being made by the Incorporated Oil Seed Association the arbitrators (or umpire) shall decide what is the fair average quality. The Incorporated Oil Seed Association's charges in respect of standards to an amount not exceeding one shilling for every 100 tons or part thereof of the above quantity to be equally divided between buyers and sellers.

* * * * *

Declaration of shipment.

3. Appropriation giving steamer's name, date of Bill or Bills of Lading and approximate weight shall be made by sellers in Europe (or their agents) not later than 14 days from the date of the Bill of Lading.

* * * * *

Payment.

4. Payment to be made in London, on vessels reporting in _____ by net cash, in exchange for shipping documents and/or delivery order (the latter to be countersigned by banker, shipbroker, Captain or Mate if so required) and policy or policies of insurance effected with approved underwriters and/or approved letter of insurance (claims payable in London). Interest at 5 per cent or at Bank of England rate if over 5 per cent at 10 A.M. on day of payment, to be allowed for unexpired portion of prompt of 21 days from vessel's reporting.

* * * * *

Strikes, etc.

5. Should the sellers be prevented from delivering the kernels sold, or the buyers from taking delivery, by reason of riots, strikes or lockouts at the place named for delivery, the time for delivery and payment shall be extended until the operation of the causes preventing delivery has ceased. Buyers to pay interest at half Bank of England rate for said extension.

* * * * *

Discharge, sampling and analysis.

6. Buyers to provide craft to take delivery when the vessel is ready to discharge and the authorised people at the port of discharge shall be ordered to weigh all the bags, and 2 sound and undamaged bags in every 100 bags shall be emptied to ascertain the tare (said bags being weighed together); they shall also be ordered to sort the kernels, damaged and sweepings, if any, to be taken by buyers with allowances as provided in Clause 8; all charges for weighing, taring, sorting and classifying to be for buyers' account. All loose collected and sweepings to be shared *pro rata* by receivers.

The authorised people shall be ordered to take average sample of the bulk out of the bags emptied for taring, and to seal and forward it to the Incorporated Oil Seed Association, who upon such sample shall determine, by analysis, the percentage of admixture contained therein.

* * * * *

Basis of admixture.

7. The basis shall be pure groundnut kernels and the buyer shall receive an allowance equal to the percentage of admixture. When the Association allowance exceeds 3 per cent, the excess of 3 per cent shall be doubled.

* * * * *

Quality and condition.

8. Should the kernels on arrival not prove equal to above warrants, by sea or otherwise damaged or out of condition, this contract is not to be void, but the kernels, as well as the sweepings, are to be taken with an allowance to be fixed by agreement or by arbitration as provided under Clauses 9 and 15.

* * * * *

Notice of arbitration.

9. Notice of arbitration as to quality, with name of arbitrator, to be given by party claiming arbitration within 31 days of the Standard for the month being made or of the date of any public notice by the Incorporated Oil Seed Association that the Standard will be made.

* * * * *

Cancellation.

10. This Contract is to be void as regards any portion shipped that may not arrive by the vessel or vessels declared against this Contract and also if shipment or delivery be prevented by hostilities, prohibition of export or blockade.

* * * * *

Default.

11. In default of fulfilment of contract by either party the other party at his discretion shall, after giving notice in writing, have the right to sell or purchase, as the case may be, against the defaulter who shall make good the loss, if any, on such sale or purchase on demand.

* * * * *

Arbitration.

15. All disputes from time to time arising out of this Contract, including any question of Law appearing in the proceedings, whether arising between the parties hereto, or between one of the parties hereto, and the Trustee in Bankruptcy of the other party, shall be referred to arbitration according to the Rules appended to this Contract.

* * * * *

Summary of Arbitration Rules.

I. Disputes shall be referred to arbitration in London, each party appointing one arbitrator. Arbitrators shall have the power if and when they disagree to appoint an umpire, whose decision is to be final.

II. Arbitration fees to be paid by the party against whom the decision is given, except when allowances are fixed by arbitration on country damaged or on seed damaged during the voyage; in such cases the fees to be equally divided, also in other cases, where, in the opinion of the referees they should be so treated. All arbitration allowances for inferior quality shall be stated in percentages and in multiples of $\frac{1}{4}$ per cent (one quarter per cent), minimum $\frac{1}{2}$ per cent (one-half per cent).

III. In the event of one of the parties refusing or neglecting to appoint an arbitrator or the arbitrators not agreeing to an award or appointing an umpire, or in case an arbitrator or umpire dies or refuses to act, or becomes incapable of acting, and the party with whom his appointment originally rested omits to appoint a substitute, the Executive Committee shall, upon application by either of the disputing parties and payment of necessary fees, appoint an arbitrator or arbitrators, or umpire to fill the vacancy or vacancies.

IV. All awards by arbitrators or an umpire shall be in writing and they shall have power to award the costs of and connected with the reference.

V. In case either party shall be dissatisfied with the award, a right of appeal shall lie to the Committee of Appeal of the Incorporated Oil Seed Association provided the necessary notice is given in time and the fees paid.

VI. The appeal shall be determined by a Board of Appeal consisting of four members of the Committee of Appeal of the Association. No member of the Committee of Appeal who has an interest in the matter in dispute or who has acted as arbitrator or umpire in the case and no member of the same firm or company to which either of the arbitrators or the umpire shall belong shall vote on the question of the appointment of members of the Board of Appeal or shall be appointed a member of the Board of Appeal.

VII. The parties to an arbitration or an appeal to the Committee of Appeal shall not be represented or appear by Counsel or Solicitor unless specially permitted, at the sole discretion of the arbitrators, or umpire.

VIII. The Board of Appeal shall confirm the award appealed from unless not less than three of the members of the Board of Appeal decide to vary such award.

IX. No award by arbitrators or an umpire shall be questioned or invalidated on the ground of their being not qualified or eligible unless objection is made in writing before the commencement of hearing.

X. Any notice may be delivered personally or left at the place where the party is carrying on business.

APPENDIX XLII.

Copy of an exporter's contract (fixed) for purchase of groundnut kernels in Madras.

..... Limited.

Machine Shelled Groundnuts.

Contract No..... Season.....

Sold by.....(of address).....
(hereinafter called the sellers) to Messrs.....
through their Agency at.....(hereinafter called the
buyers).....(decorticated by Machine out of thoroughly
dry Unshelled nuts) of.....pounds each net at Rs.....
per candy of.....pounds net on the following terms and conditions :—

1. The seed to be new crop only, i.e., of season.....and fully dried to the satisfaction of Buyers. In other respects quality to be fair average of the Season, free from stones, unshelled nuts and damaged seeds and the goods not to contain more than 2 per cent admixture of foreign matters and 2 per cent damaged seeds (i.e., black, brown, yellowish and reddish)
 - (a) for any percentage of foreign matters above 2 per cent and up to 3 per cent Sellers to pay a proportionate allowance to buyers,
 - (b) for any percentage of foreign matters below 2 per cent buyers to pay Sellers a proportionate allowance,
 - (c) for any percentage of damaged seeds above 2 per cent and up to 6 per cent Sellers to pay allowance to Buyers at $\frac{1}{4}$ (one-fourth) of the contract price : over 6 per cent and up to 10 per cent at $\frac{1}{2}$ (one-half) of the contract price,
 - (d) for any percentage of "Khandesh" variety up to six per cent contained in the goods delivered under this contract Sellers to pay quality allowance to Buyer at $\frac{1}{8}$ (one-eighth) of the contract price over six per cent and up to ten per cent at $\frac{1}{4}$ (one-fourth) of the contract price.
2. Delivery to be completed between the..... and.....
at Buyers' Godown at.....
3. Payment to be made by buyers to the extent of.....
per cent of the value of each lot as delivered by sellers and passed by buyers. The balance to be paid after completion of the whole of.....under this contract.
4. Should sellers fail to complete delivery of the above.....or any portion thereof within the time above fixed for the completion of the delivery thereof buyers have the following options :—
 - (a) To buy anywhere on the day next following the due date of this contract ; or if they are unable to buy on that day so soon thereafter as may with reasonable despatch be possible at the market rate ruling on the day of purchase on sellers' account and at sellers' risk without any previous notice to sellers the undelivered quantity and to recover from sellers all loss and damages (if any) sustained by reason of sellers' failure to perform this contract.
 - (b) To recover from sellers the difference between the rate in this contract and the market rate ruling at Madras or at any other place where buyers are able to buy the goods, quality and condition of which are to their satisfaction, on the day next following the due date of the contract.
5. Buyers are at liberty without any request from the sellers to extend the time for delivery either for the whole or any portion of the above.....not delivered, by written notice sent to the sellers at their above-mentioned address, which extension, if made, shall be without prejudice to any of the other terms of the contract.

6. The acceptance by Buyers at any time of a quantity less than that contracted for shall not, unless expressly so stated in writing signed by both parties, be taken to cancel the contract as to the balance of the quantity purchased.
7. Should the whole or any portion of the goods to be delivered under this contract be in any respect not in accordance with the stipulations of the clause 1, Buyers shall have the option of rejecting such goods or of accepting the same with an allowance to be fixed by them.
8. Buyers are entitled to reject tenders in case any Castor beans are detected, whether on examination of the goods upcountry or on arrival at the port, even though the quality and condition of the goods be otherwise up to standard.
9. In the event of the rejection of any goods in exercise of the right or option arising under or conferred by this contract, Buyers shall, notwithstanding such rejection and without prejudice thereto and their right thereon, be entitled to retain the goods so rejected until refund by Sellers of all the amounts advanced to Sellers and all charges incurred by Buyers on such goods is made and if within 10 days from service of written notice of such retention sent to Sellers at their above-mentioned address Sellers shall not refund such advance and/or charges to Buyers, the Buyers shall be entitled without further notice to sell the goods so retained either by Public Auction or Private Sale and to receive the said proceeds thereof and apply the same to the re-payment of such amounts and charges due to or incurred and damages sustained by them.
10. Sellers agree to abide by the results found by Buyers'..... Agency..... as the quality, condition, weight and refraction as well as allowance, if any, to be made to buyers in respect thereof, whether Sellers or their representative is present or not at the time of the said..... Agency examining sellers' deliveries there. Buyers are not obliged to give nor are sellers entitled to demand any notice of the time when such examination is to be made.
11. Should buyers have any claim which may be due to them by sellers under this or any other contract they shall be entitled to retain any moneys to the extent of the claim and shall be entitled to appropriate the same against the claim.
12. The above options shall be in addition to and not by way of modification or in curtailment of any rights which Buyers may have by law by reason of Sellers' failure to perform this contract.
13. As a guarantee for the due fulfilment of this contract sellers have deposited with buyers the sum of Rs.....
14. Sellers may provide their own new 2 Twill bags 44" X 26½" 2½ lb., in exchange from buyers of any equal number of empty bags of the same quality and description.
15. Prohibition of export from any particular district or native or foreign territory does not relieve the Sellers from the obligation of duly fulfilling this contract.
16. Any notice by the buyers under this contract may be served upon the Sellers either personally or by sending it through the post in a letter addressed to the Sellers at their above-mentioned address. If sent by post it shall be deemed to have been served at the time when the letter containing the same would have been delivered in the ordinary course of post, and in proving such service it shall be sufficient to prove that the letter containing the notice was properly addressed and posted.

17. Anything besides plain signatures written in any language but English on this contract shall be null and void and shall not be construed in any way as part of the terms or conditions of this contract.

18. Payments will be made in Silver or Currency Notes at buyers' option.

.....
.....Agency.

Terms and conditions accepted.

For Agent.

Seller.

Dated

19 .

APPENDIX XLIII.

Copy of an exporter's unfixed contract for purchase of groundnut kernels in Madras.

..... Limited.
Machine Shelled Groundnuts.

Unfixed Contract No..... Season.....

Sold by.....(of address).....
(hereinafter called the sellers) to Messrs.....
through their Agency at.....(hereinafter called the buyer)
.....(decorticated by Machine out of thoroughly
dry Unshelled nuts) of.....pounds each net as
delivered at Buyers' godowns at.....at a price to be
fixed as per the following stipulations and under the following terms and condi-
tions :—

Stipulations.

A. The price must be fixed in writing by Sellers within.....days
from the date of Contract and is to be the limit which Buyers.....
Sub-Agency have in hand on the day on which Sellers declare in writing that
the price to be fixed. If Sellers do not fix the price within.....days
from the date of contract, the price of this contract will be the limit which
Buyers.....Sub-Agency have in hand on the.....
day of.....19 .

B. The Sellers have the right to fix the price subject to clause A on any one
day but only to the extent of such quantity as Buyers.....Sub-
Agency may have instructions to buy on the day Sellers declare in writing that
they want the price fixed.

C. Advances made by the Buyers before the price has been fixed will not
exceed 80 per cent of the limit Buyers.....Sub-Agency have in
hand on the day of the advance. If the market value decreases Buyers may
demand from Sellers refund sufficient to keep the net amount advanced within
the said margin.

D. If Sellers, upon demand, fail to make sufficient refund as aforesaid
the Buyers shall have the right to fix the contract price on the basis of the
market value which for the purpose of this clause shall be the limit which
Buyers.....Sub-Agency have in hand on the day of demand or
at Buyers' option on any day up to and including the third day subsequent
thereto. Such price shall be final and binding on Sellers.

Terms and conditions of sale.

Same as under fixed contracts (See Appendix XLII).

.....19 .

Messrs.....,
.....Agency,
.....

Dear Sirs,

Unfixed Contract No..... Dated.....
For.....
.....Shelled Groundnuts.....

With reference to $\frac{my}{our}$ above contract $\frac{I}{we}$ now hereby beg to accept, fix
and confirm today the price of Rs.....
per.....delivered free at
your godowns at.....

Accepted.

Yours faithfully,

For.....
.....Agency,
For Agent.

Buyers.

Sellers.

APPENDIX XLIV.

Copy of a contract used by an oil mill for purchasing groundnut kernels.

Dated the.....19 .

Contract No.....

Buyers.....

Sellers.....

Description.—Machine decorticated groundnut seeds of season..... fair average quality of season, free from stones unshelled nuts and damaged seeds and fully dried to the entire satisfaction of the buyers.

Quantity.—.....

Time of delivery.—.....

Place of delivery.—.....

Price Rs......
per candy of 531 English lb. nett.

Admixture of dirt.—2 per cent free non-mutual.

Admixture of damaged seeds.—2 per cent free non-mutual.

Packing.—The goods to be packed in buyers gunnies supplies to sellers from..... and each bag to contain 177 lb. nett (seeds).

Basis.—The goods not to contain more than 2 per cent refraction and 2 per cent damaged.

(a) for any percentage of refraction above 2 per cent and up to 4 per cent sellers to pay proportionate allowance to buyers. If above 4 per cent buyers have the option to reject or fix any allowance, buyers may think necessary,

(b) for any percentage of damaged seeds above 2 per cent and up to 3 per cent sellers to pay allowance to buyers at $\frac{1}{4}$ of the contract price. If over 3 per cent buyers have the option to reject or fix any allowance.

Sellers agree to abide by the results found by buyers' representative at the time of examination of goods either at buyers or sellers godowns as to condition, quality, weight, percentage of admixture and allowances in respect thereof.

Breach of contract.—Should seller fail to complete delivery within the stipulated time buyers have the option.

- (1) to cancel the contract,
- or (2) to buy anywhere on the day next following the due date or as soon as possible at the market rate ruling on the day of purchase on sellers account and risk without any previous notice the undelivered quantity and to recover from the seller all losses and damages, if any, sustained by reason of sellers' failure to perform this contract,
- or (3) to merely recover from the seller the difference between the contract rate and market rate on the day following the due date of the contract.
- or (4) to extend the time of delivery by notice (without any request from seller) sent to seller at their above-mentioned address, which extension, if made, shall be without prejudice to any of the other terms of the contract.

Remarks.—The acceptance by buyers at any time of a quantity less than that contracted for shall not, unless expressly so stated in writing signed by both parties, be taken to cancel the contract as to the balance of the quantity purchased.

If the buyers reject any goods the sellers should replace the rejected quantity within the due date of the contract.

The above options shall be in addition to and not by way of modification or in curtailment of any rights which buyers may have by law.

All terms and conditions accepted.

Buyers

Sellers

APPENDIX XLV.

Copy of a contract form of the Grain Merchants' Association, Bombay.
(Rail and delivery terms).

Contract No.....
 Broker
 Messrs.....
 Bombay, the.....19 .
 Bombay.

Dear Sirs,

We have this day $\frac{\text{sold to}}{\text{bought from}}$ you.....
 tons1 per cent more or less, of.....
 bags
 of the current season at Rs.....and 1 Dokada Dharmada per cwt.
 net weight delivered at Railway Station, Bombay, or at buyer's godown.

Bagging.—New Calcutta No. 2 Twills or heavy C bags, weight not less than 2½ lb. each. In case of godown delivery, bagging shall be the same as for rail delivery.

Delivery.—.....seller's option. Buyer shall not be obliged to accept tender of less than 100 bags at a time. Buyers shall have option to refuse railway receipts if not tendered 9 days before the due date of the contract.

In event of the contract being for more than 50 tons, every 50 tons to be regarded as under a separate contract.

Refraction.—.....per cent reciprocal.

Payment.—Advance and final payment shall be made according to the rules of general terms and conditions.

Brokerage.—½ per cent to be paid by sellers. The goods under this contract to be delivered to Messrs.....

This contract is subject to the general terms and conditions of the Grain Merchants' Association's delivery contract, of which the parties admit to have knowledge and notice and which terms and conditions shall be deemed to be incorporated in and to form part of this contract.

Yours faithfully,

Seller's signature.....
 Buyer's
 Broker's signature.....

Summary of some of the important conditions under Rail and Delivery Terms.

1. Buyers shall pay 90 per cent advance against railway receipt or delivery receipt.
2. If an advance has been paid to the seller, the buyer shall keep only 10 per cent of the bags for sampling and weighment in the presence of the seller.
3. If advance has not been paid to the seller, all the bags shall be kept and the seller will have the option to have the whole lot weighed in his presence.
4. The sample for refraction and quality, when advance has been paid, shall be drawn from 10 bags taken out of the 10 per cent bags kept (see 2). When advance has not been paid, the 10 bags for sampling shall be taken out of the whole lot. The bags shall be alternately arranged vertically and horizontally.
5. Basis of refraction—4 per cent mutual.
6. If a sample is drawn by surveyors, buyer's surveyor shall draw the sample by inserting the hand 5 times and seller's surveyor by inserting the hand once.
7. In the case of contracts for Ready railway receipts, the same shall be handed to the buyer within 4 days, in default of which the buyer may buy against the seller or cancel the contract.
8. In the case of contracts for Ready goods, the seller shall give delivery within 8 days, failing which the buyer may buy against the seller or cancel the contract.
9. In the case of godown delivery, buyers shall pay a charge of annas 12 per ton.
10. If a lot is rejected, the seller shall refund the advance and remove the goods within 5 days.

APPENDIX XLVI.

*Copy of a contract form of the Grain Merchants' Association, Bombay.
(Bazar Terms).*

Contract No.....
 Broker.....
 Buyer.....
 Seller.....

Bombay, dated.....

We have this day $\frac{\text{sold to}}{\text{bought from}}$ you.....(quantity)
(Description of goods) crop of the year 19 at
 Rs.....(in words)
 per.....to be delivered.....per cent more or less $\frac{\text{to}}{\text{by}}$ you
 according to the conditions written below and on the reverse, by.....
 of.....19 .

This contract is made according to the rules of the Grain Merchants' Association and is binding on both parties.

Dated.....

Seller's
 Buyer's signature.....

Summary of conditions on the reverse.

1. Each party intends to and agrees to give and take delivery of the goods mentioned in the contract.
2. The buyer shall arrange for the weighment of goods.
3. New bags will be weighed with goods.
4. Refraction 4 per cent mutual.
5. Seller will not allow goods to be sampled with a spear.
6. Seller will not pay anything in cash or kind to sampler, bill clerk, etc.
7. Buyer shall pay brokerage.
8. Buyer shall, in settling the accounts with the seller, pay *dharwad* at one *dhakda* per cwt. or 1 anna per candy over the price stated in the contract.

APPENDIX XLVII.

Copy of a contract form of the Grain Merchants' Association, Bombay, for trading in "futures" in Bold groundnut kernels.

(Bazar Terms).

Contract No.....

Bombay, dated.....19 ..

Broker.....

Seller

Buyer

We have today sold to bought from you.....Khandis of groundnuts Bold (from Sholapur, Barsi, Kolhapur, Kathiawar, Gujarat and Karad districts) Crop of the year 19.....at Rs.....per Khandi, besides Dharmada of one anna per Khandi according to the terms mentioned below :-

Bagging.—New Calcutta 2 Twills or heavy C quality, weight not less than 2½ lb. each. Bags to be reckoned as goods.

Delivery.—Buyer to receive delivery and take weightment at seller's godown. The goods of one contract will be delivered at the same godown. Contracts in excess of 100 Khandis will be considered as separate contracts for every 100 Khandis.

Refraction.—4 per cent mutual.

Delivery.—From 1st to.....of (month).....(year) (seller's option).

Brokerage.—½ per cent to be paid by buyer.

This contract is subject to the general terms and conditions as settled by the Grain Merchants' Association's "futures" contract for groundnut kernels Bold, in accordance with which the goods will be delivered|received. The parties admit that they have knowledge and notice of the above-mentioned terms, which shall be deemed to be incorporated in and to form a part of this contract. In case of any disputes arising out of this contract, it shall be settled in accordance with the rules and regulations of the Grain Merchants' Association, and the results will be binding upon both the parties.

There will be no addition to this contract and addition, if any, will be void.

This contract cannot be cancelled under any condition.

Buyer's _____ Signature.....

Seller's _____ Signature.....

Broker's Signature.....

APPENDIX XLVIII.

Handpicked Selected Groundnut Grading and Marking Rules.

1. *Short title and application.*—(1) These rules may be called the Handpicked Selected Groundnut Grading and Marking Rules, 1939.

(2) They shall apply to groundnuts grown in India.

2. *Grade designations.*—Grade designations to indicate the quality of handpicked selected groundnuts grown in India are set out in column 1 of Schedules I and II annexed to these rules.

3. *Definition of quality.*—The quality indicated by the grade designations is set out against such designations, in columns 2 to 4 of Schedule I in respect of handpicked selected groundnut kernels and in columns 2 to 4 of Schedule II in respect of handpicked selected groundnuts in shell.

4. *Grade designation marks.*—The grade designation mark shall consist of a label, bearing a design (consisting of an outline map of India in conjunction with the word AGMARK) resembling that set out in Schedule III, specifying the grade designation and of the following colour :—

Grade designation.		Colour of label.
Handpicked selected groundnut kernels ..	Special Bold No. 1 ..	White.
	„ „ No. 2 ..	Red.
	„ „ No. 3 ..	Blue.
	Bold No. 1 ..	Yellow.
	„ No. 2 ..	Green.
Handpicked selected groundnuts in shell ..	Bold ..	White.

5. *Methods of marking.*—The grade designation mark label shall be securely attached to each bag in a manner approved by the Agricultural Marketing Adviser. In addition to the grade designation mark the following particulars shall also be clearly marked :—

(a) Crop year.

(b) Net weight.

6. *Method of packing.*—(1) Graded handpicked selected groundnut kernels shall be packed in New “ B. Twill ” bags containing 182 lb. net each.

(2) Graded handpicked selected groundnuts in shell shall be packed in New “ B. Twill ” bags containing 82 lb. net.

(3) Each bag shall contain handpicked selected groundnuts of the crop specified and of one grade designation only.

APPENDIX XLVIII—contd.

SCHEDULE I.

(See Rules 2 and 3.)

Grade designations and definition of quality of handpicked selected groundnut kernels.

Grade designations. 1	Quality characteristics.		Condition. 4
	Number of kernels per ounce.* 2	Broken, skinned and damaged kernels.* 3	
Special Bold No. 1	32/34	Not more than 1 oz. (2.43 tolas in a bag).	Handpicked selected groundnut kernels shall be dry and reasonably uniform in size, free from dirt, stones, nuts in shell or other foreign matter.
" " No. 2	34/36		
" " No. 3	36/38		
Bold No. 1	38/40		
" No. 2	40/42		

* As determined on a representative sample.

SCHEDULE II.

(See Rules 2 and 3.)

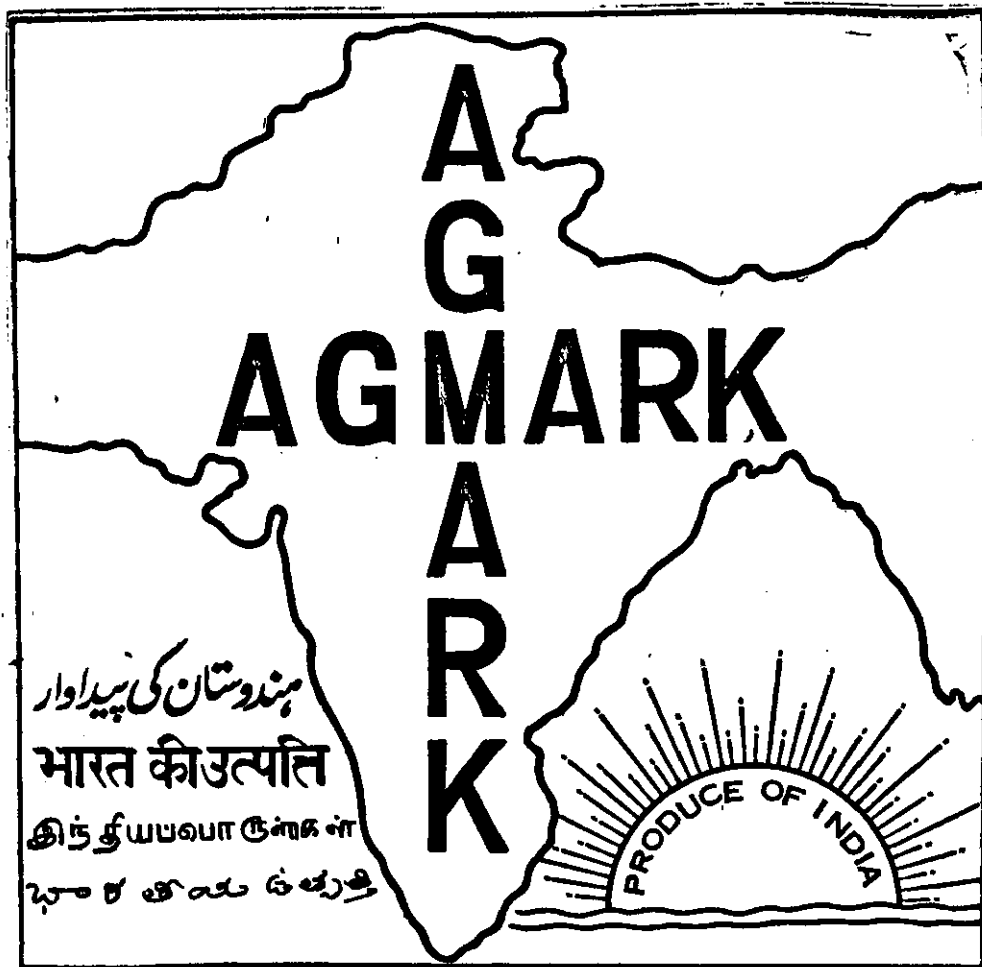
Grade designations and definition of quality of handpicked selected groundnuts in shell.

Grade designations. 1	Quality characteristics.		Condition. 4
	Number of nuts per ounce.* 2	Discoloured, damaged, empty* and broken nuts. 3	
Bold	13/14	Not more than one per cent by weight.	Handpicked selected groundnuts in shell shall be dry and reasonably uniform in size with outwardly two well defined sections in each nut, free from stones, dirt or other foreign matter. The shell shall be clean, bright and of whitish colour.

* As determined on a representative sample.

APPENDIX XLVIII—*continued.*
SCHEDULE III.
(See Rule 4.)

Grade designation mark for bags of handpicked selected groundnut kernels and groundnuts in shell.



APPENDIX

Approximate returns on stocks of groundnut kernels

	Coromandel kernels at Madras.				
	Nov., 1933 to Aug., 1934.	Nov., 1934 to Aug., 1935.	Nov., 1935 to Aug., 1936.	Nov., 1936 to Aug., 1937.	Nov., 1937 to Aug., 1938.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Average November price per maund.	3 9 5	4 4 10	5 5 4	5 12 8	4 9 4
Average January price per maund.	3 3 2	5 12 7	5 11 9	6 6 5	4 3 1
Average February price per maund.	3 1 6	6 5 6	5 7 6	5 12 0	4 1 0
Average May price per maund	3 5 3	6 7 2	5 8 1	5 10 11	4 6 9
Average August price per maund	3 14, 1	6 0 7	6 10 6	5 5 9	4 2 9
Premium obtained in January over November price.	(-) 0 6 3	1 7 9	0 6 5	0 9 9	(-) 0 6 3
Cost of carrying* from November to January (2 months).	0 1 5	0 1 7	0 1 11	0 2 0	0 1 8
Net gain (+) or loss (-) ..	(-) 0 7 8 (13.4%)	(+) 1 6 2 (32.2%)	(+) 0 4 6 (5.3%)	(+) 0 7 9 (8.4%)	(-) 0 7 11 (10.8%)
Premium obtained in February over November price.	(-) 0 7 11	2 0 8	0 2 2	(-) 0 0 8	(-) 0 8 4
Cost of carrying* from November to February (3 months).	0 2 5	0 2 9	0 3 4	0 3 8	0 2 11
Net gain (+) or loss (-) ..	(-) 0 10 4 (18.0%)	(+) 1 13 11 (43.5%)	(-) 0 1 2 (1.4%)	(-) 0 4 4 (4.7%)	(-) 0 11 3 (15.3%)
Premium obtained in May over November price.	(-) 0 4 2	2 2 4	0 2 9	(-) 0 1 9	(-) 0 2 7
Cost of carrying* from November to May (6 months).	0 3 11	0 4 7	0 5 4	0 5 9	0 4 9
Net gain (+) or loss (-) ..	(-) 0 8 11 (14.1%)	(+) 1 13 9 (43.2%)	(-) 0 2 7 (3.0%)	(-) 0 7 6 (8.1%)	(-) 0 7 4 (10.0%)
Premium obtained in August over November price.	0 4 8	1 11 9	1 5 2	(-) 0 6 11	(-) 0 6 7
Cost of carrying* from November to August (9 months).	0 5 3	0 5 11	0 7 0	0 7 4	0 6 4
Net gain (+) or loss (-) ..	(-) 0 0 7 (1.0%)	(+) 1 5 10 (31.7%)	(-) 0 14 2 (16.8%)	(+) 0 14 3 (15.4%)	(-) 0 12 11 (17.6%)

*Includes godown rent, interest at 5 per cent, loss in value
 Note.—The figures in brackets represent percentages of Novem

APPENDIX I.

Approximate returns on stocks of groundnuts in shell and kernels at several assembling markets in different provinces and States.

	Coromandel kernels at Cuddapah.	Khandesh nuts in shell at Raichur.	Bold kernels at Gulbarga.	Bold kernels at Barsi.	Khandesh nuts in shell at Dhulia.	Nuts in shell at Malkapur.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Average November price per maund ..	3 12 7 (a)	2 12 3(b)	3 9 2 (c)	4 6 0 (d)	3 11 4 (b)	3 6 11 (e)
„ January „ „ ..	4 2 4	3 2 8	4 4 5	4 7 1	4 0 6	4 1 3
„ February „ „ ..	4 5 3 } (f)	3 3 6 } (g)	3 15 4 } (h)	4 0 8 } (i)	3 15 2 } (j)	3 15 11
„ May „ „ ..	4 7 5	3 1 8	3 12 7	4 4 9	4 2 9	4 0 7
„ August „ „ ..	4 14 9	3 2 3	4 8 3	5 1 0	4 0 11	4 3 3
Premium obtained in January over November price.	0 5 9	0 6 5	0 11 3	0 1 1	0 5 2	0 10 4
Cost of carrying* from November to January (2 months).	0 1 2	0 2 8	0 1 1	0 1 4	0 3 8	0 3 6
Net gain (+) or loss (—)	(+) 0 4 7 (7.7%)	(+) 0 3 9 (8.5%)	(+) 0 10 2 (17.8%)	(—) 0 0 3 (0.4%)	(+) 0 1 6 (2.5%)	(+) 0 6 10 (12.4%)
Premium obtained in February over November price.	0 8 8	0 7 3	0 6 2	0 0 8	0 3 10	0 9 0

Cost of carrying* from November to February (3 months).	0 2 1	0 4 0	0 2 1	0 2 6	0 5 3	0 5 2
Net gain (+) or loss (—)	(+)0 6 7 (10.9%)	(+)0 3 3 (7.3%)	(+)0 4 1 (7.1%)	(—)0 1 10 (2.6%)	(—)0 1 5 (2.4%)	(+)0 3 10 (6.4%)
Premium obtained in May over November price.	0 10 10	0 5 5	0 3 5	(—)0 1 3	0 7 5	0 9 8
Cost of carrying* from November to May (6 months).	0 3 4	0 6 3	0 3 3	0 3 10	0 8 1	0 8 1
Net gain (+) or loss (—)	(+)0 7 6 (12.4%)	(—)0 0 10 (1.9%)	(+)0 0 2 (0.3%)	(—) 0 5 1 (7.3%)	(—)0 0 8 (1.1%)	(+)0 1 7 (2.9%)
Premium obtained in August over November price.	1 2 2	0 6 0	0 15 1	0 11 0	0 5 7	0 12 4
Cost of carrying* from November to August (9 months).	0 4 3	0 7 6	0 4 1	0 4 7	0 9 9	0 9 10
Net gain (+) or loss (—)	(+)0 13 11 (23.0%)	(—)0 1 6 (3.4%)	(+)0 11 0 (19.2%)	(+)0 6 5 (9.2%)	(—)0 4 2 (7.0%)	(+)0 2 6 (4.6%)

(a) Average 1933 to 1935.

(b) Average 1932 to 1936.

(c) Average 1932 to 1935.

(d) Average 1933 to 1937.

(e) Average 1933 to 1936.

(f) Average 1934 to 1936.

(g) Average 1933 to 1937.

(h) Average 1933 to 1936.

(i) Average 1934 to 1936.

(j) Average 1934 to 1937.

*Includes godown rent, interest at 5 per cent, loss in value of gunnies, gain or loss in weight and deterioration in quality.

NOTE.—The figures in brackets represent percentages of November price.

APPENDIX LI.

Rates of railway freight on groundnuts on different railway systems in India.
(In force on 1st January, 1940).

Railway.	General classification and freight rate per maund per mile.	Conditions for exceptions and variations.	Classification and freight rate per maund per mile under conditions mentioned in previous column.
Bengal Nagpur	Class 2C (at 54 pie) R. R.	Nuts in shell and kernels in wagon loads (300 maunds on B. G. and 160 maunds on M. G. or N. G.) L.	Class 2A at 46 pie R. R. Class 2 at 42 pie O. R.
Bombay, Baroda and Central India.	Do.	Kernels in wagon loads (450 maunds on B. G. and 200 maunds on M. G. or N. G.) L. Nuts in shell in wagon loads (300 maunds on B. G. and 160 maunds on M. G. or N. G.) L.	Class 1 at 38 pie O. R. Class 2A at 46 pie R. R. Class 2 at 42 pie O. R.
Great Indian Peninsula ..	Do.	Kernels in wagon loads (charged at carrying capacity of wagon) L.	Class 1 at 38 pie O. R.
✓ Madras and Southern Maharashtra.	Do.	Nuts in shell and kernels in wagon loads (300 maunds on B. G. and 160 maunds nuts in shell or 200 maunds kernels on M. G.) L.	Class 2 at 42 pie O. R.
H. E. H. The Nizam's State	Do.	Nuts in shell and kernels in wagon loads (300 maunds nuts in shell or 400 maunds kernels on B. G. and 160 maunds nuts or 200 maunds kernels on M. G.) L.	Class 2 at 42 pie O. R.
Mysore State	Do.	Nuts in shell and kernels in wagon loads (160 maunds on M. G.) L.	Class 2 at 42 pie O. R.
South Indian	Do.	Nuts in shell and kernels ..	Class 4 at 62 pie R. R.

NOTE.— L. = Loading and unloading by senders and consignees.

B.G. = Broad gauge.

R. R. = Railway risk.

M.G. = Metro gauge.

O. R. = Owner's risk.

N.G. = Narrow gauge.

Source.—Compiled from Goods Tariff No. 23 published by the Indian Railway Conference Association.

APPENDIX III

Average rates (approximate) of freight on groundnut kernels from Madras to the United Kingdom.

(Per ton of 20 cwt.).

Months.	1933-34	1934-35	1935-36	1936-37	1937-38	1938-39
	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
April ..	21 3	22 6	18 0	25 0	30 0	25 0
May ..	22 6	21 9	18 0	25 0	32 6	23 0
June ..	22 6	22 6	18 0	25 0	32 6	22 6
July ..	22 6	21 3	16 0	25 0	32 6	22 6
August ..	22 6	21 6	18 0	25 0	32 6	22 6
September ..	22 6	22 6	17 0	25 0	32 6	25 0
October ..	22 6	22 6	20 0	25 0	32 6	24 0
November ..	22 6	22 6	20 0	25 0	32 6	25 0
December ..	25 0	22 6	20 0	25 0	32 6	25 0
January ..	25 0	22 6	22 6	27 6	30 0	25 0
February ..	23 9	22 6	24 0	30 0	28 9	22 6
March ..	25 0	22 6	24 6	30 0	28 9	25 0
Annual average	23 2	22 3	19 8	26 0	31 6	23 11

By courtesy of Messrs. Best & Co., Madras.

Average rates (approximate) of freight on groundnut kernels from Bombay to the United Kingdom.

(Per ton of 14 cwt.).

Months.	1933-34	1934-35	1935-36	1936-37	1937-38	1938-39
	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
April ..	21 0	17 3	17 3	20 0	30 3	19 0
May ..	21 0	17 0	17 0	16 9	32 0	19 0
June ..	22 0	17 0	16 9	16 0	31 0	17 6
July ..	22 0	17 0	17 0	16 0	31 0	18 0
August ..	22 0	18 3	13 3	16 0	32 0	18 0
September ..	18 6	19 0	15 6	18 0	34 6	18 0
October ..	17 0	19 0	24 0	19 0	35 6	19 0
November ..	18 0	18 0	26 0	21 3	34 3	20 0
December ..	19 0	18 6	21 0	30 6	30 6	17 0
January ..	20 0	18 0	21 0	33 0	25 3	17 0
February ..	21 0	18 3	21 0	32 0	23 0	17 0
March ..	18 6	18 0	21 0	30 3	23 0	18 0
Annual average (per ton of 14 cwt.).	20 0	17 11	19 3	22 5	30 2	18 2
Annual average (per ton of 20 cwt.).	23 7	25 7	27 6	32 0	43 1	25 11

By courtesy of Messrs. British India Steam Navigation Co., Ltd., Bombay.

APPENDIX LIII.

Average annual prices of groundnut kernels, groundnut oil and groundnut cake at Bombay and Calcutta and millers' margin (including cost of crushing) per maund of groundnut oil manufactured.

Bombay.

Year.	Price of 10 maunds groundnut kernels.	Price of 4 maunds groundnut oil.	Price of 6 maunds groundnut cake.	Difference of the price of 4 maunds oil and 6 maunds cake over price of 10 mds. groundnut kernels.	Margin per maund of groundnut oil.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
1933-34 ..	38 12 0	33 8 8	11 0 6	5 13 2	1 7 4
1934-35 ..	42 8 0	37 2 4	10 11 6	5 5 10	1 5 6
1935-36 ..	57 5 6	49 7 8	11 6 6	3 10 8	0 14 8
1936-37 ..	63 12 0	52 8 4	14 6 0	3 2 4	0 12 7
1937-38 ..	51 10 8	45 5 8	13 1 0	6 12 0	1 11 0
Average ..	50 12 10	43 9 9	12 2 4	4 15 3	1 3 10

Calcutta.

1933-34 ..	42 1 4	38 12 0	11 15 0	8 9 8	2 2 5
1934-35 ..	49 7 8	40 3 4	11 1 6	1 13 2	0 7 3
1935-36 ..	62 8 10	53 15 4	12 1 6	3 8 0	0 14 0
1936-37 ..	62 15 6	54 9 4	14 12 0	6 5 10	1 9 6
1937-38 ..	56 14 0	53 2 8	13 11 0	9 15 8	2 7 11
Average ..	54 12 8	48 2 2	12 11 5	6 0 11	1 8 3

APPENDIX LIV.

Average monthly wholesale prices of groundnut oil at Madras.
(Per maund).

Months.	1931-32.	1932-33.	1933-34.	1934-35.	1935-36.	1936-37.	1937-38.	1938-39.	1939-40.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
April	11 7 0	15 6 3	8 12 3	6 12 10	12 15 5	11 11 4	12 3 6	7 4 6	7 1 8
May	10 7 11	14 13 8	8 13 7	7 6 6	13 7 0	11 9 4	12 0 3	7 8 6	8 1 11
June	10 0 8	13 5 4	10 11 10	7 6 6	13 1 11	12 8 6	11 14 3	7 5 6	8 11 1
July	10 9 6	13 9 8	10 4 7	7 5 2	12 13 5	12 6 2	12 0 3	7 8 0	8 3 7
August	11 1 1	13 2 0	9 11 4	7 11 1	13 1 4	12 9 0	11 7 11	7 5 8	8 8 0
September	10 7 11	12 7 3	8 9 7	..	11 12 8	13 0 5	10 13 2	7 2 10	9 7 3
October	11 10 4	11 11 10	7 15 9	9 14 11	..	12 0 11	10 5 4	7 4 5	9 7 7
November	11 11 0	11 0 5	8 5 8	8 13 9	..	11 11 4	9 7 1	6 12 1	10 10 0
December	11 9 0	10 10 4	7 5 8	10 0 3	..	12 3 3	9 3 6	7 9 5	11 6 8
January	13 0 11	11 12 4	7 3 11	12 10 9	12 6 0	12 2 11	8 10 3	7 7 7	10 12 11
February	15 12 10	10 13 10	6 15 1	13 9 3	11 13 7	11 14 3	8 0 5	7 3 4	10 7 6
March	16 14 5	10 1 0	7 5 6	12 9 11	11 9 8	11 13 3	7 15 1	7 3 2	10 12 6
Annual average ..	12 1 1	12 6 6	8 8 3	9 7 9	12 9 0	12 2 3	10 5 5	7 4 11	9 7 7

Note.—The prices are for *chekku* oil from April 1931 to December 1931 and from January 1934 to August 1934, while those for other months are for expeller oil.

APPENDIX LV.

Average monthly wholesale prices of groundnut oil at Bombay.
(Per maund).

Months.	1933-34.	1934-35.	1935-36.	1936-37.	1937-38.	1938-39.	1939-40.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
April	8 11 10	7 9 9	13 1 2	11 12 10	13 5 1	8 0 10	7 6 6
May	9 4 2	7 13 2	13 11 5	12 1 3	13 3 1	7 14 7	8 14 9
June	9 2 5	7 3 1	13 7 3	12 13 0	12 12 9	8 2 9	9 5 2
July	8 15 6	7 1 5	12 8 4	13 12 2	12 13 9	8 0 10	8 11 7
August	8 7 2	7 12 8	12 13 9	14 4 6	11 14 1	7 7 9	8 15 9
September	8 7 8	8 7 8	11 12 10	14 4 3	11 5 6	7 7 9	10 3 10
October	8 2 6	9 6 4	12 9 10	12 15 8	11 4 3	7 8 0	10 8 0
November	8 1 4	9 5 11	12 3 5	12 9 10	10 10 5	7 10 0	12 0 6
December	7 10 11	9 14 8	12 4 5	12 18 6	9 15 2	8 3 6	12 10 9
January	7 7 3	13 11 11	12 3 5	13 4 1	9 3 5	7 11 5	11 11 10
February	7 8 0	13 2 4	11 11 4	12 15 2	8 7 2	7 8 3	11 2 6
March	7 5 7	12 8 4	11 10 10	13 3 7	8 7 2	7 9 3	11 3 9
Annual average ..	8 4 4	9 8 1	12 8 2	13 1 2	11 1 10	7 12 5	10 3 11

NOTE.—The annual averages will be found to be slightly different from those given on page 292 which have been worked out from prices received from another source.

SOURCE.—Compiled from prices quoted in "Times of India".

APPENDIX LVI

Average monthly wholesale prices of groundnut oil (loose ex-mill) at Calcutta.
(Per maund).

Months.	1931-32.	1932-33.	1933-34.	1934-35.	1935-36.	1936-37.	1937-38.	1938-39.	1939-40.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
April	12 10 0	15 12 0	10 8 0	8 0 0	14 0 0	13 2 0	14 4 0	10 8 0	9 5 0
May	12 0 0	15 10 0	10 10 0	8 6 0	14 10 0	12 8 0	14 0 0	10 0 0	9 4 0
June	11 8 0	15 6 0	10 8 0	8 8 0	14 4 0	13 0 0	14 4 0	9 8 0	9 8 0
July	11 12 0	15 8 0	10 8 0	9 0 0	13 0 0	13 6 0	14 2 0	9 8 0	9 13 0
August	12 8 0	14 10 0	10 4 0	8 10 0	13 12 0	14 10 0	14 6 0	9 6 0	10 3 0
September	12 0 0	14 8 0	10 8 0	9 0 0	13 10 0	14 14 0	14 4 0	9 4 0	11 11 0
October	13 0 0	14 0 0	9 8 0	9 12 0	14 0 0	13 14 0	14 0 0	9 4 0	11 5 0
November	13 12 0	12 12 0	9 10 0	10 6 0	13 8 0	13 4 0	13 8 0	9 2 0	12 2 0
December	12 12 0	12 8 0	8 6 0	10 10 0	13 8 0	12 12 0	13 0 0	9 2 0	11 4 0
January	12 12 0	12 12 0	8 14 0	12 6 0	12 6 0	14 4 0	11 8 0	9 0 0	11 0 0
February	13 10 0	12 8 0	8 6 0	12 10 0	12 14 0	14 0 0	11 4 0	9 0 0	9 0 0
March	17 0 0	11 12 0	8 10 0	13 6 0	12 6 0	14 2 0	11 0 0	9 5 0	11 12 0
Annual average ..	12 15 0	13 15 8	9 11 0	10 0 10	13 7 10	13 10 4	13 4 8	9 6 7	10 8 3

Source.—Merchants' records.

APPENDIX LVII.

Copy of a contract used by a vegetable products factory for purchasing groundnut oil.

Dated _____ 19 .

Contract No. _____.

Messrs. _____

I|We have this day sold to you _____ tons groundnut oil at
Rs. _____ per _____

Delivery.— _____

Weightment.—To be made at buyer's factory.

Quality.—Pure unadulterated groundnut oil free from water and dirt and in accordance with Tariff "A" for deliveries from 15th November to 14th May and in accordance with Tariff "B", for deliveries from 15th May to 14th November. The F. F. A., (as per cent oleic acid) contents and the colour reading shall be determined by the buyer's laboratory. The buyer shall have the right to refuse acceptance of any groundnut oil delivered against this contract which contains water or is impure, or adulterated or has been treated with chemicals, earth, carbon, or other bleaching agents.

The methods to be employed for determination of colour readings and for the preparation of samples are laid down overleaf and form also part of the contract.

If the seller does not agree with the findings of the buyer's laboratory, the dispute shall be settled by arbitration in the manner prescribed overleaf.

Tariff A.

Not exceeding 1 per cent f. f. a.—free.

Above 1 per cent and not exceeding 1.5 per cent f. f. a.—the seller shall pay a rebate equal to the percentage excess.

Above 1.5 per cent and not exceeding 1.75 per cent f. f. a.—the seller shall pay a rebate equal to $1\frac{1}{2}$ times the excess.

Above 1.75 per cent and not exceeding 2 per cent f. f. a.—the seller shall pay a rebate equal to twice the excess.

Above 2 per cent f. f. a.—oil will be refused.

Tariff "A" Colour.

Oil colour to be defined by the method described overleaf.

Oil stated to be lighter in colour than or equal to standard solution 30 shall be free of rebate.

Oil stated to be of deeper colour than standard solution 30 may be either accepted or rejected at the buyer's option, but if accepted the seller shall pay rebate according to the following scale :—

If colour of oil compared with standard solutions was found to be		Rebate per quarter of 28 lb.
Deeper than	Lighter than or equal to	
30	35	3 pie.
35	40	9 ..
40	..	Oil refused.

Tariff B.

Not exceeding 1.5 per cent f. f. a.—free.

Above 1.5 per cent and not exceeding 2 per cent f. f. a.—the seller shall pay a rebate equal to the percentage excess.

Above 2 per cent and not exceeding 2.25 per cent f. f. a.—the seller shall pay a rebate equal to $1\frac{1}{2}$ times the excess.

Above 2.25 per cent and not exceeding 2.5 per cent f. f. a.—the seller shall pay a rebate equal to twice the excess.

Above 2.5 per cent f. f. a.—oil will be refused.

Tariff " B " Colour.

Oil colour to be defined by the method described overleaf.

Oil stated to be lighter in colour than or equal to standard solution 35 shall be free of rebate.

Oil stated to be of deeper colour than standard solution 35 may be either accepted or rejected at the buyer's option, but if accepted the seller shall pay rebate according to the following scale :—

If colour of oil compared with standard solutions was found to be		Rebate per quarter of 28 lb.
Deeper than	Lighter than or equal to	
35	40	3 piec.
40	45	9 „
45	..	Oil refused.

Delivery terms.—Should the seller fail to deliver the oil within the specified period of the contract, then the buyer has the option either to cancel the contract, or to buy on behalf of the seller the contracted quantity or any undelivered quantity which is still outstanding against the contract, and any difference between the purchase price of this oil and the price of the original contract will have to be borne by the original seller.

Brokerage.— $\frac{1}{2}$ per cent to be paid by sellers.

Payment.—On the third day after delivery less $\frac{1}{2}$ per cent discount. Payment will be made on the 3rd day provided the buyer's laboratory test shows that the delivery conforms to the terms of this contract. Should the delivery fail to conform to buyer's standards as regards absence of water, or purity or f. f. a. and/or colour or adulteration or has been found to be treated with chemicals, earth, carbon, or any other bleaching agents, no payment will be made and the supplier must remove the oil within 24 hours of the arrival of the oil at the buyer's factory at his risk and supply new oil within the period of and in accordance with the terms of this contract.

Yours faithfully,

Seller's signature.

Summary of method for determination of colour, preparation of samples, and the manner of arbitration described on the reverse of the contract form.

1. *Method for determination of the colour.*—Colour is compared with the colour of bichromate solutions prepared by dissolving pure potassium bichromate in distilled water, 25 mgms. potassium bichromate are dissolved in 100 c. c. distilled water, for standard colour solution 25, 30 mgms. in 100 c. c. distilled water, for standard colour solution 30 and so on. The oil for examination (which should be free from visible impurities and, if necessary, filtered) and the standard solutions for comparison are filled into bottles of similar material and dimensions.

2. *Preparations of samples.*—(1) The buyer may draw a sample from the drums delivered at his site.

(2) If the sample conforms to buyer's standards, all the drums of the lot are emptied in the presence of the seller's representative, into a tank and a sample taken. The sample is filled into 4 bottles of 2 oz. capacity and sealed with the seals of both parties.

(3) If the sample drawn by the buyer does not conform to his standards, the buyer shall draw a sample in the presence of seller's representative from some or all the drums and fill 4 bottles of 2 oz. capacity.

(4) In the case of railway tank wagon, a sample will be drawn in the presence of the seller's representative and 4 bottles of 2 oz. capacity filled.

(5) Should seller's representative be not present at the time the samples are drawn, the buyer shall draw the sample independently.

(6) The four samples are allocated, (i) one for the seller, (ii) one for the buyer, (iii) one for the Chemical Examiner, if required, and (iv) one for the final arbitration, if required.

3. *Arbitration.*—(1) When buyer's analysis is disputed, one sealed sample is sent to the Chemical Analyser to the Government.

(2) If the analysis of the Chemical Analyser differs from the buyer's analysis by 0.05 per cent or less in respect of f. f. a. and/or 5 units or less in respect of colour, the buyer's analysis is accepted, and the seller pays the fees of the Chemical Analyser.

(3) If the analysis of the Chemical Analyser differs from the buyer's analysis by more than 0.05 per cent in respect of f. f. a. and/or by more than 5 units in respect of colour or the buyer and seller fail to agree mutually to accept the analysis of the Chemical Analyser, either party has the right, to resort to arbitration through the appointed arbitrator. If the analysis of the Chemical Analyser is mutually accepted or arbitration is not sought, it forms the basis of payment. The fees are paid by the buyer or seller according as the rebate calculated on the basis of the Chemical Analyser's analysis is less or more than the rebate calculated on the basis of the buyer's analysis.

(4) If the arbitrator's analysis differs from the buyer's analysis by not more than 0.05 per cent f. f. a. and/or not more than 5 units in respect of colour then the buyer's analysis remains the basis for rebate and the seller pays the fees of both the arbitrator and the Chemical Analyser. If the arbitrator's analysis differs by more than 0.05 in respect of f. f. a. and/or by more than 5 units in respect of colour from the buyer's analysis, then the arbitrator's analysis is accepted as the basis for payment. The fees of the Chemical Analyser and arbitrator are paid by the buyer or the seller according as the rebate calculated on the basis of the arbitrator's analysis is less or more than the rebate calculated on the basis of the buyer's analysis.

(5) If the oil found by the Chemical Analyser is to exceed the allowed contents of f. f. a. or strength of colour as laid down, or is to contain water or to be impure or treated with chemicals, etc., the buyer's rejection is upheld and the seller pays the fees of the Chemical Analyser. If the oil is found by the Chemical Analyser to be within the limits of Tariffs A or B (whichever is ruling at the time of delivery) in respect of f. f. a. and colour and to be free from water, pure and not treated with chemicals, etc., then the buyer shall have the option, (i) either to accept the statement of the Chemical Analyser and the

oil, when offered again and pay the fees of the Analyser, together with the normal removal and replacement fees of the oil, if any, or (ii) resort to arbitration through the medium of the appointed arbitrator.

(6) If the oil is found by the arbitrator to exceed the allowed contents of f. f. a. or strength of colour as laid down or to contain water or to be impure or treated with chemicals, etc., then the rejection of the oil by the buyer is upheld and the seller pays the fees of both arbitrator and the Chemical Analyser. If the oil is found by the arbitrator to be within the limits of Tariffs A or B, whichever is ruling at the time of delivery, in respect of f. f. a. and colour and to be free from water, pure and not treated with chemicals, etc., the buyer shall accept the oil, when offered again, in accordance with the terms of this contract and shall pay the fees of both the arbitrator and the Chemical Analyser, together with the normal removal and replacement fees of the oil, if any.

APPENDIX LVIII.

Copy of an oil mill's contract for selling groundnut oil.

Dated the _____ 19 ____ .

Sale Contract No. _____

Sold to _____

Quantity _____

Description _____

Price _____

Delivery _____

Terms and conditions.

1. This contract will be suspended during the continuance of any stoppage of the mills or any interruption from fires, explosions, epidemics of sickness, shortage or failure of industrial water supply, collapse of buildings, breakdowns, strikes, labour disputes or combination of workmen or other unforeseen circumstances.

2. The facts of such occurrences as well as the resumption of work at these mills will be notified within a reasonable time by the seller to the buyers, should such delays affect deliveries under this contract and the buyers shall have no claim on the sellers in the event of late deliveries resulting in consequence of such delays.

3. Goods will be despatched at "Owners risk rate" if available, unless special instructions to the contrary are given.

4. Sellers accept no responsibility in the event of last delivery due to non-supply of railway wagons.

5. Should the goods under this contract be hereafter liable to any form of Government duty or charge, such duty or charge shall be for buyers account.

6. Unless expressly stated otherwise a delay in delivery time of a few days will not entitle the buyers to cancel this contract.

7. Interest at 12 per cent will be charged on all overdue account. The goods after due date shall lie at the sole risk of the buyer.

8. Should the buyers fail to pay sellers invoice on due date, the sellers may, but shall not be bound to insure the said goods against fire at the expense of the buyers and may with or without notice to the buyers at the option of the seller, resell the goods on the buyer's account and risk either by public auction or private contract and at such time or times and place or places as the seller in his absolute discretion think desirable. In the event of resale the buyers shall forthwith pay to seller the amount of any loss or deficiency that may arise from such resale and shall also pay all costs, charges and expenses incurred in or about such resale waiving all claims to any advantage thereon. If at any time during the period of this contract the buyer becomes insolvent or bankrupt, the seller shall have the right to close the contract forthwith or re-sell the goods and all losses arising out of either auction shall be for account of the buyer.

9. The seller shall not be responsible for late or non-arrival of goods in consequence of "Force Majeure".

10. All contracts, deliveries, payments, and, etc., made or requiring to be made in respect of this contract, shall be deemed to have been so made at _____ only for all purposes of jurisdiction to prefer claims, and file suits, etc.

APPENDIX LIX.

Edible Oils Grading and Marking Rules.

1. *Short title and application.*—(1) These rules may be called the Edible Oils Grading and Marking Rules, 1939.

(2) They shall apply to edible vegetable oils produced in India.

2. *Grade designations.*—Grade designations to indicate the quality of edible oils are set out in column 1 of Schedules I—III annexed to these rules.

3. *Definition of quality.*—The quality indicated by the grade designations is set out against such designations in columns 2 to 10 of the Schedules I—III annexed to these rules.

4. *Grade designation marks.*—(1) The grade designation mark, to be used on small containers, shall consist of a round label of the design and colour set out in Schedule IV, specifying the name of the oil and the grade designation.

(2) The grade designation mark to be used on 40/45 gallon drums or similar containers shall consist of the word AGMARK on a lead seal.

5. *Method of marking.*—The grade designation mark shall be securely affixed to each container in a method approved by the Agricultural Marketing Adviser.

6. *Method of packing.*—Only clean new containers or sound clean returnable 40/45 gallon drums shall be used for packing, and these shall be securely closed and sealed.

7. *Special conditions of Certificate of Authorisation.*—In addition to the conditions specified in rule 4 of the Agricultural Produce (Grading and Marking) (General) Rules, 1937, the conditions set out in Schedule V shall be conditions of every Certificate of Authorisation issued for the purposes of these rules.

APPENDIX LIX—contd.

SCHEDULE II.

(See Rules 2 and 3).

Grade designations and definition of quality for groundnut oil (edible).

Grade designations.	Physical and chemical characteristics.								Description and appearance.
	Refining.	Colour.	Refractive Index at 40°C.	Specific Gravity at 15.5°/15.5°C.	Unsaponifiable matter.	Acid value.	Saponification value.	Iodine value (Wijs' method).	
1	2	3	4	5	6	7	8	9	10
Special (Refined)	Shall be refined by a process of clarification (by treatment with alkali and filtering through charcoal or Fuller's earth) and deodorising with steam. No chemical bleaching agents shall be used.	Not deeper than equivalent to 5 yellow units on a Lovibond colour scale when measured through a one inch cell.	1.4631 to 1.4646	.916 to .919	Not more than 0.8%	Not more than 0.5	188 to 196	85 to 99	<i>Description</i> :— Groundnut oil (edible) shall be the oil obtained by a process of expression (not extraction) from groundnuts free from admixture with other oils or any other substances.
Special	May or may not be refined as for Special (Refined).	Not deeper than equivalent to a combination of 1 red and 10 yellow units on a Lovibond colour scale when measured through a one inch cell.	1.4631 to 1.4646	.916 to .919	Not more than 0.8%	Not more than 2	188 to 196	85 to 99	<i>Appearance</i> :— Groundnut oil (edible) shall be clear*, free from sediment and other insoluble matter.
Grade A	May or may not be refined as for Special (Refined).	Not deeper than equivalent to a combination of 1 red and 25 yellow units on a Lovibond colour scale when measured through a one inch cell.	1.4626 to 1.4646	.916 to .920	Not more than 1%	Not more than 8.	188 to 196	85 to 99	


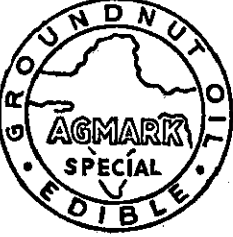
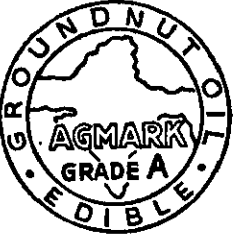
* A sample shall be considered clear if it does not show any turbidity by keeping at 20°C, for 24 hours.

APPENDIX LIX—contd.

SCHEDULE IV.

(See Rule 4).

(b) Grade designation mark for tins of groundnut oil (edible).

Grade designations.	Design of the label.	Colour of the label.
Special (Refined)		White.
Special		Red.
Grade A		Blue.

APPENDIX LIX—*conold.*

SCHEDULE V.

*(See Rule 7).**Special conditions of Certificate of Authorisation.*

(a) An authorised packer shall be equipped with suitable plant for the expression of edible vegetable oils, and tanks for the storage of oils.

(b) If an authorised packer crushes more than one type of oilseeds on the same premises, adequate precautions shall be taken to avoid the mixing of different oils and oilseeds.

(c) An authorised packer shall provide and maintain laboratory equipment and staff, as approved by the Agricultural Marketing Adviser, for the analysis of samples of edible oils and shall maintain proper records of the analysis of samples.

(d) All instructions regarding methods of sampling and analysis, sealing and marking of containers and the maintenance of records, etc., which may be issued from time to time by the Agricultural Marketing Adviser, shall be strictly observed.

(e) A sample of oil, drawn in a manner prescribed by the Agricultural Marketing Adviser, from each filling of a storage tank or railway tank wagon of oil, shall be forwarded to such Central Control Laboratory, as may be directed from time to time. If the packing of oil from a storage tank is not completed within 7 days of drawing the sample, a fresh sample shall be drawn on the 8th day and after every seven days thereafter and sent to the control laboratory.

(f) Each tin or drum shall be filled with oil from one storage tank or tank wagon only.

(g) Each container of oil shall, soon after being filled, be marked in a manner approved by the Agricultural Marketing Adviser (plainly or in code) with the name of the grading station and a number indicating the tank filling from which the oil was drawn.

NOTE.—Schedules I, III, IV (a) and IV (c) which relate to mustard oil and $\frac{1}{2}$ oil, have been omitted.

APPENDIX LX.

Prices of groundnut cake in the first week of every month at Bombay.
(Per maund).

Months.	1933-34.	1934-35.	1935-36.	1936-37.	1937-38.	1938-39.	1939-40.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
April	1 15 2	1 3 5	1 10 11	1 14 9	2 9 1	2 0 11	2 2 7
May	2 1 6	1 7 6	1 14 7	1 15 8	2 4 5	2 1 6	2 3 7
June	1 15 9	1 7 6	1 15 9	1 15 8	2 3 10	2 2 8	2 3 11
July	2 3 3	1 8 1	1 14 7	2 6 2	2 3 3	2 6 9	2 5 8
August	2 0 3	2 0 3	1 15 2	2 9 1	2 5 0	2 5 0	2 5 8
September	1 13 4	1 15 2	2 0 3	2 12 7	2 4 5	2 3 3	2 3 3
October	1 12 8	1 14 8	2 0 3	2 7 11	2 0 11	2 2 1	2 4 4
November	1 12 8	1 13 4	1 15 2	2 9 1	2 0 11	2 0 6	2 3 3
December	1 11 9	2 0 10	1 14 11	3 7 4	1 15 8	2 4 2	2 2 4
January	1 10 4	2 3 3	1 15 8	2 12 0	1 15 1	2 4 2	2 0 6
February	1 8 9	2 2 9	1 13 7	2 10 3	2 1 6	2 2 1	1 14 7
March	1 7 3	1 10 4	1 14 7	2 3 10	2 1 6	2 2 1	1 13 5
Annual average ..	1 13 5	1 12 7	1 14 9	2 7 8	2 2 10	2 2 11	2 2 7

Source.—“Times of India”, Bombay.

APPENDIX LXI.

Average monthly prices of groundnut cake at Calcutta.
(Per maund).

Months.	1933-34.	1934-35.	1935-36.	1936-37.	1937-38.	1938-39.	1939-40.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
April	2 4 0	1 9 4	2 1 6	2 0 0	2 10 6	1 14 9	2 1 0
May	2 4 0	1 8 0	2 1 0	2 0 0	2 9 0	2 2 6	2 3 0
June	2 8 0	1 8 0	2 0 0	2 0 0	2 8 0	2 3 6	2 3 3
July	2 1 4	1 8 0	1 15 0	2 2 6	2 8 0	2 5 0	2 3 6
August	2 0 0	1 12 0	1 15 0	2 8 6	2 7 9	2 2 3	2 3 0
September	2 0 0	2 0 0	1 15 0	2 8 0	2 6 0	2 0 6	2 5 0
October	1 15 0	2 0 0	2 2 6	2 7 0	2 5 0	2 0 6	2 5 0
November	2 0 0	2 0 0	2 0 6	2 10 0	2 1 3	2 0 0	2 4 0
December	2 0 0	2 0 0	2 0 0	2 15 3	2 0 0	2 1 0	2 7 6
January	1 10 5	2 0 0	2 0 6	2 15 3	2 1 0	2 4 3	2 1 6
February	1 10 0	2 3 0	2 0 0	2 13 0	1 14 9	2 3 6	2 1 9
March	1 9 0	2 3 0	2 0 0	2 8 9	1 14 6	2 1 3	1 15 0
Annual average ..	1 15 10	1 13 7	2 0 3	2 7 4	2 4 6	2 1 11	2 3 2

Source.—“ Commerce ” and “ The Indian Trade Journal ”.

APPENDIX LXII.

Extract from the London Cattle Food Trade Association contract for imported feeding cakes and meals.

Quality.—At time of loading to be fair average of the season's shipment. To contain not less than _____ per cent of oil and albuminoids combined, and not more than _____ per cent of sand and/or silica.

Should the whole or any portion not turn out equal to warranty the goods must be taken at an allowance to be agreed or settled by arbitration as provided below except that for any deficiency of oil and albuminoids there shall be allowances to buyers at the following rates, *viz.*, 1 per cent of the contract price for each of the first 3 units of deficiency, under the guaranteed percentage; 2 per cent of the contract price for the fourth and fifth units and 3 per cent of the contract price for each unit in excess of five and proportionately for any fraction thereof. For any excess of sand and/or silica there shall be an allowance of _____ per cent of the contract price for each unit of excess and proportionately for any fraction thereof. Should the cake and/or meal contain over 5 per cent of sand and/or silica the buyer is entitled to reject the goods, in which case the contract shall be null and void for such quantity rejected.

The goods are warranted free from castor seed husk; but should the analysis show a percentage of castor seed husk not exceeding .005 per cent the buyer shall not be entitled to reject the goods but shall accept them with the following allowances; 2*sh.* 6*d.* per ton not exceeding .001 per cent, 3*sh.* 9*d.* per ton not exceeding .002 per cent, and 5*sh.* per ton not exceeding .005 per cent. Should the first analysis show the goods free from castor seed and/or castor seed husk such analysis shall be final, but in the event of the first analysis showing castor seed husk to be present a second sample may be analysed at the request of either party and the mean of the two analyses shall be taken as final. Should the parcel contains castor seed husk in excess of .005 per cent buyers shall be entitled to reject the parcel, in which case the contract shall be null and void for such quantity rejected.

* * * * *

APPENDIX LXIII.

Extract from the Hamburg Cattle Food Trade Association General Arrival contract No. III-A (Indian oilcakes).

When sales are made on type sample slight variations in colour and grinding are not to be objected to. Where no uniformity of colour and grinding is provided for, goods of fair average contract quality are to be accepted as good delivery. In the case of oilcakes, reasonable breakage is not to be objected to.

In the event of castor seed being found, even if only in traces buyers are entitled to either reject the goods or to accept them with allowance.

Should buyers avail themselves of the right of rejection they are entitled to a refund of quay charges, reception charges, lighterage and loss of interest. The presence of castor seed is proved if shown by any one analysis even though another test may show a different result. Sellers, however, are entitled to claim from buyers that the remains of the sample on the strength of which the presence of castor seed has been found, are to be re-sealed by the Analytical Chemist and that this sample is to be held at the disposal of sellers for a second analysis with regard to the quantity of castor seed contained. The mean of the results thus obtained is to form the basis for final adjustment.

Should buyers agree to take delivery of the goods even if containing castor seed, sellers have to grant to buyers the following allowance according to the quantity of castor seed present :—

	Per cent.
2 per cent of the contract price if the presence of castor seed does not exceed	0.002
2½ per cent of the contract price if the presence of castor seed does not exceed	0.005
3½ per cent of the contract price if the presence of castor seed does not exceed	0.008
4½ per cent of the contract price if the presence of castor seed does not exceed	0.02
5½ per cent of the contract price if the presence of castor seed does not exceed	0.05
7½ per cent of the contract price if the presence of castor seed does not exceed	0.08
9 per cent of the contract price if the presence of castor seed does not exceed	0.10
11 per cent of the contract price if the presence of castor seed does not exceed	0.25
15 per cent of the contract price if the presence of castor seed does not exceed	0.50

In the event of deficiency of oil and albuminoids sellers have to allow buyers : 1 per cent for each per cent of deficiency upto 3 per cent ; 2 per cent for each further per cent of deficiency if the deficiency amounts from 3 per cent to 5 per cent : 3 per cent for each further per cent of deficiency if the deficiency exceeds 5 per cent.

The presence of sand up to 2½ per cent is not to be objected to. Goods containing from 2½ per cent to 5 per cent are to be accepted by buyers against an allowance. The allowance to be 1 per cent of the purchase price for each per cent in excess of 2½ per cent. If the presence of sand is in excess of 5 per

cent buyers are entitled to reject the goods and to demand refund of the expenses, incurred for quay charges, reception charges, lighterage and loss of interest.

* * * * *

Should the analysis show an under-test of oil and albuminoids of 10 per cent or more, buyers have the right either to receive the goods at the allowance provided for or to reject them, in which latter event all expenses shall be for sellers' account.

Should the goods be inferior in quality or in contents to contract warranty buyers shall not be entitled to reject but shall take delivery and pay for them in accordance with the contract. The amount of the damages for inferior quality and/or of the allowances for inferior contents shall then be determined by arbitration.

APPENDIX LXIV.

Copy of an exporter's contract for purchasing groundnut cake.

_____, Limited.

Oil cake contract.

Contract between _____, Limited (_____) through their agency at _____ (hereinafter called the "Buyers") and _____ (hereinafter called the "Sellers"), whereby the Buyers agree to buy and the Sellers agree to sell the following.

Terms.—On Pass.

Quantity.— _____ tons (in words) _____ only, 1 per cent more or less, of _____.

Quality.—Decorticated groundnuts cake _____ light colour.

Basis.—Guaranteed to be in sound condition and to contain not less than 55 per cent albuminoids and oil and not more than 2½ per cent sand and free of any other foreign matter and free from surface mould.

Price.—At Rs. _____ (in words) Rupees _____ per ton net without gunnies.

Delivery.— _____.

Sampling.—Goods to be sampled at the Buyers' Port Godowns on arrival, and the sample to be analysed in Bombay for percentage of oil, albuminoids and sand.

Samples to be drawn and sealed in three sample bags, original, duplicate and triplicate. The original sample to be analysed in Messrs. _____, Limited, laboratory. In case of dispute the duplicate sample to be submitted to a recognised analyst for analysis the result of which shall be final and binding upon both parties.

The triplicate sample to be kept aside for submission to the Bombay Chamber of Commerce for arbitration in case of dispute as regards allowances claimed by the Buyers for quality and/or colour.

Allowances.—Every 1 per cent and upto 5 per cent deficiency in oil and albuminoids, and every 1 per cent excess and upto 5 per cent sand to be deducted at 1.25 per cent of the contract price per unit.

Goods containing sand in excess of 5 per cent or over 5 per cent deficiency of albuminoids and oil may be rejected at Buyers' option.

Payment.—90 per cent of the value of the goods against railway receipt and the balance after receipt of the port weights and Bombay analysis results.

Anything besides plain signatures written in any language but English on this contract shall be null and void and shall not be construed in any way as part of the terms or conditions of this contract.

For _____, Limited,
_____ Agency,

for Agent.

Sellers' signature.

General conditions.

1. In case of failure to deliver whole or part of this contract through any cause whatsoever including rejection of the goods in exercise of any right or option under this contract, Buyers shall have the option of :

- (a) Either to cancel the undelivered portion of this contract, or
- (b) To hold the Sellers liable for the difference between the contract rate and the price at which cake of the same description and quality as contracted for may be obtained in the market, on the due date of this contract.

2. The goods should be despatched to _____ at Seller's expense and risk by rail from any station. Railway receipt to be made out in the name of _____, Limited, as consignors and consignees. If the railway receipts are made out in the name of _____, Limited, as consignors and consignees and the goods are not delivered at _____, Limited godowns, the sellers shall refund to the buyers the cost of extra expenses incurred for bringing the goods to their godowns.

3. In case the first analysis shows deficiency of oil and aluminoids and/or excess sand and the sellers do not agree to pay the allowance demanded by buyers the second sample provided, the sellers so desire, will be sent for an independent analysis but the fees for such an analysis will be borne by sellers irrespective of whether the percentage of oil and aluminoids and/or sand is found to be as guaranteed in the contract.

4. In the event of the rejection of any goods, the buyers without any prejudice to any other terms of their contract shall give the sellers' notice to the effect that if within ten days from the delivery of such notice sellers fail to refund the amount advanced by buyers and expenses incurred against goods tendered but eventually rejected, buyers shall be at liberty without further notice to sellers to sell the goods tendered and to receive the sale proceeds thereof against the amount advanced.

5. In the event of the collected amount out of the sale proceeds of the goods tendered and rejected, not being sufficient to cover the amount of advance paid to sellers, buyers shall hold the sellers responsible to pay the balance outstanding amount.

6. In case sellers wish the duplicate sample to be analysed by an independent chemist or submit the triplicate sample to the Chamber of Commerce they must notify buyers to this effect within 48 hours from receipt of their analysis report. Failure to do so will entitle buyers to take their own analysis as the basis for settlement or at their option, to submit the duplicate sample to an independent analyst.

7. Buyers shall not be obliged to keep any lot intact, after weighment and after the sample for analysis and colour have been drawn in the manner described above.

8. All disputes will be settled by arbitration through the Bombay Chamber of Commerce.

9. Under no circumstances can the sellers claim impossibility of performance or *force majeure* for not fulfilling this contract.

GLOSSARY OF VERNACULAR TERMS.

A

<i>Adat (arhat)</i>	..	..	Commission charged and the business carried on by commission agents.
<i>Adholi</i>	..	..	Bombay dry measure equal to 2 seers.
<i>Adpao</i>	..	..	1/8th of a seer (2 <i>chhataks</i>).
<i>Annawari</i>	..	..	System of expressing the outturn of crops in terms of annas.
<i>Arhatya (adatya)</i>	..	..	Commission agent.
<i>Asarh</i>	..	..	The fourth month of Hindu calendar (June-July).
<i>Ashwin</i>	..	..	The seventh month of Hindu calendar (September-October).
<i>Atli</i>	..	..	A local unit of weight equivalent to 200 lb.

B

<i>Baisakh</i>	..	..	The second month of Hindu calendar (April-May).
<i>Bania (baniya)</i>	..	..	Village merchant who primarily trades in agricultural produce, but who is generally the village financier.
<i>Bara</i>	..	..	Big.
<i>Batas</i>	..	..	System of giving part of the produce as rent to the landlords.
<i>Batta</i>	..	..	Discount.
<i>Baya</i>	..	..	A weighman or measurer.
<i>Beopari</i>	..	..	A trader; an itinerant merchant.
<i>Bhadbhunja</i>	..	..	A grain parcher.
<i>Bhadon</i>	..	..	The sixth month of Hindu calendar (August-September).
<i>Bhishti</i>	..	..	Waterman or water carrier.
<i>Bhovar</i>	..	..	A rough cloth spread in carts for transporting produce in bulk. (See <i>gona</i> and <i>palli</i>).
<i>Boja</i>	..	..	Literally load; a unit of sale.
<i>Brahmans</i>	..	..	A community among Hindus.

C

<i>Chaitra</i>	..	..	The first month of Hindu calendar (March-April).
<i>Charbini</i>	..	..	Animal fat.
<i>Chhatak</i>	..	..	1/16th part of a seer.
<i>Chekku</i>	..	..	A primitive arrangement for the extraction of oil, largely used in villages. Also called a <i>ghani</i> or <i>kolu</i> .
<i>Chettians</i>	..	..	A community of Hindus in South India engaged in business, generally banking.
<i>Chhota</i>	..	..	Small.
<i>Chidwa</i>	..	..	An edible preparation made by mixing parboiled or beaten rice with roasted gram, groundnut kernels and dry fruits.
<i>Cholam</i>	..	..	A millet <i>Sorghum vulgare</i> .
<i>Chutney</i>	..	..	A kind of sauce.
<i>Cumba</i>	..	..	A millet also called <i>barra</i> .

D

<i>Dalat</i>	..	..	..	A broker (<i>dalali</i> is brokerage).
<i>Dana</i>	..	..	..	Grain.
<i>Daroga</i>	..	..	..	A market supervisor.
<i>Darshani hundi</i>	..	..	..	A sight draft.
<i>Deorhi</i>	..	..	..	One and a half times; system of loan in which one and half times the quantities (of seed) borrowed are refunded.
<i>Dhari</i>	..	..	..	A five seer weight, also called <i>panseri</i> .
<i>Dharmada</i>	..	..	..	A deduction for charity.
<i>Dokada</i>	..	..	..	Half anna (term used in Bombay grains and oilseeds trade).

G

<i>Ghani</i>	..	..	..	See <i>chekku</i> .
<i>Ghughru</i>	..	..	..	Literally round small balls. The term is applied to peanuts in some areas.
<i>Gona</i>	..	..	..	See <i>bhovar</i> .
<i>Gorakshan</i>	..	..	..	Cow protection.
<i>Gowshala</i>	..	..	..	An institution providing shelter for old, decrepit and invalid cows.
<i>Gulabi</i>	..	..	..	Rose colour.
<i>Gunj</i>	..	..	..	A grain market.
<i>Gur</i>	..	..	..	Unrefined sugar.

H

<i>Hakwai</i>	..	..	..	A confectioner.
<i>Hamal</i>	..	..	..	A (market) labourer (see <i>palledar</i>).
<i>Hamalge</i> <i>Hamwali</i> }	..	..	..	Wages charged by <i>hamal</i> .
<i>Hundebar</i>	..	..	..	A clearing or forwarding agent (also called station <i>dala</i> and <i>marfatia</i>).
<i>Hsi-zon</i>	..	..	..	Burmese name for <i>chekku</i> .
<i>Hat</i>	..	..	..	A periodical market (see <i>shandy</i> and <i>painth</i>).
<i>Hundi</i>	..	..	..	A bill of exchange or draft (see <i>darshani hundi</i> and <i>muddati hundi</i>).

I

<i>Inam</i>	Literally reward. An inam village is a village exempt from payment of land revenue.
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J

<i>Jagir</i>	Jagir areas are areas in feudatory territory.
<i>Jawar</i>	Vernacular name for Coromandel kernels in Hyderabad.
<i>Jowar</i>	..	..	..	A millet (see <i>cholam</i>).

K

<i>Kahar</i> .. ..	.. ..	A menial servant for cleaning utensils.
<i>Kachcha</i> .. ..	.. ..	Literally "raw" and "unfinished". The word has a wide range of meanings, e.g., a <i>kachcha</i> road is an unmetalled road. <i>Kachcha arhatya</i> is a trader of small means dealing in agricultural produce before it is bagged or made ready for final sale.
<i>Kalam</i> .. ..	.. ..	A unit of sale.
<i>Kardi</i> .. ..	.. ..	Safflower seed.
<i>Khalsa</i> .. ..	.. ..	Khalsa areas are areas in State territory.
<i>Khandi (Khandy, Candy)</i> .. ..	.. ..	A unit of sale, standing for varying weights in different areas.
<i>Kharif</i> .. ..	.. ..	Autumn crop.
<i>Kirana</i> .. ..	.. ..	Spices.
<i>Kolhu</i> .. ..	.. ..	See <i>chekku</i> .
<i>Kudum</i>	A liquid measure which may vary from 2 to 10 Madras measures.

L

<i>Lal</i>	Red.
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M

<i>Mamools</i>	Customary charges.
<i>Mandi</i>	A market.
<i>Mansi</i>	A unit of sale.
<i>Map</i>	Bombay dry measure equal to 2 maunds.
<i>Marfatia</i> .. ..	.. ..	See <i>hundekari</i> .
<i>Markal</i> .. ..	.. ..	A measure equivalent to 4 Madras measures.
<i>Masur</i> .. ..	.. ..	A lentil.
<i>Mota</i> .. ..	.. ..	Fat.
<i>Mowha</i> .. ..	.. ..	An oilseed.
<i>Muccadam</i> .. ..	.. ..	Labour contractors and middlemen who look after handling, trading and clearing, etc., of goods.
<i>Muccadamage</i> .. ..	.. ..	Muccadam's charge.
<i>Muddati hundi</i> .. ..	.. ..	A bill of exchange drawn for a definite period.
<i>Munim</i> .. ..	.. ..	A clerk.

N

<i>Najrana</i> .. ..	.. ..	Premium paid for an "option".
<i>Note batta</i> .. ..	.. ..	Discount for payment in silver in lieu of currency notes.
<i>Nozibu</i>	A 14 oz. size condensed milk tin equal to 1/8th of a <i>pye</i> measure in Burma. (See <i>pye</i>).

O

<i>Olock</i>	1/8th of a Madras measure.
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P

<i>Painth</i>	A periodical market (see <i>hat</i> or <i>shandy</i>).
<i>Palla</i>	A unit of sale common in Hyderabad.

<i>Palledar</i> .. ..	..	..	A (market) labourer.
<i>Palledari</i> .. ..	..	..	Wages charged by <i>palledar</i> .
<i>Palli</i> .. ..	..	..	See <i>bhovar</i> .
<i>Panseri</i> .. ..	..	..	A weight equivalent to 5 seers.
<i>Patnam</i> .. ..	..	..	Madras measure holding 82½ oz. of water. Also called <i>pucca padi</i> .
<i>Peyali</i> .. ..	..	..	Bombay dry measure equal to 4 seers.
<i>Pidda guntaka</i> .. ..	..	..	A type of big harrow.
<i>Pikhta</i> .. ..	..	..	A unit of weight in Burma (also known as viss).
<i>Pittai</i> .. ..	..	..	Space for parking carts.
<i>Poorbi</i> .. ..	..	..	Literally eastern. The term is applied to the indigenous variety of groundnuts grown in parts of the United Provinces.
<i>Pons</i> .. ..	..	..	The ninth month of Hindu calendar (November-December).
<i>Pucca</i> .. ..	..	..	Literally true or mature or real. A <i>pucca arhatya</i> is a commission agent and wholesaler.
<i>Padi</i> .. ..	..	..	A liquid measure.
<i>Purnima</i> .. ..	..	..	Full moon day.
<i>Putti</i> .. ..	..	..	A unit of sale indicating a varying number of Madras measures.
<i>Pye</i> .. ..	..	..	1/16th of a standard basket in Burma.

R

<i>Rabi</i> .. ..	..	..	Spring crop.
<i>Ryotwari (Raiyatwari)</i> .. ..	..	..	System of land tenure in which the revenue is assessed by the State on the occupants of small holdings.

S

<i>Sadhu</i> .. ..	..	..	A religious mendicant.
<i>Sahukar</i> .. ..	..	..	A money-lender.
<i>Satta</i> .. ..	..	..	A unit of sale common in Mysore.
<i>Sawai</i> .. ..	..	..	One and a quarter times; system of loans in which one and a quarter times (of seed) borrowed has to be refunded.
<i>Shandy</i> .. ..	..	..	A periodical market (see <i>hat</i> and <i>paithi</i>).
<i>Shravan</i> .. ..	..	..	The fifth month of Hindu calendar (July-August).
<i>Shroffs</i> .. ..	..	..	Indigenous bankers.
<i>Soap</i> .. ..	..	..	A shallow tray made of iron, bamboo or wicker-work.

T

<i>Tale quale</i> .. ..	..	..	A system of purchase in which the buyer gives his offer on seeing the goods.
<i>Taluk</i> .. ..	..	..	A sub-division in a district.
<i>Tanki</i> .. ..	..	..	A unit of sale for oil in the Central Provinces.
<i>Teji mandi</i>	Literally, <i>teji</i> =dearness, <i>bull</i> option; and <i>mandi</i> =cheapness, <i>bear</i> option; <i>teji mandi</i> =a double option, i.e., to buy or sell.

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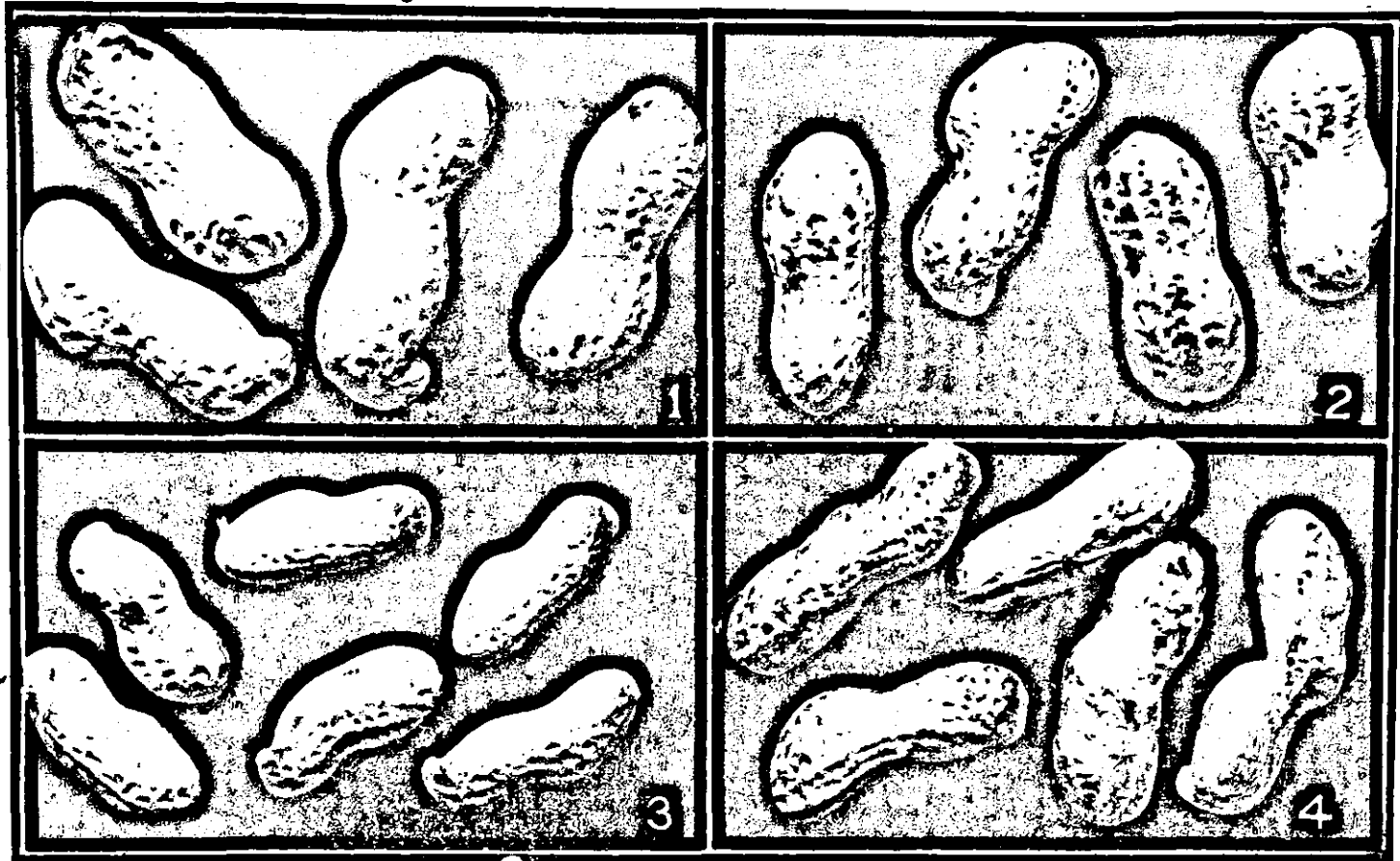


GROUNDNUT PLANT (TRAILING OR SPREADING TYPE).

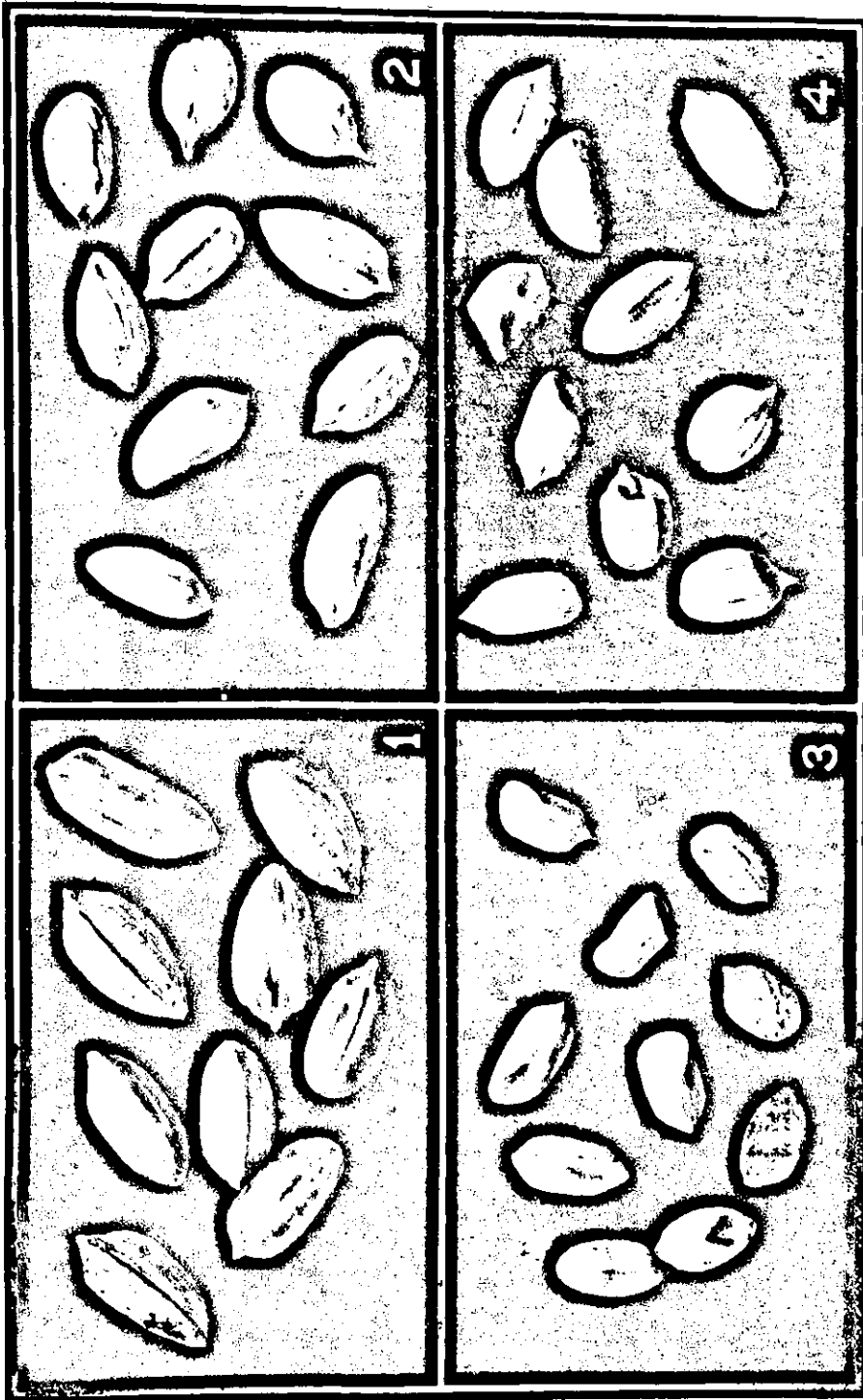
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GROUNDNUT PLANT (ERECT OR BUNCH TYPE).



COMMERCIAL VARIETIES OF GROUNDNUTS IN SHELL.
1. Kathiawar Bold. 2. Bold. 3. Coromandel. 4. Karad.



COMMERCIAL VARIETIES OF GROUNDNUT KERNELS.
1. Kathiwar Bold. 2. Bold. 3. Coromandel. 4. Karad.