

Report of the Department
of Industries, Madras

1934 - March



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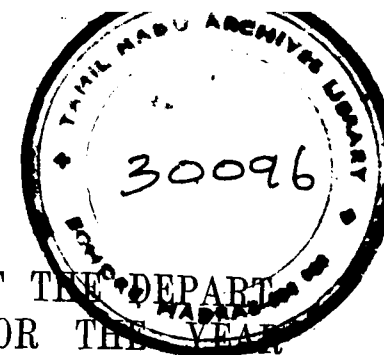
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P,
M. B. Green, M.B.E., continued to hold the appointment of Deputy Director of Industries throughout the period under review.

ADMINISTRATION REPORT OF THE DEPARTMENT OF INDUSTRIES FOR THE YEAR ENDED 31ST MARCH 1934.



Direction.—I was in charge of the department throughout the year. Mr. L. B. Green, M.B.E., continued to hold the appointment of Deputy Director of Industries throughout the period under review.

2. *Tours.*—I was on tour within the Presidency for 91 days during the year, my tours covering most of the industrial centres. In addition I attended the Industrial and Sugar Conferences at Simla in July. I also attended the sessions of the Legislative Assembly in August-September, November-December and January-March, and was at Simla from 21st September to 12th October in my capacity as an unofficial adviser to the Indian Textile Delegation in connexion with the Indo-Japanese trade negotiations.

3. *Exhibitions.*—The department, as usual, participated during the year in a number of agricultural and industrial exhibitions held in various parts of the Presidency, e.g., at Bezwada, Vadamalapuram, Tiruppur, Madras and Conjeeveram. Generally, at all these exhibitions a representative range of soaps manufactured at the Kerala Soap Institute, Calicut, was displayed and wherever possible, the working of the pumping and boring machinery, of improved textile appliances and of silk-worm rearing and reeling appliances was demonstrated for the benefit of the agriculturists, handloom weavers and the general public. A successful departmental display was staged in connexion with the annual Park Fair held at Madras in December 1933, the exhibits on this occasion including a model of a juice boiling furnace, Pinto Chekku in actual operation, model of an artesian borehole, demonstrations on the cottage sizing machine and of dyeing and aerograph printing, as also of rearing of mulberry and eri-worms, reeling of mulberry silk and reeling of eri-yarn on an improved charka. There was also a demonstration of a coke oven furnace. A special feature of the Park Fair Exhibition was a practical demonstration by the department of slate manufacture in all its stages. Exhibitions and Fairs held in others parts of India, as well as in countries overseas, such as the British Industries Fair and the All-India Arts and Crafts Exhibition, Delhi, were as usual brought to the notice of important firms and individuals and chambers of commerce in the Presidency.

4. Committees.—I continued to serve on the following committees:—

- Local Advisory Committee of the South Indian Railway.
- Local Advisory Committee of the Madras and Southern Mahratta Railway.
- Provincial Cotton Committee.
- Committee of the Victory Memorial School for the Blind, Poonamallee.
- Council of the Victoria Technical Institute.

I was also a member of the Senate of the Andhra University. In G.O. No. 1418, Development, dated 21st November 1933, I was nominated as a member of the court of the Indian Institute of Science, Bangalore, for the period 1934–38.

5. Conferences.—A conference of Ministers in charge of Industries and Directors of Industries was held at Simla in July at which several important subjects were discussed including, amongst others, State-aid to industries, co-ordination and development of statistics bearing on industries, technical scholarships abroad, co-ordination of industrial research, utilization of services of Trade Commissioners and value of cheap electrical power to Rural Development. The conference was attended by the Hon'ble the Minister for Education and Excise and myself. The proceedings of the Conference have been published as a bulletin by the Government of India.

A Sugar Conference was held at Simla on 10th, 11th and 12th July 1933 at which several important subjects connected with the expansion of the sugar industry in India were discussed, including the question whether the present rate of development of the sugar industry is satisfactory, excessive or inadequate, and whether legislation is necessary for the better regulation of the Indian sugar industry. The Conference was attended by the Hon'ble the Ministers for Public Works and Education and Excise, the Director of Agriculture and myself. M.R.Ry Rao Bahadur C. V. S. Narasimha Raju Garu, representing the cane growers' interests, and Mr. (now Sir) W. O. Wright representing the sugar manufacturers' interests, also attended the Conference. The proceedings of this Conference also have been published as a bulletin by the Government of India.

6. Statutory Board of Industries.—The composition of the Board of Industries was as noted below at the beginning of the year 1933–34:—

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|---|---------------|
| (1) The Director of Industries, Madras. | } Ex officio. |
| (2) The Secretary to Government, Finance Department. | |
| (3) G. L. Orchard, Esq., elected by the Madras Chamber of Commerce. | |

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|---|---|
| (4) M.R.Ry. Chandulal M. Kothari, B.A., LL.B., elected by the Southern India Chamber of Commerce. | } Elected by the Madras Legislative Council. |
| (5) D. Q. Davidson, Esq., elected by the Madras Trades Association. | |
| (6) Yakub Hassan Sahib Bahadur, M.L.C. | |
| (7) M.R.Ry. Sri Raja Venkataramayya Appa Rao Bahadur Garu, M.L.C., Zamindar of Mirzapuram. | } Nominated by Government under section 3 (2) of the Act. |
| (8) The Hon'ble M.R.Ry. Diwan Bahadur G. Narayanaswami Chetti Garu, C.I.E. | |
| (9) M.R.Ry. A. Ranganatha Mudaliyar Avargal, M.L.C. | |
| (10) M.R.Ry. A. M. M. Murugappa Chettiyar Avargal. | |
| (11) Dr. R. Nagan Gowda. | |
| (12) The Registrar of Co-operative Societies, Madras. | |

Mr. L. B. Green, M.B.E., Deputy Director of Industries, was Secretary to the Board.

Mr. G. L. Orchard resigned his seat on the Board in May 1933 owing to his departure on leave out of India and the Madras Chamber of Commerce elected Mr. J. K. Metherell in his place. Mr. Metherell also resigned his seat in December 1933 and in his stead Mr. D. M. Reid was elected as their representative by the Madras Chamber of Commerce. Under rule 5 of the rules framed under the Act, M.R.Ry. Chandulal M. Kothari Avargal representing the Southern India Chamber of Commerce on the Board vacated his seat in May 1933 by efflux of time, but was re-elected as a member of the Board by this constituency for a further period of three years from June 1933. Messrs. Yakub Hasan Sahib Bahadur and Sri Raja Venkataramayya Appa Rao Bahadur, representing the Madras Legislative Council, vacated their seats on the Board by efflux of time, and the Legislative Council elected in February 1934, M.R.Ry. Diwan Bahadur A. Appadurai Pillai Avargal and M.R.Ry. V. T. Arasu Avargal in their stead. The Hon'ble Diwan Bahadur G. Narayanaswami Chetti Garu and Dr. R. Nagan Gowda also vacated their seats by efflux of time in April 1933 and Muhammad Ismail Sahib Bahadur and M.R.Ry. Chelikani S. Appa Rao Garu were appointed as members of the Board in their place. The Registrar of Co-operative Societies who vacated his seat in April 1933 was re-nominated to the Board for a further period of three years under section 3 (2) of the Act. The composition of the Board at the close of the year 1933–34 was as follows:—

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|---|---------------|
| (1) The Director of Industries, Madras. | } Ex officio. |
| (2) The Secretary to Government, Finance Department. | |
| (3) D. M. Reid, Esq., elected by the Madras Chamber of Commerce. | |
| (4) M.R.Ry. Chandulal M. Kothari, B.A., LL.B., elected by the Southern India Chamber of Commerce. | |

(5) D. Q. Davidson, Esq., elected by the Madras Trades Association.

(6) M.R.Ry. Diwan Bahadur A. Appadurai Pillai Avargal, M.A., I.S.O., M.L.C.
(7) M.R.Ry. V. T. Arasu Avargal, M.L.C.

Elected by the Madras Legislative Council.

(8) Muhammad Ismail Sahib Bahadur.

(9) M.R.Ry. A. Ranganatha Mudaliyar Avargal, M.L.C.

(10) M.R.Ry. A. M. M. Murugappa Chettiyar, Avargal.

(11) M.R.Ry. Chelikani Appa Rao Garu.

(12) The Registrar of Co-operative Societies, Madras.

Nominated by Government under section 3 (2) of the Act.

7. Of the two applications recommended to Government during the previous year, orders were received during the period under review on the application of M.R.Ry. A. C. Krishnaswami Pillai, Mutupet, Tanjore district, sanctioning a loan of Rs. 500 for the purpose of starting a coir factory on a small scale. The other application from Mr. F. L. Silva was still under the consideration of Government at the close of the year.

8. Two meetings of the Board of Industries were held during the year, i.e., on the 7th and 24th March 1934 at which the under-mentioned subjects, including those adjourned from the meeting held in the previous year, were considered :—

(i) Application from M.R.Ry. Theruvath Raman, Nediyrupamsam, Malabar district, for a loan for the purpose of setting up a rice and oil-mill.

(ii) Application from M.R.Ry. V. S. Narayanaswami, Proprietor, Palmyra Fibre Factory, Thopputhurai, Tanjore district, for a loan of Rs. 750 for the purpose of developing the manufacture of bass brooms, scrubbing brushes, etc.

(iii) Application from M.R.Ry. N. Sripathi, Govindavadi, for a loan or a subsidy for developing the manufacture of malt flour from paddy.

(iv) Application from the Metal Industries, Limited, Shoranur, Malabar district, for a further loan of Rs. 20,000 for developing the manufacture of edge tools.

(v) Application from Messrs. K. V. Ratnam & Bros., Rajahmundry, for a cash credit or overdraft of Rs. 5,000 for the development of the fountain-pen manufacturing industry.

(vi) A Bill to amend the State-Aid to Industries Act with a view to providing for the supply of machinery on the hire purchase system, and

(vii) A Bill to amend the State-Aid to Industries Act so as to provide for the grant of electric power on favourable terms to industries eligible for assistance under the Act.

Of these seven applications and subjects, applications (i) and (iii) were rejected unanimously by the Board. In the case of applications (ii), (iv) and (v) the Board recommended unanimously to Government the grant of loans of Rs. 750, Rs. 3,866 and Rs. 3,000, respectively. As regards item (vi) the Board approved unanimously the proposal to amend the State-Aid to Industries Act so as to permit of the introduction of the hire-purchase system and considered that the amendment to the Act should not be confined to assisting cottage or small scale industries, but that it should be applicable to industries in general. The Board also approved unanimously the draft Bill to amend the Act so as to provide for the grant of electric power to industries on favourable terms [item (vii)]. The five applications for loans and two draft amending Bills were under the consideration of Government at the end of the year.

9. The affairs of the concerns which have received aid under the Act are briefly reviewed below :—

(i) *The Kallakurichi Co-operative, Agricultural and Industrial Society, Limited.*—According to the audit report of the Society for the year ended 30th June 1933, the Society worked neither at a profit nor at a loss during the year ended 30th June 1933. The Society paid the instalment of the loan due in the year 1933-34.

(ii) *The Andal Mills, Gudiyattam.*—The Government issued orders that they were not prepared to grant any concession to M.R.Ry. D. Rangaswami Nayudu and that steps should be taken for the speedy recovery of the balance of loan amount. While arrangements were in progress to bring the mortgaged properties to sale, intimation was received from the High Court that Mr. D. Rangaswami Nayudu had been adjudged an insolvent. The sale was, however, ordered to be proceeded with by the Collector of North Arcot and the sale of the machinery fetched Rs. 193 only, while the sale of the building materials of the rice mill realized Rs. 181. On the realization of the sale amounts, the Collector of North Arcot has been requested to file an affidavit of claim with the Official Assignee for the balance of the Crown debt.

(iii) *The Bellary Match Factory.*—The balance due from M.R.Ry. Muthyala Ramanna was written off by Government. Subsequently, however, he sent in a claim for the refund of certain excess interest alleged to have been collected from him. The matter was under consideration at the close of the period under review.

(iv) *The Parvatipur Industries.*—The auditor has since submitted a revised audit statement for the year ended 31st December 1931 according to which the net loss sustained during the year was reduced to Rs. 963-13-8. The net value of surplus assets over liabilities was then Rs. 13,771-5-1. The audit reports of the concern for the years ended 31st December 1932 and 1933 are awaited. The firm paid the instalment of the loan on the due date.

(v) *The Salem Dye Works Syndicate, Limited.*—The Directors are endeavouring to attract further capital with a view to putting the factory on a working basis, and are also contemplating the transfer of the factory to Mettur where water suitable for dyeing purposes is available. They represented that they were unable to repay the instalment of the loan that fell due on 1st January 1934 and requested that they might be granted an extension of six months for payment by which time they expect to complete the negotiations. Their representation was under the consideration of Government at the close of the year.

(vi) *The Tanjore Tile Works.*—The proprietor of the concern has been asked to expedite the audit statement for the year ended 31st March 1933. During the year, the proprietor paid not only the instalment of the loan but also an advance instalment of Rs. 1,500.

(vii) *Silk Reeling Concern, Bastipuram.*—The concern was brought to sale but the bidding was poor, the amount of the highest bid being only Rs. 50. As the offer was low and a silk reeling machine was required by the department, I was authorized by the Government to bid at a subsequent auction and take over the machine on behalf of the department. Steps have been taken accordingly.

(viii) *The Ram Riam Safety Match Works, Tholampalayam.*—The second instalment of loan which fell due on 14th May 1933 was not paid. Nor were some of the conditions of the order sanctioning the loan complied with by the proprietor. It was, therefore, decided to recover the entire balance of the loan outstanding and the necessary steps have been taken to that end.

(ix) *Messrs. Boddu Pydenna Sons, Vizianagram.*—The proprietors have not yet sent in the audit report of the concern for the year ended 31st March 1933, and they have been requested to expedite its submission. The proprietors have offered to purchase a second-hand Muller oil expeller and install it in their factory and they have been permitted to do so.

(x) *The Metal Industries, Limited, Shoranur.*—The first instalment of the loan fell due on 1st April 1934 but was paid into the treasury on the 28th March 1934. The audit report of the concern for the year under review had not been received by the end of the year.

(xi) *K. Subbarayudu, Toy-maker of Kondapalle.*—The toy-maker paid the first instalment of the loan on the due date. The statements of accounts of his concern which have been called for have not yet been received from him.

10. *General assistance to trade and industry.*—This work is carried on in the Bureau of Industrial and Commercial Information, the purpose of which is to provide information on industrial and commercial questions in connexion with the existing industries, and of projected developments of industries in the Madras Presidency, and to answer enquiries and references received from the public and from Government relating to commerce, trade and industries and economic questions generally. The number of enquiries received, and the number of periodical and special reports prepared during the year was very considerable and it is becoming very difficult indeed to cope with the ever-increasing volume of work in this section of the department. The exchange of information with the several trade commissioners, foreign consuls and other authorities is a feature of the Bureau's activities. The Bureau maintains close touch with the Director-General of Commercial Intelligence and Statistics, who was as usual supplied during the year with a number of reports as to the financial standing, business reputation and experience of export trade of firms and individuals who had expressed a desire for overseas trade introductions. The Government of India sanctioned during the year the creation of a new branch under the Department of Commercial Intelligence and Statistics to conduct research on economic problems, one of the functions of which branch is to collect material for a monthly survey of commercial conditions in the country. I was asked by the Director-General if I would extend to his department my co-operation by sending a monthly review of trade conditions in the Madras Presidency and this I arranged to do with effect from the month of November. In connexion with the Ottawa preferences, the Local Government were supplied with quarterly reports in respect of magnesite and cotton manufactures, and half-yearly reports in respect of woollen carpets and rugs, coir yarn and matting and myrobalans. A commencement was also made with the submission to the Director-General of Commercial Intelligence of half-yearly reports in respect of the industries of the Presidency affected by the Ottawa Trade Agreement.

11. Among the measures taken to assist persons desirous of starting new industries, or of extending and improving their business connexions may be mentioned (i) supplying information in

regard to reliable firms from whom machinery, appliances and accessories can be obtained, (ii) indicating possible sources of raw materials, (iii) assisting to find markets for finished products by putting manufacturers into touch with consumers, wholesale dealers or exporters, (iv) giving technical advice and offering opinions on the commercial possibilities of projected schemes and (v) arranging for analyses to be carried out of raw materials and indicating their commercial value. The undermentioned instances may serve to illustrate the ways in which the Bureau is of practical use in supplying information and advice on industrial and commercial subjects to inquirers :—

- (i) An enquirer in Kurnool was supplied with a recipe for the manufacture of brown blanco.
- (ii) A list of suppliers and purchasers of kyanite in India with information as to its uses was supplied to a miner in Nellore.
- (iii) An estimate for the manufacture of hurricane lanterns was sent to an enquirer in Cocanada.
- (iv) A list of the principal wholesale salt merchants in Bihar and Orissa was supplied to the proprietors of a salt works in Tuticorin.
- (v) An enquirer in Vadakangulam was supplied with information in regard to the exports of nux vomica together with the names of exporters.
- (vi) A petrol and oil agent in the Salem district was supplied with the names and addresses of some of the principal mineral oil companies in America.
- (vii) A merchant in Madura was supplied with a list of the principal manufacturers of cellulose lacquers in the United Kingdom together with the names of their agents in India.
- (viii) H.M. Trade Commissioner in Calcutta was supplied with information in regard to the manufacture of gold nibs and fountain-pens in the Presidency.
- (ix) A note on the treatment of tobacco was prepared and sent to an enquirer in Penukonda.
- (x) A Government department in the Punjab was furnished with a list of manufacturers of umbrellas in the Presidency.
- (xi) A merchant in Bellary was supplied with information in regard to the manufacturers of razors, scissors, knives, etc., in Bombay.
- (xii) An ammunition dealer in Madras was furnished with information in respect of the supply and price of walnut timber suitable for gun and rifle stock.

- (xiii) A pharmaceutical firm in Calicut was supplied with a list of dealers of machinery for the manufacture of tablets and pills in India and the names of manufacturers in the United Kingdom.
- (xiv) A Government department in Madras was supplied with the names of dealers in fibres suitable for making strings and ropes.
- (xv) The Director-General of Commercial Intelligence and Statistics, Calcutta, was supplied with a list of reliable rug manufacturers in Ellore.
- (xvi) A Government department in Bombay was supplied with a list of some of the principal dealers in groundnuts and groundnut cakes.
- (xvii) The Director-General of Commercial Intelligence and Statistics, Calcutta, was supplied with a list of the names and addresses of small scale manufacturers of glass beads in the Presidency.
- (xviii) A representative of a well-known plough manufacturing firm was supplied with brief notes in regard to the planting of groundnuts, cotton and sugarcane in the Presidency.
- (xix) A list of manufacturers of barytes powder, linseed oil and turpentine in India was furnished to an enquirer in Vizagapatam.
- (xx) A confectioner in Udamalpet was supplied with a list of the principal suppliers of confectionery colours in Bombay.
- (xxi) A list of the principal manufacturers of vegetable ghee in India was supplied to a firm in Madras.
- (xxii) An enquirer in New York was furnished with the names of exporters of cardamoms in this Presidency.
- (xxiii) A firm in Bombay was supplied with a list of growers of senna in the Tinnevely district.
- (xxiv) An enquirer in Sivakasi was furnished with a note on the manufacture of benzoin.
- (xxv) An enquirer in Salem was supplied with a list of manufacturers of machinery for the extraction of juice from fruits.

12. *Statistics.*—The department continued to compile statistics relating to industries, including statements of cotton, jute, paper and woollen mills, mines and minerals, as also an annual review of the working of the Indian Mines Act. The usual summaries on the subjects of manufacturers and mines and quarries were also prepared for inclusion in the administration report of the Presidency. The annual return of large industrial establishments in

the Presidency coming under the operation of the Indian Factories Act, 1911, was, as usual, compiled. The work relating to the compilation of the two fortnightly returns of wholesale prices of certain commodities for supply to the Director of Contracts, Army Headquarters, and the Director-General of Commercial Intelligence and Statistics was early in the year under review transferred to the Statistical Department of the Board of Revenue.

13. *Appointment of an Agent in London for the sale of the products of Madras cottage industries.*—The Council of the Victoria Technical Institute having stated that their policy was not to compete with articles exported by private firms, that they do not deal in articles that are stocked in the ordinary bazaar and that their goods mostly consist of articles manufactured by artisans or products of cottage industries which are likely to disappear without the encouragement given by the institute, and in view of the importance of developing cottage industries, Government shortly before the close of the year, accepted the offer of the Council to arrange for the sale of Madras industrial products in the European markets through an agent in London, and accordingly sanctioned a grant of Rs. 3,000 per annum to the Victoria Technical Institute, Madras, for the purpose for a period of three years from 1934–35. The grant will be subject to the conditions that the agent appointed by the institute will not in any sense be an agent of Government, that the authorities of the institute should afford facilities to the Director of Industries to see whether the grant is utilized for the purpose for which it is given, and that they should submit a report to Government every year through the Director of Industries on the volume of transactions conducted through the agent and the results achieved. The institute has since fixed up the agency with Mr. Ryland, sent him samples of articles, and executed some orders received from him.

14. *Ceramic industry.*—The final report of the Ceramic Assistant on the ceramic survey of the Madras Presidency was submitted to Government during the year. The report contains information as to the location and character of each deposit of raw material that was surveyed by him and wherever ascertained, the commercial value and extent of the deposits. The quarrying and transport facilities available have also been reported on. Owing to the limited time at his disposal, the former Ceramic Assistant had to confine himself to investigating such deposits as were found on the surface as outcrops, but wherever possible, trial pits were put down in order to ascertain the extent of the clay deposits below the ground level. The report has been ordered to be published and was in the Press at the close of the year under review. The report shows that there are distinct possibilities of developing the manufacture of certain branches of the ceramic industry and it is hoped that as a result of the publication of the report such development will be undertaken by private enterprise.

15. *Research in fruit and fruit-products.*—The question of the conduct of experiments in the manufacture of citrous products was taken up with the authorities of the Indian Institute of Science, Bangalore, during the year, and research work on fruit and fruit-products was initiated in the Department of Bio-Chemistry of that institution where experiments were carried out in regard to the pickling and preserving of whole peels, treatment of the pulp for the manufacture of pectin, and fruit juices. As a result of these experiments, it has been found that a pure specimen of pectin can be prepared from different fruit peels. This pectin is reported to possess a very high jellying power which entitles it to special consideration not only in the manufacture of jams and jellies but also in other industries where jellies of high quality are required. The desirability of carrying out research in fruit preservation, if fruit cultivation is to be developed in this Presidency, is manifest as fruit preservation is complementary to fruit culture, and recognizing the need for practical experimental work in this sphere, Sir Frederick Nicholson, with characteristic public spirit, has decided to conduct in his own premises at Coonoor experiments with a view to ascertaining the commercial practicability of preparing and marketing fruit blocks, dried fruits, etc.

16. *General review of the commercial and industrial conditions of the Presidency.*—During the period under review world trade continued to be disorganized, the exchanges chaotic and international dealings hampered by prohibitive tariffs, quotas, and other restrictions, and at the end of the year, the attainment of a world price level which would restore the normal activity of industry and employment, ensure an economic return to the producers of primary commodities and harmonize the burden of debts and other fixed charges with economic capacity, seemed almost as far off as ever. The problems which confronted the world in the previous year were still largely unsolved, trade was still at a comparatively low ebb and a state of disequilibrium between production and consumption continued. High hopes were centred upon the World Economic Conference which met in London in July, and its adjournment without any real achievement to its credit was perhaps the greatest disappointment of the year under review. The survey of world trade in 1933 issued by the Economic Intelligence Service of the League of Nations shows clearly that apart from the fall in the quantum of trade, there has been in recent years a very considerable fall in prices. By the measure of the gold dollar, about two-thirds of the quantity of goods traded in 1929 changed hands during the year at about half the price and therefore the total value of the world trade in 1933 measured in gold dollars was only 35 to 36 per cent of what it was in 1929. If the calculation is made in sterling or in paper dollars, two-thirds of the goods at rather more than two-thirds of the prices give a total value of half the 1929 figure. It will be seen therefore that the fall in trade has been most marked and much of it has

been due not to lower prices but to an actual and substantial reduction in the quantum of trade. In the first quarter of 1934, the world production of certain important commodities showed an increase and although the gold value of world trade again showed a decrease, the fact that in comparison with the first quarter of 1933 the volume of international exchange of goods during the first three months of 1934 showed a slight increase afforded some ground for hope of a gradual improvement in world trade. The outlook is not, however, easy to predict as any deduction in regard to the future, if based on past experiences, is likely to go awry. Post-war economic problems and pre-war economic problems are basically different, for whilst pre-war commerce was conducted for all practical purposes on the fundamental fact of a world shortage of all commodities and manufactures, the post-war problem has been and continues to be a redundancy of all goods and services, redundancy, that is, in terms of the purchasing power of the population of the world. And in view of the disequilibrium of world trade, the surprising thing is not perhaps that the trade of the Presidency has not recovered to its former proportions, but that it maintained its position so well as it did in the year under review.

17. When the year opened, the bank rate was at $3\frac{1}{2}$ per cent, and for the first time since the Imperial Bank was established, no change was made in the bank rate during the whole of the financial year, a reflection of the general slackness in trade and the prevailing low-level of prices of commodities. The total value of the trade of the Madras Presidency declined by 3 per cent owing to a falling off in the coasting trade. In the case of private merchandise, imports from foreign countries fell by Rs. 105.74 lakhs to Rs. 1,481 lakhs or by 7 per cent. Exports of private merchandise on the other hand increased by Rs. 109 lakhs to Rs. 2,464 lakhs or by 4 per cent for which leather, raw hides and skins, cotton, coir manufactures, rubber, tobacco and metals and ores were mainly responsible. As will be seen by a reference to the table of monthly prices of commodities and the several graphs which appear in this report, there were gratifying rises in the prices of certain varieties of cotton, tanned hides, tanned goat skins, tanned sheep skins and coir manufactures. Tea also advanced in price as a result of the Tea Control Act which became effective from May. On the other hand, the prices of groundnuts, coffee, paddy, rice, copra, coconut oil and myrobalans declined more or less considerably. There was little variation in the prices of castor oil and castor seed.

Average monthly prices of some of the principal Madras commodities during the year 1933-34.

Average monthly prices of some of the principal MARRAS COMMODITIES																								
Commodities.	April.	May.	June.	July.	August.	September.	October.	November.	December.	January.	February.	March.												
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)												
	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.												
Bottom (Cambodia), per candy of 320 lb.	124 10 0	146 10 0	0 155 4 10	160 12 0	154 10 0	0 147 0 0	0 146 0 0	0 148 0 0	136 8 0	0 138 12 0	0 145 13 4	150 0 0												
Bottom (Karunganni), per candy of 320 lb.	118 12 0	135 0 0	0 137 8 0	146 0 0	140 0 0	0 136 8 0	0 137 8 0	0 137 8 0	127 8 0	0 131 4 0	0 137 2 8	141 4 10												
Groundnuts (Nandyal), candy of 531 lb.	19 15 6	22 11 0	0 23 15 5	24 10 0	22 5 6	0 20 10 0	0 18 11 0	0 13 2 0	17 1 9	0 16 5 0	0 15 10 0	14 6 5												
Groundnuts (Colimbatore), candy of 531 lb.	22 8 0	26 0 0	0 31 12 10	30 0 0	28 2 0	0 27 0 0	0 25 2 0	0 25 6 0	18 14 5	0 17 8 0	0 28 0 0	27 12 0												
Pepper, bag of 164 lb.	5 3 6 11	3 7 6 1	5 7 10	3 10 6	3 11 0	0 3 8 2	0 3 4 3	0 3 6 0	3 10 9	0 2 11 0	0 2 10 2	2 10 4												
Rice, bag of 164 lb.	5 3 4	5 6 1	5 7 10	5 8 0	5 8 0	0 5 5 7	0 5 1 0	0 4 11 9	4 11 3	0 4 8 9	0 4 4 0	4 2 5												
Cute yarn, candy of 672 lb.	55 0 0	54 0 0	0 53 12 10	57 4 0	59 8 0	0 60 0 0	0 60 0 0	0 62 0 0	65 8 0	0 68 0 0	0 68 0 0	68 0 0												
Copra, candy of 655 lb.	49 4 0	52 4 0	0 52 11 2	49 10 0	47 12 0	0 46 6 5	0 42 10 0	0 41 14 0	39 8 0	0 38 0 0	0 35 13 4	33 8 0												
Coconut oil, candy of 655 lb.	77 0 0	80 0 0	0 82 0 0	77 8 0	73 2 0	0 71 4 10	0 67 4 0	0 67 0 0	63 4 0	0 59 12 0	0 57 10 8	54 6 5												
Jute, candy of 506 lb.	25 9 0	31 6 0	0 37 0 0	34 2 0	32 8 0	0 29 8 0	0 28 3 0	0 27 8 0	27 4 0	0 29 15 0	0 30 14 0	30 13 0												
Tobacco, maund of 28 lb.	5 0 0	5 2 0	0 5 2 0	5 2 0	5 3 6	0 5 4 0	0 5 4 0	0 5 5 0	5 10 0	0 6 0 0	0 6 0 0	6 0 0												
Myrobalans, per bag of 164 lb.	3 8 0	4 0 0	0 4 2 0	4 8 0	4 4 0	0 4 3 0	0 4 7 0	0 3 4 0	3 0 0	0 3 1 0	0 2 11 0	2 12 6												
Castor oil, candy of 500 lb.	50 2 0	54 12 8	0 56 2 0	57 10 0	54 2 0	0 53 2 0	0 52 6 0	0 52 10 0	51 14 0	0 50 9 0	0 51 6 0	49 6 0												
Castor seed, per bag of 164 lb.	6 15 0	7 12 0	0 8 9 0	8 6 6	8 0 6	0 7 8 0	0 7 4 0	0 7 8 0	7 5 0	0 7 2 0	0 7 0 0	7 1 3												
Java sugar per cwt.	14 4 14	14 5 6	0 14 9 74	14 6 3-3/5	14 5 3	0 14 3 6	0 14 8 7	0 14 1 0	13 13 3	0 13 10 8	0 13 11 0	13 11 0												
Nellikuppam sugar per cwt.	14 2 4	14 5 10	0 14 14 0	14 5 4	14 5 0	0 14 4 8	0 14 9 10	0 14 3 8	13 15 6	0 13 9 4	0 13 7 0	13 8 0												
Tanned cow hides—Bangalores 8-84 lb., per lb.	0 8 4	0 9 4	0 0 11 0	0 10 10	0 11 4	0 0 10 9	0 0 10 5	0 0 10 3	0 9 9	0 9 4	0 9 1	0 9 0												
Up countries per lb.	0 7 10	0 9 1	0 0 10 9	0 10 6	0 11 0	0 0 10 6	0 0 11 0	0 0 11 0	0 9 6	0 9 10	0 9 6	0 8 8												
Coasts per lb.	0 8 6	0 9 10	0 0 11 5	0 11 3	0 11 8	0 0 11 1	0 0 11 0	0 0 11 0	0 10 2	0 9 10	0 9 6	0 8 2												
Tanned goat skins—Good per lb.	1 4 9	1 5 2	0 1 5 9	1 9 0	1 9 3	0 1 9 8	0 1 9 0	0 1 9 0	1 8 6	0 1 7 7	0 1 7 11	1 9 7												
Fair per lb.	1 2 9	1 3 3	0 1 5 0	1 7 1	1 7 8	0 1 7 6	0 1 7 6	0 1 7 6	1 6 6	0 1 6 6	0 1 6 7	1 8 5												
Common per lb.	1 1 3	1 1 10	0 1 3 0	1 5 7	1 5 9	0 1 5 9	0 1 5 6	0 1 5 6	1 5 6	0 1 5 6	0 1 5 8	1 6 7												
Tanned sheep skins—Good per lb.	1 7 0	1 7 1	0 1 8 4	1 11 8	1 12 5	0 1 12 1	0 1 11 8	0 1 11 3	1 10 3	0 1 10 0	0 1 10 2	1 11 10												
Fair	1 4 9	1 5 0	0 1 5 11	1 8 1	1 8 7	0 1 8 6	0 1 8 6	0 1 8 6	1 8 0	0 1 7 9	0 1 7 11	1 9 7												
Common "	1 0 6	1 0 11	0 1 2 0	1 4 5	1 5 7	0 1 5 6	0 1 6 2	0 1 6 2	1 5 6	0 1 5 6	0 1 5 5	1 5 3												

18. *Ottawa Trade Agreement*.—In the report of the previous year a reference was made to the Ottawa Trade Agreement and the opinion was expressed that the benefits accruing to the Madras Presidency from the preferences should be by no means inconsiderable. In spite of the abnormal conditions which have been prevailing, this prediction seems already to have largely justified itself. The trade with the British Empire during the year represented 60 per cent of the total foreign trade of the Presidency compared with 58 per cent in 1932-33. Imports increased by Rs. 10.83 lakhs to Rs. 839.84 lakhs or by 12 per cent and exports rose by Rs. 76.14 lakhs to Rs. 1,542.75 lakhs or by 5 per cent. While imports from the United Kingdom increased by Rs. 19 lakhs from Rs. 709.32 lakhs to Rs. 728.42 lakhs, exports to the United Kingdom increased by Rs. 100 lakhs from Rs. 1,070.23 lakhs to Rs. 1,170.32 lakhs, the percentage of the trade with the United Kingdom to the total overseas trade of the Presidency advancing from 44.89 in 1932-33 to 47.93 in 1933-34. The full significance of the increase in the export trade with the United Kingdom will be realized from the fact that the value of the total exports of the Presidency to all countries advanced by almost precisely the amount of the difference between the value of the export trade with the United Kingdom in the year under review and that of the previous year. The products that chiefly contributed to the increase in exports to the United Kingdom were cow-hides (Rs. 66 lakhs), cotton, raw (Rs. 26.89 lakhs), sheep skins (Rs. 11.61 lakhs), tobacco (Rs. 11.44 lakhs), coir manufactured (Rs. 8.90 lakhs), castor seed (Rs. 7.42 lakhs), groundnuts (Rs. 7.37 lakhs) and rubber (Rs. 4.44 lakhs). It is interesting to note that exports of raw cotton to the United Kingdom which has assumed of late considerable importance in connexion with the Bombay-Lancashire agreement, increased considerably from 1,701 tons valued at Rs. 11.44 lakhs in 1932-33 to 5,998 tons valued at Rs. 38.33 lakhs in the year under review representing over one-third of the total exports of 17,860 tons of raw cotton valued at Rs. 111.33 lakhs. Exports of cow-hides to the United Kingdom rose by 50 per cent in value and sheep skins by 12.8 per cent. The value of coir manufactures rose by about 64 per cent, unmanufactured tobacco by 33 per cent, groundnuts by 20 per cent and castor by nearly 60 per cent. There has been a marked increase in the exports of magnesite to the United Kingdom since the introduction of the preference, shipments having advanced from 26,000 cwt. in 1932-33 to 48,000 cwt. in the year under review. It will be evident from the foregoing that the Ottawa Agreement and the tariff concessions that followed played a not unimportant part in the export trade of the Madras Presidency during the year under review.

19. *New industrial undertakings*.—The year 1933-34 witnessed the highest number of new registrations recorded since the Indian Companies Act came into force, namely, 167 (159 with and 8 without share capital) as against 152 in the previous year. The autho-

rized capital of the 159 companies amounted to nearly Rs. 480 lakhs and the paid-up capital to Rs. 42.7 lakhs as against Rs. 235 lakhs and Rs. 19 lakhs in the year 1932-33. Of the new registrations 64 companies were banking, loan or insurance companies while 79 companies were trading and industrial concerns. Three new cotton mills with a total authorized capital of Rs. 22 lakhs were registered all with their registered offices at Coimbatore. The three mills are the Sri Sarada Mills (Rs. 10 lakhs), the Palani Andavar and Sri Palamalai Ranganather Mills (Rs. 6 lakhs each). Five ginning factories were also registered at Coimbatore during the year. Four sugar factories were registered during the year, one with office at Bellary and the others at Madras, with an authorized and paid-up capital of Rs. 56 lakhs and 10.86 lakhs, respectively. Three mining companies with an authorized capital of 110 lakhs of rupees and a paid-up capital of Rs. 42,866 were also registered, one for the purpose of mining gold in the Western ghats, one for dealing in petroleum, etc., and the third for general mining. Four electric supply corporations with an authorized capital of Rs. 28,00,000 and a paid-up capital of Rs. 3,02,405 were registered. One of the most noteworthy registrations of the year was that of the Indian Steel Rolling Mills, Limited, formed with an authorized capital of Rs. 10,00,000 to erect a rolling mill at Negapatam for the manufacture of steel sections, i.e., rounds, squares, flats, etc. The whole of the buildings and sheds of the old South Indian Railway Workshops at Negapatam have been acquired and will be adapted to suit the requirements of the rolling mill layout, whilst the machinery and plant have been ordered from England.

20. *Mining operations*.—The following prospecting licences and mining leases were granted during the calendar year 1933 :—

	ACS.
Thirty-one prospecting licences for prospecting for barytes over an area of	1,380.73
Four prospecting licences for prospecting for china clay or kaolin over an area of	30.59
Three prospecting licences for prospecting mica over an area of	260.49
One prospecting licence for prospecting for barytes and yellow ochre over an area of	19.00
One prospecting licence for prospecting for barytes lead and zinc over an area of	16.00
One prospecting licence for prospecting for barytes, lead, steatite and magnesite over an area of	398.00
One prospecting licence for prospecting for lead ochre over an area of	16.93
One prospecting licence for prospecting for lead ore and zinc over an area of	0.60
One prospecting licence for prospecting for silver, lead, zinc and other minerals over an area of	21.00

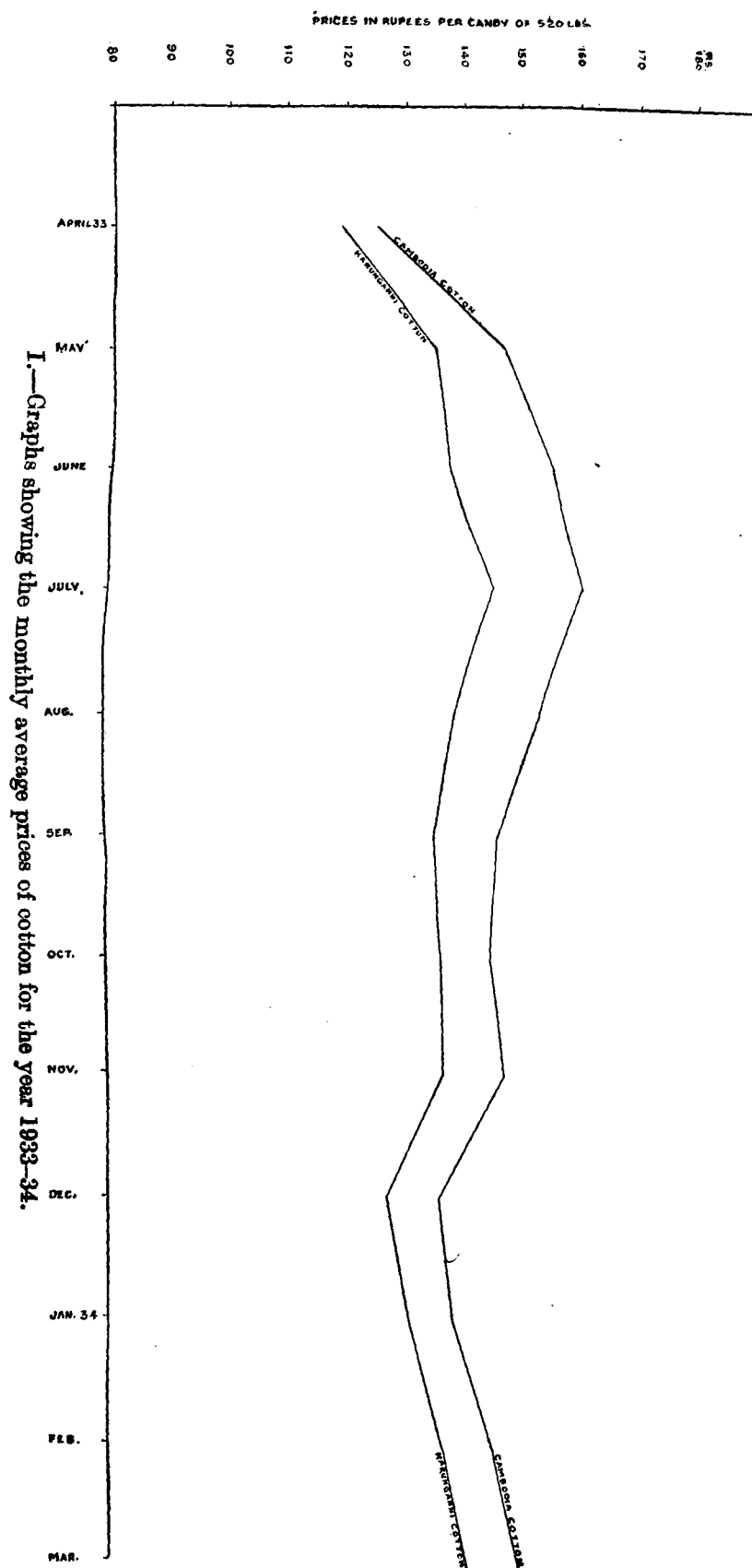
	ACS.
One prospecting licence for prospecting for asbestos over an area of	56.23
One prospecting licence for prospecting for aluminium silicate over an area of	4.00
One prospecting licence for prospecting for red oxide of iron over an area of	20.00
One prospecting licence for prospecting for steatite over an area of	27.50
Four mining leases for working barytes over an area of	121.01
Two mining leases for working mica over an area of ..	274.69
One mining lease for working garnet sand over an area of	1.57
One mining lease for working blue clay over an area of	0.24

Mining was carried on during the calendar year 1933 in the districts of Cuddapah, Kurnool, Nellore, the Nilgiris, Salem, Trichinopoly, Vizagapatam and Anantapur.

21. *Manganese*.—The mining of manganese was carried on in Vizagapatam and Kurnool districts. The output in the Vizagapatam district rose further from 8,049 tons in 1932 to 16,698 tons during the year under review, i.e., by over 100 per cent. In Kurnool district an old mine was re-opened and 300 tons of the mineral was raised during the year. Exports of manganese during the year under review rose from 14,450 tons valued at Rs. 2,17,450 in 1932-33 to 70,940 tons valued at Rs. 10,65,770 representing an increase of nearly 500 per cent both in quantity and value.

22. *Magnesite*.—The output of magnesite during the year decreased from 13,492 tons to 11,131 tons. Exports of magnesite during the year amounted to 73,350 cwt. valued at Rs. 4,19,784 of which the United Kingdom took 47,855 cwt. valued at Rs. 2,83,534, the United States 12,000 cwt., Netherlands 8,405 cwt. and Belgium 4,000 cwt. The value of the exports to the United Kingdom was more than twice that of the previous year and this increase must be attributed largely to the tariff preference accorded to Indian magnesite in that country.

23. *Mica*.—The output of mica during the year decreased from about 490 tons last year to about 404 tons in the year under review. The condition of the industry in the Nellore district remained unchanged during the year under report as a result of the continued dullness of the mica market resulting in the closure of several mines and the determination or surrender of certain leases. Exports of mica, however, increased from 6,112 cwt. valued at Rs. 5,48,936 to 10,021 cwt. valued at Rs. 9,14,852. The exports for the years from 1926-27 to 1930-31 amounted on an average to 11,600 cwt. valued at about Rs. 14 lakhs, and it will thus be seen that while compared with the average of those years the exports declined only by about 1,600 cwt. in quantity the value was less by nearly five lakhs of rupees.



24. *Barytes*.—There was a further fall from 350 tons to 334 tons in the production of barytes in the Kurnool district, but the output of this mineral in Cuddapah showed an appreciable increase from 1,235 tons to 1,886 tons. Anantapur also came into the field this year with a production of 110 tons, making a total production of 2,330 tons.

25. *Phosphatic nodules and gypsum*.—The phosphatic nodule mine in Trichinopoly worked only for eight months in 1933 and during this period only 36 tons as against 120 tons in the previous year was produced, though the production of gypsum increased from 75 tons to 90 tons. When the new cement factory now under construction in the Coimbatore district commences manufacturing operations shortly, there should be a considerably increased demand for Trichinopoly gypsum provided the deposits are regularly worked and the product is offered at a reasonable price; otherwise the cement company will have to look elsewhere for its supplies.

26. *Cotton*.—The area sown with cotton between April 1933 and January 1934 was estimated at 2,044,500 acres against 1,956,100 acres for the corresponding period of the previous year whilst the estimated yield was 450,000 bales against 420,000 bales. Consequent on the cheapness of Indian cotton compared with American cotton, exports increased from 10,514 tons valued at Rs. 69.8 lakhs in the previous year to 17,860 tons valued at Rs. 111.33 lakhs in the period under review, representing an increase of about 70 per cent in quantity and 59 per cent in value. The United Kingdom took 33.6 per cent of the exports, but exports to Japan were affected temporarily owing to the boycott against India. The prices of cotton fluctuated during the year but were standing substantially higher at the end of the year than at the commencement of the period under review.

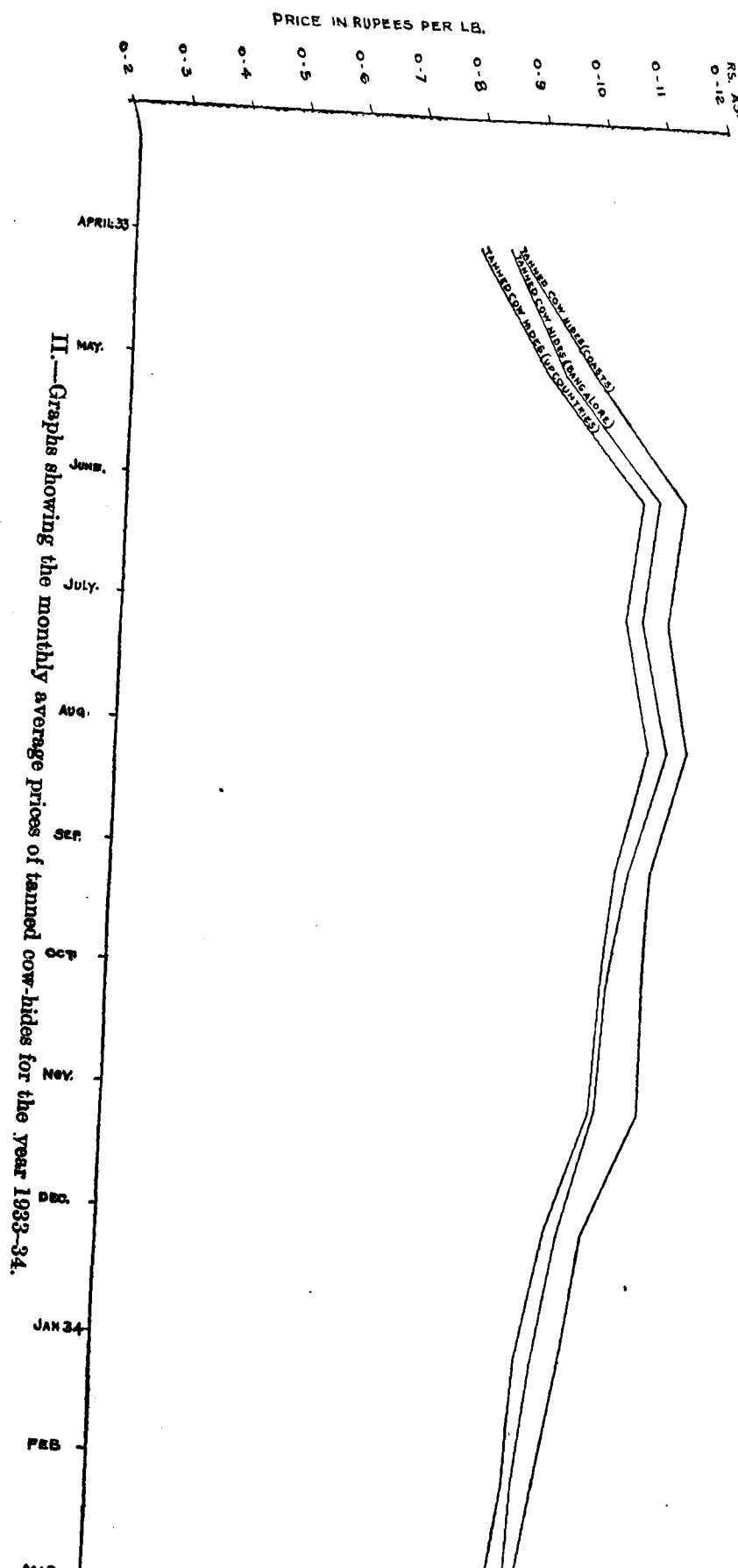
27. *Cotton mills*.—There were 29 cotton spinning and weaving mills at work with 964,862 spindles and 7,192 looms. The mill production of yarn during the year declined from 102.96 million pounds to 96.4 million pounds. The mill production of cloth also declined from 70.55 million yards to 65.34 million yards. A satisfactory feature, however, of the spinning side of the industry was the increased production of higher count yarns, namely, 40s and above, i.e., from 2.85 to 9.80 million pounds. The year under review was a difficult and momentous period for the cotton industry in the Madras Presidency as the difficulties that might have been expected as a result of the general depression were aggravated by many other adverse factors resulting in unsettled markets throughout the year. Not the least of these factors was America's departure from the gold standard as a result of which cotton prices advanced considerably and for some time were maintained, but when renewed confidence was becoming evident, prices dropped sharply and have since only partially recovered. The spinning section of the industry was affected by the saturation of the market with yarn of counts capable of being spun from Indian cotton, and as a result of the intensified competition from Japan and China,

yarn prices were phenomenally low and failed to follow the advance in cotton. The demand for yarn by handloom weavers was also affected by the importation of cheap priced goods chiefly from Japan. The weaving section of the industry also suffered from excessive competition and in addition the offtake of cloth in South India was poor. Intensive Japanese competition eventually led to Government intervention and to an increase in the import duties. But large stocks of Japanese goods were held everywhere amounting, it is understood, in some markets to as much as two years' supply and the increase in duty had no beneficial effect during the year, prices obtainable for Madras mill production continuing steadily to decline. Some Indian mills in an effort to retain a share of the business that was offering cut prices to what in many cases must have been uneconomic levels, endeavouring to cover part of their losses by cuts in wages and retrenchment in other forms. There was no general simultaneous cut in wages throughout the industry, but reductions were made at intervals during the year by individual mills resulting in strikes and partial strikes in some centres with an inevitable unsettling effect on the market. At the end of the year a return or even partial return to normal conditions was not in sight.

28. *Hosiery mills*.—There were seven large factories working during the period under review as against eleven and the production was 669,169 lb. or 181,491 dozens, against 923,743 lb. or 248,791 dozens in the previous year. Hosiery manufacture was unprofitable during the year although the recent increase in the duty on Japanese goods may be expected to have a steadying effect.

29. *Madras handkerchiefs*.—Exports of Madras handkerchiefs declined from Rs. 36.30 lakhs in the previous year to Rs. 18.4 lakhs in the period under review whilst prices fell steadily up to the end of December. The internal competition between weavers and suppliers resulted in weaving rates being reduced to such a level that in December many weavers were working at an average rate between Rs. 5 and Rs. 6 per loom per mensem. The crisis was reached at the end of December when a strike broke out in certain weaving districts which spread until it enveloped all the districts in which Madras handkerchiefs are woven, whilst it also extended to the districts which weave kailies, lungies and sarongs. The strike continued until the end of the year and there was practically no production whatever after December. Production up to the time of the strike was on a reduced scale as the demand for Madras handkerchiefs on the West Coast of Africa was poor owing mainly to the low price of palm kernels and as stocks of Madras handkerchiefs increased prices fell steadily. During the first three months of 1934, when the strike was in progress in the weaving districts of Madras, stocks on the West Coast of Africa were reduced to some extent, but demand was not good enough to result in any appreciable advance in prices. At present the total possible production of Madras handkerchiefs far exceeds the demand from the consuming centres.

30. *Kailies, lungies and sarongs*.—The demand from Singapore, Federated Malay States, Ceylon and the Dutch East Indies



during the year was poor, and this section of the handloom weaving industry has been passing through a time of great depression. Japanese coloured cloth closely imitating the patterns of Indian lungies continued to gain ground in the several markets. The adverse conditions were reflected in the falling off in exports of cotton piecegoods by $4\frac{1}{2}$ million yards to 20 million yards.

31. *Jute mills*.—There were three jute mills at work in the Presidency during the year, i.e., at Nellimarla, Chittivalsa and Guntur, the mill at Ellore remaining closed throughout the period under review. The number of looms and spindles in the mills at work was 850 and 19,332, respectively, as against 830 and 18,428 in the previous year. The jute mills in the Madras Presidency cater almost entirely for local consumption. The local demand for jute bags and cloth was fair during the year and the mills in the Madras Presidency experienced no difficulty in disposing of their full production. The prices realized for manufactured goods throughout the year continued to be low, but owing to the exceptionally cheap price at which raw jute could be purchased, the mills were able to manufacture at a profit.

32. *Tanning industry—General*.—Exports of tanned hides increased from 8,600 tons to 12,584 tons and of tanned skins from 5,000 tons to 5,892 tons, the total exports of leather increasing in value from Rs. 432.94 lakhs in 1932-33 to Rs. 524.76 lakhs in the year under review. As usual the greater part of the hides and skins went to the United Kingdom, although Japan bought about 9 per cent of the skins. Shipments to the United Kingdom comprised cow-hides 10,856 tons valued at Rs. 196.55 lakhs, buff hides 697 tons valued at Rs. 11.05 lakhs, goat skins 3,115 tons valued at Rs. 153.60 lakhs and sheep skins 1,992 tons valued at Rs. 102.00 lakhs.

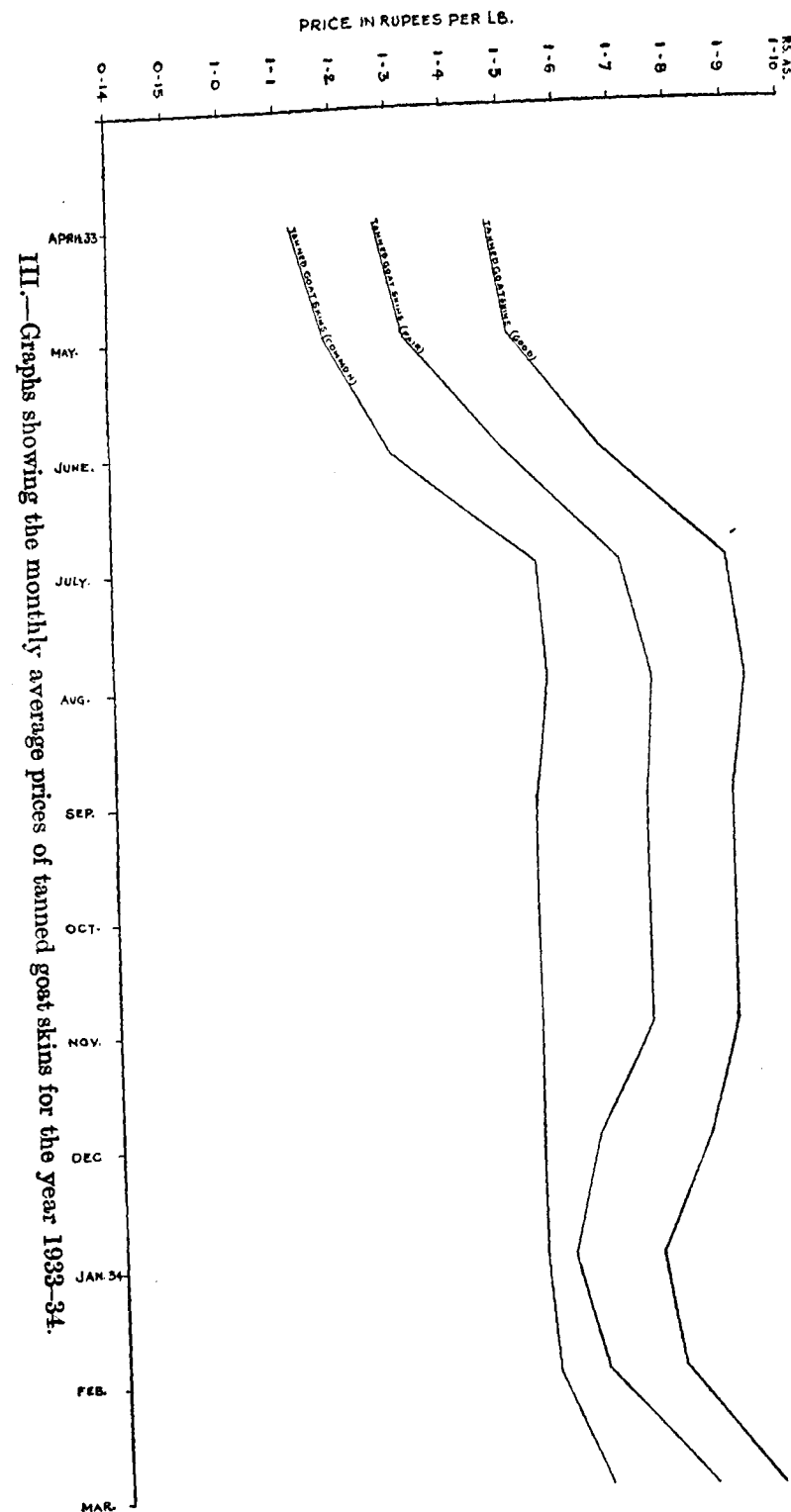
33. *Tanned cow-hides*.—For about ten months of the period under review an attempt was made by tanners and shippers to control prices of tanned hides and, at a certain period of the year, this policy met with a fair amount of success. Prices were steady until the middle of April when the demand rapidly increased and prices advanced by 2d. per pound by the end of May. This rise in prices can be largely attributed to the abandonment of the gold standard by the United States of America. In June, prices appeared to be falling and a meeting was held at which minimum prices were fixed. This had the effect of steadying prices for the time being, but the market remained dull and there were accumulations of stock, and in November, it was decided that during the month of December no hides should be put into soak by the tanners. In the latter half of November, however, tanners soaked a far larger quantity of hides than they would ordinarily have done and, as a consequence, there was no appreciable falling off in supply in the months of January and February. Shipments continued to be too large to be absorbed by carriers in the United Kingdom, and, while shippers still continued to sell at the minimum sterling prices fixed, they were able to purchase their

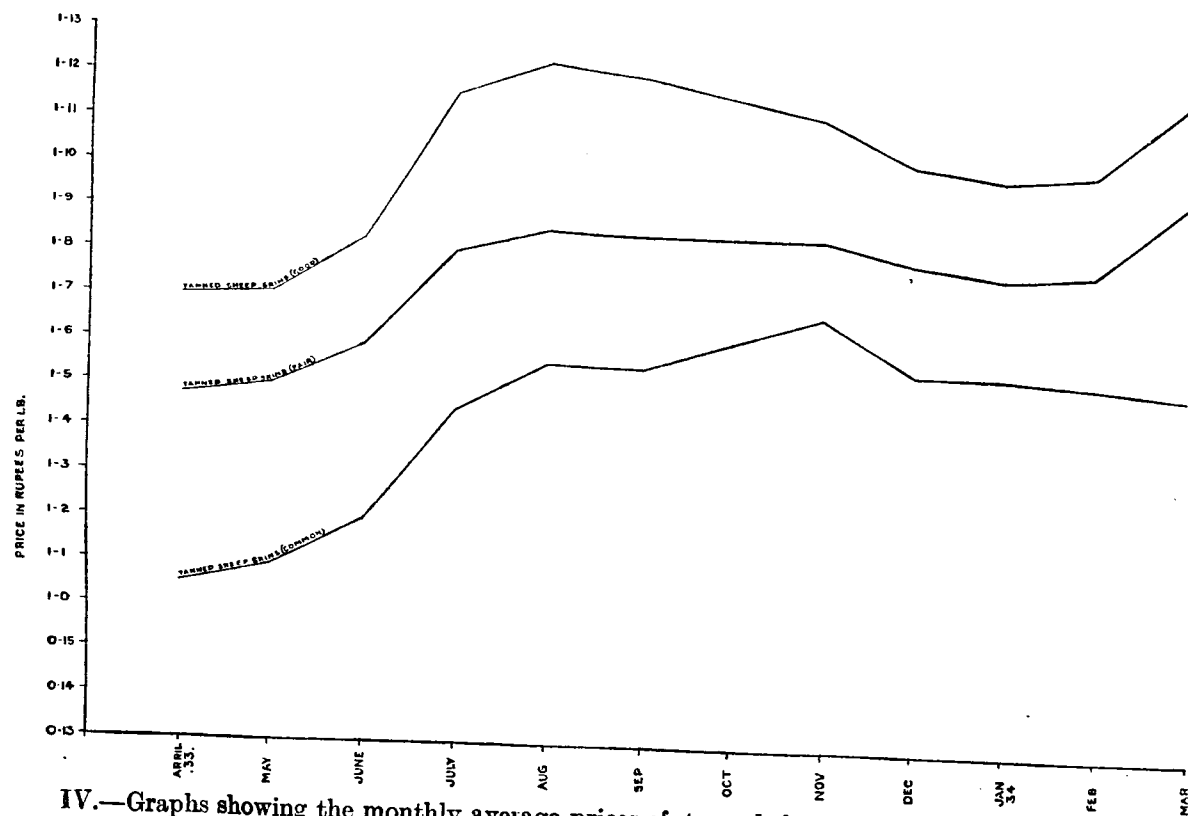
tanned hides in the local market at considerably lower prices than the equivalent of the sterling minimum prices. It therefore became obvious that the fixing of minimum sterling prices had proved of no advantage to the tanners and, in addition to this fact, a certain quantity of hides was bought at rupee prices, shipped to London and sold from spot in London at lower sterling prices than the minimum prices fixed for shipment business and, as a consequence, the fixing of minimum prices for shipment was abolished in February and a fall of about $1\frac{1}{2}d.$ per pound in prices resulted. Notwithstanding the low prices at which their tanned hides were sold, quite a number of tanners during the past year were able to make profits, since raw hides could be bought at very low prices and while these profits could be made, tanners did not make any serious efforts to reduce their output. On account of difficulties in the United States of America and elsewhere the British curriers are now finding export business very difficult to obtain and, consequently, the demand for tanned hides is limited to the requirements of the English market alone. It is doubtful therefore whether any sustained improvement in prices of tanned hides can be expected unless and until production is curtailed.

34. *Tanned goat skins.*—Conditions on the whole during the year were favourable for goat skin tanners. The year opened with prices fairly low after a fall in the March sales, but there was a recovery in the May sales and prices advanced steadily up to and including the October sales. The feature of the trade during the year was the keen demand for low grade skins such as Vths and rejections and prices for these advanced considerably more than for the higher grades. A well-known mark of goat Vths was selling in the neighbourhood of $1/9d.$ in April 1933 and in November prices for the same grade had reached $2/6d.$ while the better grades advanced by about $5d.$ per pound. On the whole the trade in goat skins was well maintained during the year, despite the unsettled conditions in Germany which country is a large consumer of tanned goats.

35. *Tanned sheep skins.*—Prices for these followed very closely those of tanned goats with the exception of the very prime parcels, such as prime Dindiguls, Trichinopolys and Coimbatore. The demand for low grade sheep was even more marked than that of goat and prices advanced for Vths from about $1/10d.$ up to as high as $2/9d.$, but here again, during the last two or three months of the period under review, prices fell slightly. This was not so much due to over-production as to the fact that prices for these particular grades, i.e., Vths and inferior Vths had been pushed up too rapidly and skins of better selection were relatively cheap. Middle class sheep skins during the year were a strong steady market and during the August and October sales, prime sheep also fared well.

36. *Tanned cow calf.*—At the beginning of the year prices for these were very low but at the end of April they rose rapidly from





IV.—Graphs showing the monthly average prices of tanned sheep skins for the year 1933-34.

about As. 13-6 to as high as Re. 1-3-0 in two months. Prices fell by about 1-1½ annas towards the end of the year and the general tendency at the close of the period under review was weaker.

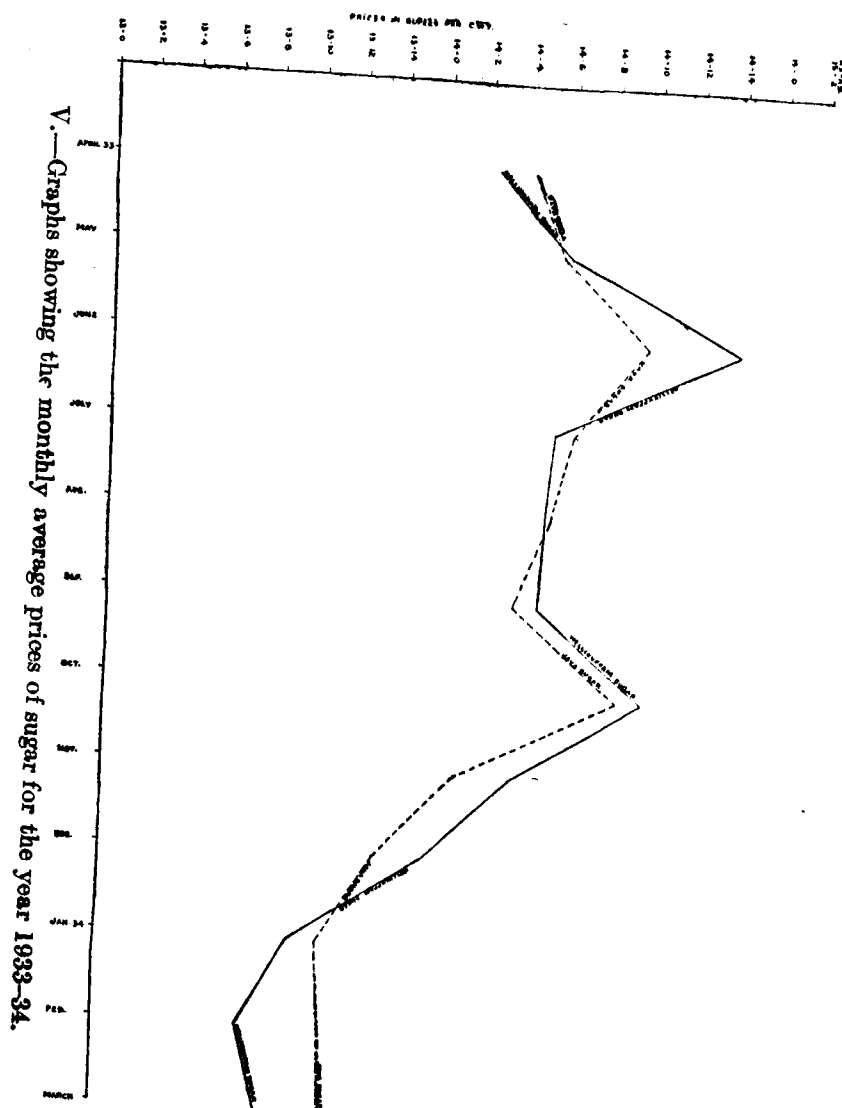
37. *Tanned buff calf.*—Prices for these followed cow calf throughout the greater portion of the year, but, during the last three months of the period under review, prices fell rapidly and the market was stagnant. The demand for leather made from buffalo calf in England seems to have practically ceased and prices are unremunerative to tanners.

38. *Tanned buffalo hides.*—These are largely affected by the course of prices of tanned cow hides and, consequently for the first nine months of the period under review, there was a fair demand, but when tanned cow hides prices fell rapidly, buffaloes followed suit and prices fell so low that, after paying tanning charges hardly anything was left for the raw hides. Latterly only local wet salted buffaloes were tanned and no dry buffalo hides were imported from Northern India.

39. *Reptile skins.*—This branch of the trade has practically ceased, since the demand for reptile skins from England has fallen off to a very considerable extent and, in addition to this, the continental tanners can pay almost as high prices for the raw skins as the English dressers are prepared to pay for the tanned skins. The business in reptile skins has been thoroughly exploited and the Indian reptile skins now have competing against them skins of dozens of different descriptions from all over the world. A little tanning of rattle snake skins was carried on during the year but prices were very low and consequently, there was not sufficient inducement for the snake-catchers to procure supplies of raw skins.

40. *Finished leather manufactures.*—The local demand is still for very low priced inferior leather, but the export of finished leather, particularly boxesides, has shown an increase and this business should develop still further. In the first half of the period under review prices for raw hides were steadily advancing whilst finish leather prices remained unchanged and consequently business was unprofitable.

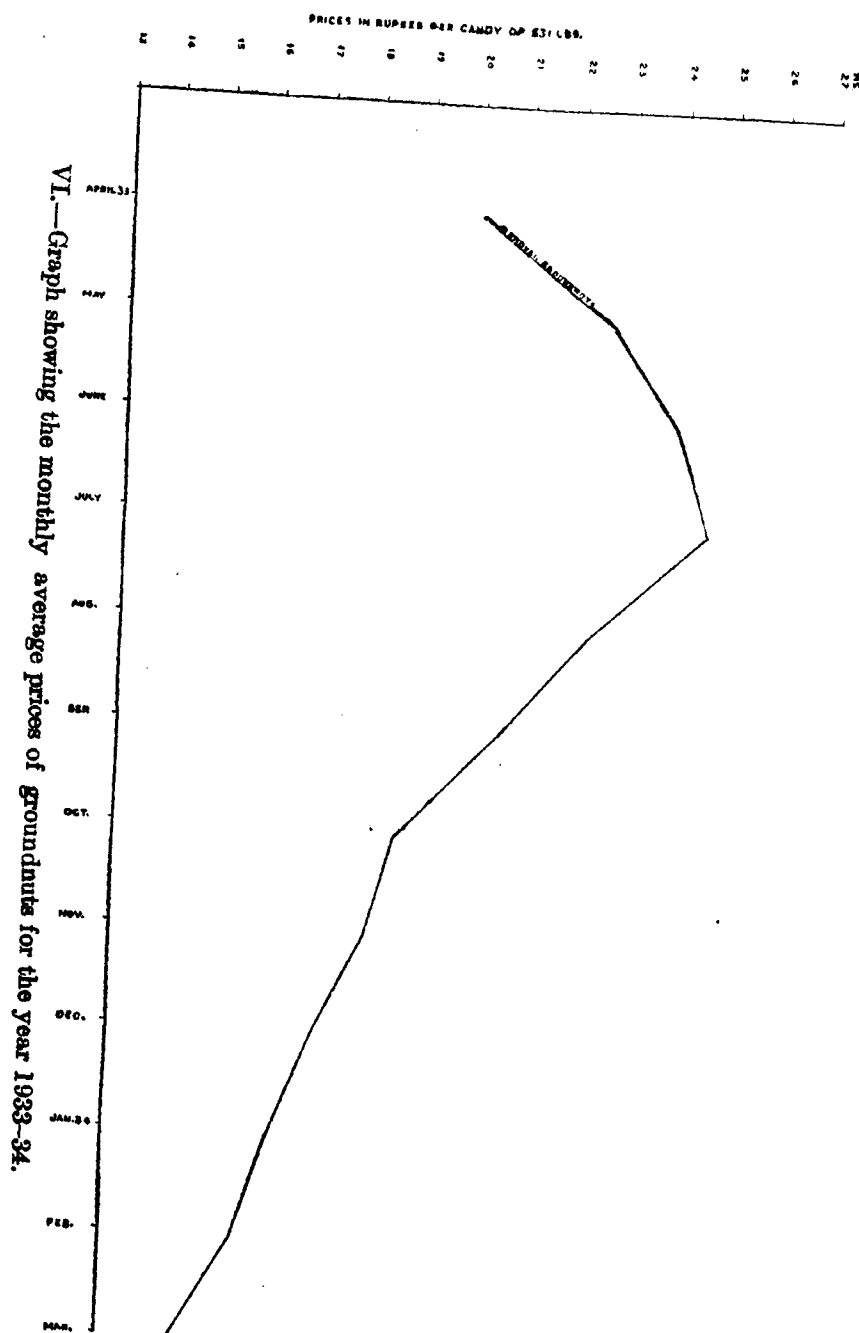
41. *Sugar industry.*—The area planted with sugarcane up to 25th December 1933 was estimated at 120,250 acres as compared with 125,220 acres for the corresponding period of the previous year, representing a decrease of 4 per cent. The estimate of the previous year was in excess of the final area of 120,921 acres by about 3·4 per cent. The yield was estimated at 324,550 tons of jaggery against 345,900 tons estimated in January 1933, a decrease of 6·2 per cent. The final estimate for 1932-33 was 339,440 tons. Imports consisted almost entirely of white sugar and amounted to 53,884 tons valued at Rs. 56·18 lakhs compared with 55,613 tons valued at Rs. 62·09 lakhs in 1932-33, shared by



Java and the United Kingdom in the proportion of about four to one as in the previous year. Manufacture was maintained at all existing factories in the Presidency during the year and output was in nearly every case up to the maximum. The sugar industry continued to thrive under the protection afforded by the high customs duty and the surcharge on imported sugars, although selling prices for sugar declined during the year owing to reduced quotations for Java sugar, and particularly to competition from North Indian sugar factories. The Indian budget of 1934-35 has imposed an excise duty of Re. 1-5-0 per cwt. on factory produced sugar, and of 10 annas per cwt. on Khandsari sugar of over 90 degrees polarization produced in factories employing over twenty units of labour. Palmyra factories have for the present been exempted from the excise duty pending a Government inquiry into the industry as it is claimed that a duty of Re. 1-5-0 per cwt. would lead to the closure of the palmyra sugar factories, and involve the destruction of the palmyra tapping industry as a whole. If the palmyra sugar factories were closed down, the jaggery industry would no doubt continue to a limited extent to supply the demand for jaggery for direct consumption, but this demand is already declining as a result of the increasing preference for crystal sugar.

It is slowly becoming recognized that the Madras Presidency is one of the most suitable parts of India for sugarcane cultivation, and that several of the deep-rooted varieties of cane which have been evolved at Coimbatore and require very little water are especially suitable for the conditions which obtain in several areas of the Presidency where they grow better than in the north. This fact has been realized in the Kistna delta where a considerable area has been cultivated with some of the deep rooted varieties of Coimbatore cane, and will be harvested in the 1934-35 season. It is very desirable that Madras should gradually increase its manufacturing capacity up to the limits of its consumption of sugar at least, since at present sugarcane is one of the few crops which give a fair return to the grower. The benefit to the agricultural economy of the province which would accrue by bringing in a large additional area under sugarcane to supply its own requirements in the first place, and possibly later on, part of the requirements of the United Kingdom market, would therefore be most marked. The conditions for sugarcane cultivation and sugar manufacture are so favourable in Madras that there seems no reason at all why in course of time Madras should not become a sugar exporting province, but even to supply its own sugar requirements will involve the bringing under cultivation of a further 35,000 to 50,000 acres of sugarcane.

The close attention of the department continued to be concentrated during the year on stimulating the establishment of sugar factories in suitable areas, and much time and energy was expended in investigating the possibilities afforded by various areas for the development of the sugar industry and in drawing up



schemes, and discussing plans with persons interested in the industry. A reference was made in the report of the previous year to the formation of a company "The Indian Sugars and Refineries, Limited," to set up a sugar factory at Hospet in the Bellary district with an initial crushing capacity of 400 tons per day. An order for a 400/600 ton sugar plant was placed early in the year with Messrs. A. W. Smith & Co., Ltd., of Glasgow, and the machinery commenced to arrive in September. It was not found possible to start crushing cane during the season which ended in March, but the factory is fully equipped for commencing work in the next crushing season. The construction of the 50-ton sugar factories of the Ettikopaka Co-operative and Industrial Society, Limited, Ettikopaka, and the Sri Ramakrishna Co-operative Industrial Society, Limited, Thummapala, Vizagapatam, was completed during the year, and they were in operation for a short time before the close of the season. A 150-ton plant has been erected at Bobbili and will commence operations in the 1934-35 season. An old sugar refinery at Podanur, which had long been in existence, but had not been worked for several years, was reconstructed during the year and re-equipped with cane crushing plant, sulphuring apparatus and other machinery manufactured by Messrs. Marshall Sons & Co. (India), Ltd. The renovated mill, which has a capacity of 50/60 tons a day, started work shortly before the close of the year and crushed about 1,000 tons of cane during the season. The machinery and plant for a 80/120-ton plant for a factory to be set up at Kirlampudi in the East Godavari district has been ordered. At the end of the year plans were taking shape for the organization of the Vuyyur Co-operative and Industrial Credit Society, Limited, for the purpose of establishing a 850/1200-ton sugar factory at Vuyyur in the Kistna district in which district as already stated a considerable area has been brought under cultivation with certain of the deep rooted varieties of Coimbatore sugarcane. The society has been granted a loan of Rs. 10,00,000 by the Madras Provincial Co-operative Bank, Limited. The order for the machinery and plant was placed shortly after the close of the year and the factory is expected to be in operation early next year. Plans for the establishment of other factories were also under discussion at the end of the year, and it is hoped that several will be set up in time for the 1936 sugarcane season. At the instance of the department, specially reduced rates for the transport of sugarcane seed from Anakapalle and Narasapatnam road, to Bezwada were introduced by the Madras and Southern Mahratta Railway Company, Limited, during the year.

42. *Oil-seeds—Groundnuts.*—The area and yield of groundnuts have been estimated at 3,830,400 acres and 1,710,900 tons as against 3,494,100 acres and 1,631,200 tons in the preceding year. Exports of groundnuts to foreign countries increased from 349,962 tons in 1932-33 to 455,337 tons in the year under review, but owing to the low prices ruling on account of the political and

economic conditions prevailing in Europe and the high tariffs set up by foreign countries, the value of exports declined from Rupees 559.88 lakhs to Rs. 544.61 lakhs. The increase in exports during the year may be attributed to the lower prices ruling for groundnuts which enabled them to compete in greater degree with soya-bean and whale oil. Shipments of groundnuts formed 90 per cent of the total trade in seeds as against 91 per cent in the previous year. The price per candy of machine shelled groundnuts in April 1933 was Rs. 26 compared with Rs. 40-4-0 in April 1932. It rose to Rs. 29 in July, but then declined steadily to Rs. 23-12-0 in October, Rs. 20-7-0 in January and Rs. 18-1-3 in March 1934. At the end of the year trade was brisk at the lower level of prices established as sellers appeared to realize the inadvisability of carrying their stocks over to the following season, involving as it would, loss by way of interest and storage charges as well as by deterioration of stocks. It was anticipated at the end of the year that stocks would be completely liquidated by June or July and that there would be no balance carried over to the following season. The importance of the preference of 10 per cent which India has secured on the imports of Indian groundnuts into the United Kingdom, and the desirability of taking full advantage of it, especially at the present time when continental purchases of Indian groundnuts are restricted, was brought to the notice of the Chambers of Commerce and exporters during the year. In view of the keen competition of West African groundnuts due to increasing production, it is very important that the quality of Indian groundnuts should be maintained at the highest possible level, and the attention of exporters and others was invited to the harm caused by damping or so-called water shelling which results in an increased free fatty acid content. A leaflet was prepared by the Director of Agriculture entitled "The improvement of quality of South Indian Groundnuts" and the district staff of the department was supplied with copies in the vernaculars and requested to distribute them to the shellers and growers of groundnuts in their divisions and to point out to them the disadvantages of damping groundnuts intended for export. It is doubtful whether any appreciable improvement in the price level of Indian oil-seeds can be looked for in the near future unless the United Kingdom can be prevailed upon to impose quotas or increased duties on imports of soya-beans, copra or other oil-seeds, as also of whale oil, which compete with oil-seeds produced in the Empire.

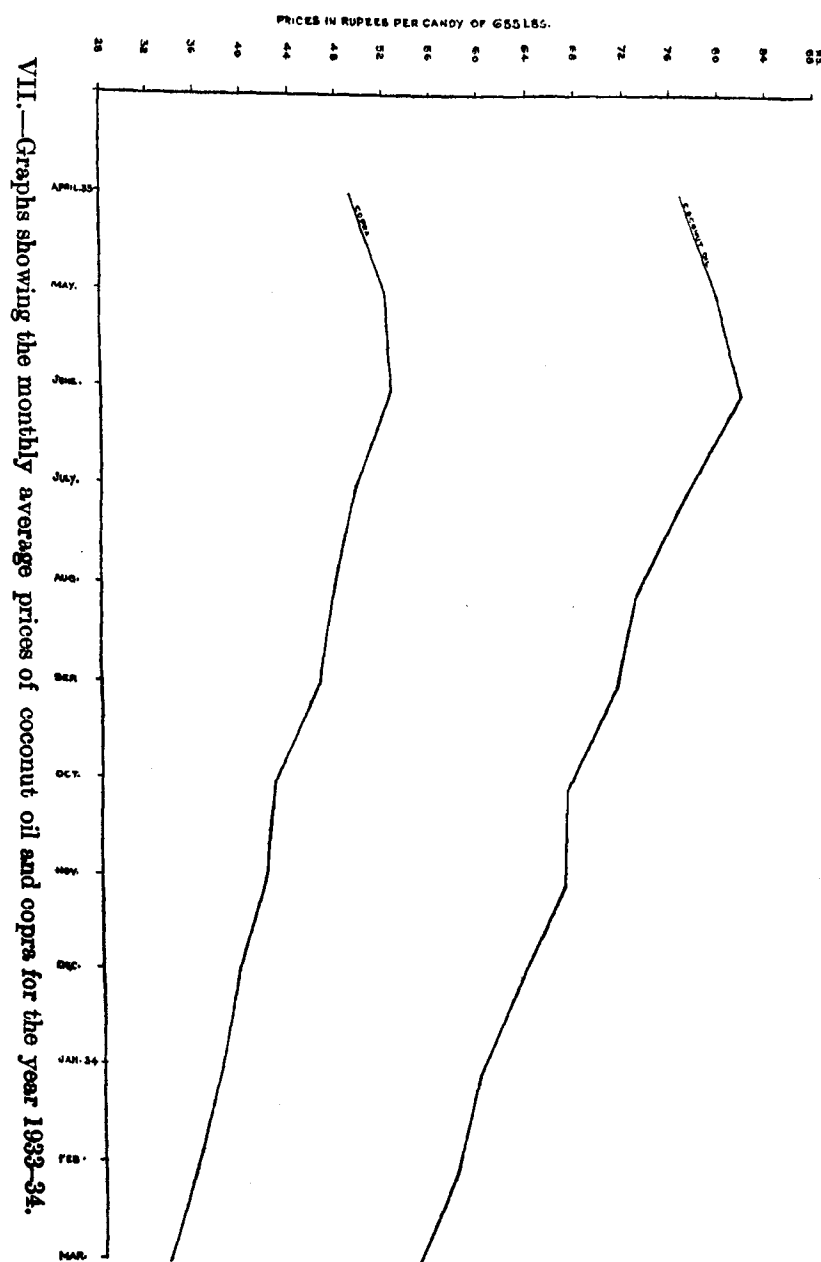
43. *Castor*.—The area sown with castor up to 25th November 1933 was estimated at 319,400 acres as against 333,600 acres at the corresponding period last year, representing a decrease of 4.3 per cent. The estimate of last year fell short of the actual area of 355,873 acres by 6.1 per cent. The yield is estimated at 32,700 tons against 34,700 tons in the preceding year. The exports of castor seed by sea increased in quantity from 33.107

tons to 46,720 tons or by 41 per cent, and in value from Rs. 49.01 lakhs to 57.74 lakhs, or by 16 per cent.

44. *Other oil-seeds.*—The area sown with gingelly up to the 25th March 1934 was estimated at 848,500 acres as against 806,400 acres at the corresponding period of the previous year, representing an increase of 5.2 per cent. The yield has been estimated at 106,900 tons against 106,500 tons. Exports of gingelly by sea amounted only to 14 tons valued at Rs. 1,387. Exports of linseed amounted to 5,523 tons valued at Rs. 6.23 lakhs. Niger seed was exported to the amount of 1,998 tons.

45. *Oil milling.*—The year under review was an unsatisfactory one for the oil-milling industry owing to the pronounced fall in the prices of vegetable oils, and operations, whether on a large or small scale, appear to have been unremunerative. The price of coconut oil at Cochin in April 1933 was Rs. 76/78 per candy, but by the end of the year under review it had declined to Rs. 52/54. It was stated in last year's report that there seemed to be sufficient ground for curtailing the imports of Ceylon coconut oil by the enhancement of the duty and assisting in this way to develop the Indian oil crushing industry, and to create an increased internal demand for the vegetable oils of the country. Imports of coconut oil into the Madras Presidency from Ceylon which had increased to a marked extent in the year 1932-33 showed a falling off in the period under review, imports of copra and coconut oil from Ceylon declining from Rs. 11.28 lakhs to Rs. 5.04 lakhs and from Rs. 4.57 lakhs to Rs. 1.76 lakhs. It is the large all-India imports, however, which have to be taken into account, as if the import duty on Ceylon coconut oil was enhanced, there is every reason to believe that Ceylon oil would be replaced in Calcutta, Rangoon and other markets at least to some extent, by Malabar coconut oil. Groundnut oil declined in price during the year from Rs. 270 to Rs. 200 per ton. The question of whether an export trade in unrefined groundnut oil could not be developed with Great Britain with the aid of the preferential tariff has been the subject of study, and was still under consideration at the close of the year. There are no inherent defects in groundnut oil pressed in India as the oil imported is generally sold with maximum free fatty acids of 3 per cent, whereas it is customary for English crushed oil to be sold with a guarantee of maximum free fatty acids of 5 per cent. Further the Indian oil compares quite favourably in colour and other respects. The real difficulty centres round the question of shipment in bulk. Castor oil and gingelly oil also declined in price to a marked extent during the year.

46. *Essential oils.*—Exports of sandalwood oil during the year amounted to 1,048 gallons valued at Rs. 1,26,401. The price of sandalwood oil dropped from Rs. 15-2-0 per pound in April to Rs. 12-2-0 per pound at the close of the year under review. The demand for Indian sandalwood oil was restricted owing to the

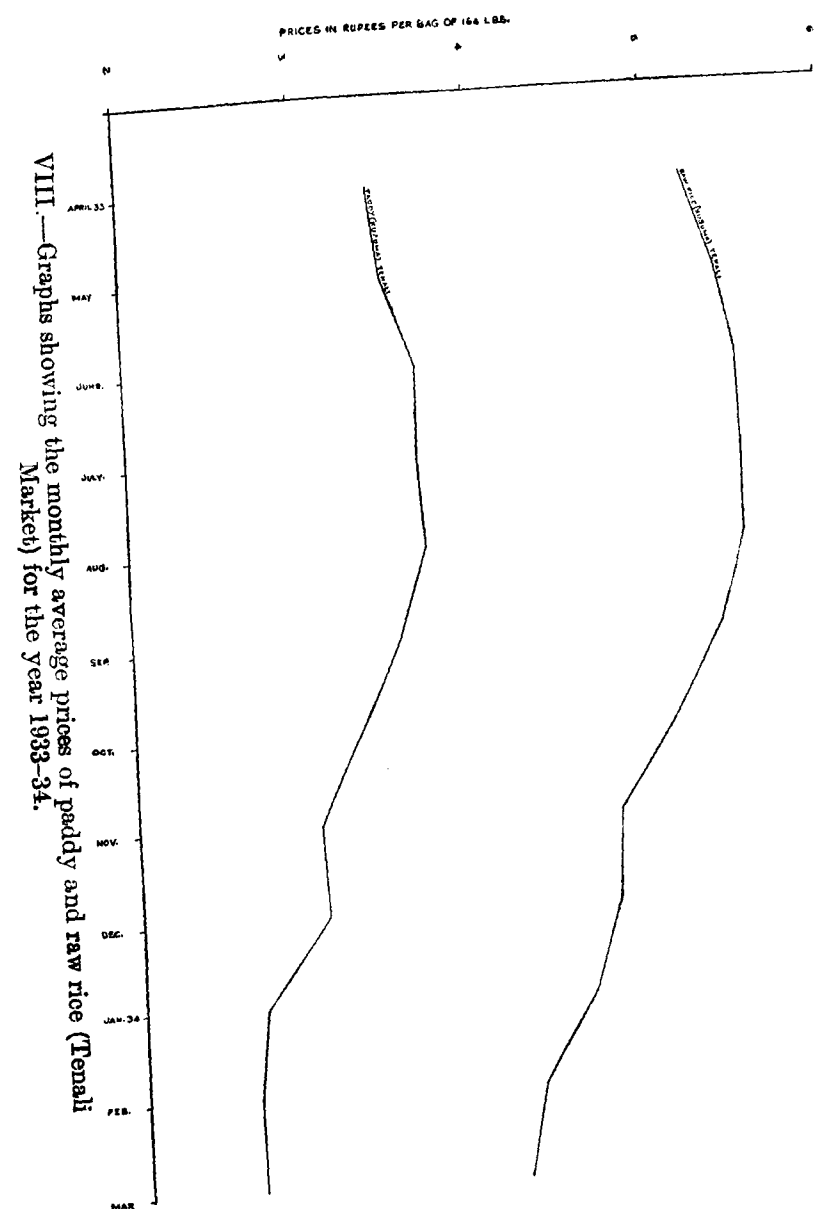


competition of the Australian product in the Europe markets. Exports of lemon grass oil amounted to 45,416 gallons valued at Rs. 629,919. A short crop of lemon grass was harvested with the result that prices rose sharply from Re. 1-5-0 early in 1933 to Rs. 2-10-0 per pound at the end of the year. Eucalyptus oil is distilled in the Nilgiris by several small concerns. The price now realized is only from Re. 1 to Re. 1-4-0 per bottle of 24 ounces against Rs. 2-8-0 to Rs. 3 a few years ago.

47. *Soap industry.*—Imports of all classes of soap into the Madras Presidency decreased from 2,263 tons valued at Rs. 16.43 lakhs to 2,157 tons valued at Rs. 14.34 lakhs. Imports of Japanese soaps increased from 175 cwt. valued at Rs. 5,094 in 1932-33 to 1,709 cwt. valued at Rs. 37,886 in the year under review. The imports of soaps from Japan have not yet assumed large proportions, but they are increasing and, as pointed out in another section of the report, the effect of the competition is felt severely by the Indian soap manufacturers who find it impossible to compete in price with the cheap Japanese soaps. Imports of Japanese soap into Bombay were on a fairly considerable scale, and part of the Japanese imports into Bombay and the Kathiawar ports are believed to have found their way into some parts of the Madras Presidency. The number of small soap factories continued to increase during the year. The consumption of soap in India appears to be on the increase in spite of the economic depression, and as India is in a position to manufacture its own requirements of washing and toilet soaps from the raw materials available in the country, there should still be considerable scope for the further expansion of the industry.

48. *Fish oil and guano.*—The year under review has been remarkable for the appearance, after an absence from West Coast waters of nine years, of shoals of sardines. The price obtainable, however, for sardine oil and sardine guano was, to commence with, so depressed that for a time it looked as if this blessing of nature would result in no material benefits to the industry. Finally, however, outlets were found for the fish oil produced, although at very low prices, and the guano after first selling below cost of production subsequently found outlets due to the increased purchasing power of tea estates for manurial purposes at quite remunerative prices and the industry concerned can be congratulated upon a return of activity, and on having derived quite a considerable income after so many barren years. It is estimated that over 3,000 tons of oil were produced in the numerous fish oil factories on the West Coast during the year.

49. *Cashewnut industry.*—The trade in cashew kernel continued to expand, shipments from Mangalore amounting to 55,893 cwt. as against 29,912 cwt. in the previous year. The increased business was made possible by large importations of raw cashewnuts from East Africa, and it was thus possible to give



regular employment throughout the year to a large number of workers. The cashew industry in Mangalore is probably now giving employment to from 6,000 to 7,000 workers. The development of the trade during the period under review has demonstrated the wisdom of the step taken by Government in the previous year in exempting imports of raw cashewnuts from customs duty. The industry has still considerable potentialities of further development and it is very necessary that everything possible should be done to increase the production of raw cashewnuts by bringing under cultivation more of the waste lands in the coast districts. As in the past, the United States of America was by far the largest buyer of kernels. Prices fluctuated during the season with a general tendency upwards throughout, prices of raw nuts varying from Rs. 2-4-0 per moora of 65 lb. to Rs. 4 per moora and prices of cashew kernels varying similarly.

50. *Coir*.—There was a brisk demand for manufactures of coir, and prices improved accordingly, shipments to almost all destinations, except France and Germany, increasing considerably, total exports amounting to 618,700 cwt. valued at Rs. 76.55 lakhs, as compared with 533,660 cwt. valued at Rs. 59.78 lakhs in the previous year. There was a marked improvement in the position of coir yarn during the year. Exports from Calicut of coir yarn were about 20 per cent larger than in 1932-33 and about 3 per cent larger than that of 1931-32. The Calicut market was steady and prices gradually improved from about Rs. 5 to Rs. 10 per candy of 700 lb. Prices, however, are still at a level which can only give a very poor return to the producer. There is a tendency for shortage in the supplies of soaked Calicut yarn as instead of soaking the husks for the production of coir yarn, the owners are inclined to store their nuts in the husk. The volume of export trade in coir yarn from Cochin was well maintained at a higher price level. There has been a tendency of late for exports from Cochin to increase to European and decrease to Indian ports. There was a good demand for coir mats and mattings from Cochin and Travancore although prices continued to be depressed by the very strong competition between the shippers.

51. *Timber*.—Business in timber was affected throughout the year by the continuance of the economic depression. Possibly a little more trade has been done in timber, but at such uneconomic prices that there has been practically no profit at all in the business. The low prices now offered by the railways are barely sufficient to cover costs to the producers.

52. *Tiles*.—The tile industry continued to feel the effect of the economic depression during the year, for although sales were maintained in certain markets, especially in the Southern districts, the prices obtained were very low owing to keen competition. With the heavy fall in prices of agricultural produce, the building programmes of the ryots have been curtailed to a minimum, whilst the anxiety of the manufacturers to find outlets for their stocks has driven them to the necessity of cutting down prices for any

business offering in order to secure orders. There was little change in the condition of the Colombo and Rangoon markets during the year but the Straits Settlements were entirely closed to the West Coast factories owing to the keen competition experienced from Marseilles, the very low prices that were offered for West Coast tiles rendering business impossible on any basis. The allied industry of glazed pipe manufacture continued to suffer severely from the importation of pipes from Bengal and the kilns were worked only occasionally in order to meet the small local demand.

53. *Manures*.—Imports of manures fell from Rs. 28.12 lakhs to Rs. 21.94 lakhs; but considering the low prices of agricultural produce which ruled throughout the year the demand for the principal imported fertilizers such as sulphate of ammonia, superphosphates and muriate and sulphate of potash was well maintained. As regards locally manufactured fertilizers, the steady decrease in the consumption of manures by estates in Southern India up to the end of the previous year appears to have been arrested, as a perceptible increase in the volume of business manifested itself during the year under review. The improvement was attributable to the increased purchasing power of the tea industry as a result of benefits accrued and expected from the Tea Restriction Scheme. The coffee plantation maintained their offtake of locally manufactured manures. The ryots continued to show increasing appreciation of the value of manuring, but the low prices prevailing for staple crops such as paddy and coconut tended to prevent an expansion in the manure trade with the ryots commensurate with the interest shown by them in improved methods of cultivation. The coffee industry continued to increase its consumption of spraying materials for Bordeaux and Burgundy mixtures, and an increasing interest in anti-pests spraying is also now manifesting itself amongst coconut and arecanut garden owners.

54. *Chemicals*.—The local production of chemicals remained at about the same level during the year but prices fell owing to the very low rates of freight charged by steamship companies both from Europe and Bombay, and it is contended that the development of the industry in South India is greatly hampered by the high rates of railage in force. There was slight improvement in the price of Epsom salts as a result of the higher rate of duty, but it was still found difficult to compete with German manufacturers who were selling this material at almost 'give away' prices. Imports under the head 'Chemicals and Chemical Preparations' increased by Rs. 2.02 lakhs to 39.77 lakhs. The demand for heavy chemicals for industrial purposes such as soda-ash, refined bi-carbonate of soda, silicate of soda, carbonate of ammonia and muriates of ammonia was well maintained during the year and in certain directions showed an advance. The steady development of the soap manufacturing industry was reflected in an increased demand for caustic soda. The consumption of

imported dyes and chemicals employed in dyeing including aniline salt, hydro-sulphide of soda, and hypo-sulphite of soda and sodium sulphide, improved during the year.

55. *Match industry*.—Generally speaking, the conditions of the match industry during the year may be considered to have been depressed. The number of cottage factories increased during the year owing to the demand for low-priced matches such as they produce. Many of the factories were not, however, worked to maximum capacity while sales were only maintained at fairly low and in many instances uneconomic prices. Consumption was very steady up to 27th February 1934 on which date Government announced their proposals for an excise duty on matches, when prices which had shown no remarkable variations for many months previous suddenly advanced, and this has resulted in a falling off in consumption. There was considerable activity all over the Presidency during March in order to turn out as much as possible before the 1st April, and participate in the higher level of prices. It remains to be seen what effect the excise duty will have on the cottage section of the industry. It is generally expected that the excise duty on matches will drive off the market products of very inferior quality, and it is probable that only the very efficient units of the cottage industry will be able to continue the manufacture of matches once the full force of the excise duty is felt upon the industry. This would counteract to some extent the continued heavy over-production which at present exists.

56. *Aluminium utensil industry*.—The aluminium ware industry underwent no improvement during the year and so long as prices of brass and copper continue at their present low level, the demand for aluminium products is not likely to expand. In February, a small reduction was made in the price of aluminium, but this proved insufficient to stimulate trade and it is very doubtful whether any manufacturer is able to make profits under present conditions.

57. *Pepper*.—The pepper crop is harvested approximately from November to April inclusive. During the season 1932-33 there was a very full crop, but the crop for 1933-34 was a short one. At the beginning of the year Tellicherry pepper stood at the remarkably low price of Rs. 22 per cwt. garbled f.o.b. It advanced to Rs. 35 per cwt. in June but sagged to Rs. 24 in October. In January, the price rose again and touched Rs. 29 in March. During the earlier part of the 1933-34 season, Malabar pepper had to compete with a very heavy crop from the Dutch East Indies. Sales from Malabar both to Indian and overseas destinations were well maintained in comparison with the two previous seasons, and exports amounted in value to Rs. 14.54 lakhs.

58. *Tea*.—There was a decrease in the quantity and value of tea exported during the year from 54.837 million pounds valued at Rs. 460.59 lakhs in 1932-33 to 46.825 million pounds valued at

Rs. 399.40 lakhs in the year under review. The decrease is attributable to the restrictions resulting from the Indian Tea Control Act which came into force on 26th May 1933. Exports of tea to the United Kingdom during the year amounted to Rs. 374.87 lakhs. The main factor which influenced the tea industry during the period under review was the introduction of the scheme regulating the export of tea from the chief producing countries of the world. Although the scheme was introduced in India during May 1933 and later in some countries, it was in all cases given retrospective effect from 1st April. As a result of the restriction scheme supplies going forward were curtailed and at the end of the year, the stock in the United Kingdom which is by far the largest tea consuming country in the world had fallen considerably. The market responded very rapidly to the improved statistical position and the average London price improved from approximately 7½d. per pound at the commencement to 1s. 2¼d. per pound at the close of the year. The increase in prices has been particularly noticeable in the case of common teas. In India also prices rose steadily both for dust and leaf grades once it was known that large stocks would not be thrown on the markets and at the end of the year good quality dusts were saleable at up to 10 annas per lb. f.o.b or f.o.r. coast ports as against 6 to 7 annas at the beginning of the year. The restriction scheme has been introduced for a period of five years from April 1933 and during that time the respective Governments have also prohibited further opening up of land for tea cultivation. There is every indication, therefore, that over-production, which was the cause of the recent slump, will be prevented, and growers for the next few years should receive remunerative prices for their product.

59. *Coffee*.—Exports of coffee increased by 12,857 cwt. to 184,686 cwt., but the value declined by Rs. 7.28 lakhs to Rupees 101.60 lakhs. The quantity harvested in Mysore and Coorg turned out about an average crop and about 15 per cent below the crop harvested during the previous season. The business during the season was characterized by a very limited demand from Europe before coffee actually began to arrive in Mangalore, and a pronounced reluctance on the part of growers to meet buyers for forward delivery. The spot market opened fairly strong owing to the demand for Indian consumption, but when this demand had been satisfied, the market weakened and prices tended downwards touching bottom early in January at Rs. 41 for plantation assortment. Prices rose steadily during January and February touching Rs. 50 for assortment towards the end of February and from then onwards the market was fairly steady with a downward tendency to the close of the season. The native coffee market in general followed the course of plantation coffee and prices for clean garbled ranged from Rs. 183 to Rs. 215 per candy of 576 pounds ex Mangalore. Large crops were harvested during the season in the Nilgiris, Shevaroy, Anamalai, Palni, Nelliampatty, Billigirirangan and Kanan Devan Hills, and probably these areas accounted for close on a third of the total Indian production—an unusually

high figure. The coffees from these areas command varying premiums over the average quality of Mysore and Coorg, and the most important of them is Nilgiris which was quoted nominally at Rs. 50 a cwt., for plantation assortment at the beginning of the season, but gradually rose by the end of the season to Rs. 55 per cwt. owing to an unexpectedly good demand from Europe for coffee of fine quality.

60. *Rubber industry*.—The outstanding features in the rubber market during the year were the renewed efforts to bring about a restriction scheme and an increased consumption of rubber throughout the world. Although an increased quantity of rubber was shipped from the East, world stocks at the end of 1933 were approximately 10,000 tons less than at the end of the previous year, and by the close of the year under review there had been a considerable improvement in the position of the industry. Since the close of the year the Rubber Regulation Scheme has been introduced and there has been a further recovery in the price of the commodity. Exports of rubber increased in value from Rs. 3.25 lakhs to Rs. 18.05 lakhs.

61. *Cardamoms*.—This market remained fairly steady throughout the year at prices rather below those of the previous year. Good crops were harvested in most districts, though on the whole the quality was slightly inferior to previous years.

COTTAGE INDUSTRIES.

62. *Slate industry*.—As the necessary machines and appliances for the demonstration of school slate manufacture were available at the time, advantage was taken of the Madras Park Fair Exhibition held in December 1933 to give a working demonstration of the process of manufacture in Madras before the machinery was removed to Bellary. The machines were erected on carefully prepared foundations in the Exhibition grounds and a series of demonstrations were staged with encouraging results. Slates were manufactured and slate-frames made from teak and dealwood scantlings. As the machines were arranged in sequence and every stage in the process of manufacture was demonstrated, the public were able to follow the various operations. Several enquiries for information as to the cost of the plant were received, and altogether the demonstration served a distinctly useful purpose. As a result of perusing the bulletin on the slate industry prepared by the Inspector of Industrial Schools four years ago and subsequently examining the industry for himself at Markapur, the proprietor of a firm in Calicut is now supplying slate-frames to the Markapur merchants to the value of Rs. 30,000 per annum. Recently, he has commenced to import slates from Markapur and to frame them at Calicut and is understood to be building up a good business. Slates from Markapur are also now being brought to Madras and Chittoor for framing.

63. *Rattan industry*.—The machine for the preparation of rattan cane for the manufacture of furniture on modern lines was received

shortly before the close of the year and was housed in the School of Arts and Crafts, Madras. Arrangements were in progress at the end of the year with a view to demonstrating its working for the benefit of the local rattan workers.

64. *Button manufacture*.—With a view to developing the indigenous button industry of this Presidency by giving training to cottage workers in the manufacture of buttons, five-button making treadle machines were manufactured departmentally and installed in the Government Industrial Schools at Bellary, Calicut, Mangalore and Madura and the Government School of Technology, Madras. One or two members of the staff of each school have been trained in the manufacture of buttons, so that they may be able to demonstrate the machine to workers interested in the industry, and the Assistant Industrial Engineers have been instructed to bring to the notice of persons interested the fact that demonstrations of the working of the machine may be witnessed at the school nearest to them.

65. *Cashewnut industry*.—As a result of the experiments carried out at Calicut in regard to the roasting of cashewnut and the extraction of shell oil, an experimental roaster was evolved and the design was shown to, and approved by, some of the manufacturers in Mangalore. Further experiments are, however, necessary in order to determine whether a satisfactory quality of cashew kernels can be roasted in the roaster and whether it can be adapted for large scale operations. The aim of the experiments carried out at the Government School of Technology, Madras, was to decorticate the nuts without roasting so that the kernels may be taken out in full and the shell subjected to the process of extraction and the maximum amount of oil derived therefrom. As a result, a small hand-machine has been evolved with top and bottom knives on the principle of a nut cracker. The machine has been tested and found to work satisfactorily. With a view to ascertaining whether it will be possible to adapt it for large scale manufacture with satisfactory results, further experiments have to be carried out with the object of increasing the output of the machine, and these were under consideration at the close of the year. During the period under review, one of the cashewnut firms took up, at the instance of the department, the question of developing the possibilities of cashewnuts as dessert nuts. Cashewnuts were packed in small size tins of 1 lb. and 2 lb. each, and put on the market in this form with some success. The Indian Trade Publicity Officer, London, has offered his assistance in the matter of popularizing the nuts in the British confectionery trade.

66. *Domestic paddy husk burning furnace*.—Twenty-five husk furnaces and 17 models of the furnace were manufactured during the year at the Government School of Technology. As the design of the husk furnace has been changed, so as to render possible the use of coke, coal, charcoal, wood, paddy husks and other fuels, the cost of manufacture of each furnace has increased and in consequence, the number of furnaces that could be manufactured

within the sanctioned allotment was reduced. The furnaces have already been exhibited in Tellicherry and Srirangam, and the Assistant Industrial Engineers concerned allowed to retain them with a view to their demonstration at all the exhibitions that may be held in their divisions. Arrangements are in progress for the distribution of the remaining furnaces to the Assistant Industrial Engineers and the District Health Officers.

MANAGEMENT OF MANUFACTURING CONCERNS OWNED BY GOVERNMENT.

67. *Kerala Soap Institute, Calicut—Staff*.—M.R.Ry. A. K. Menon, B.A., continued as Superintendent of the Institute throughout the year except for a period of one and a half months from 20th April 1933 when he was on leave and M.R.Ry. P. S. Srinivasa Ayyar, First Assistant, acted as Superintendent in his stead. Mr. Menon attended the third meeting of the Indian Oil Seed Crushing Committee at Delhi in April.

68. *Production and accounts*.—The depression in trade continued almost unabated during the year and merchants and traders who suffered financial loss owing to the fall in prices and contraction in demand were disinclined to lay in any considerable stocks of soaps with the result that the total output declined from 251 tons in the year 1932-33 to 203 tons in the year under review. There was a corresponding fall in the sales which decreased in value from Rs. 2,44,993 in the previous year to Rs. 1,69,818 in the year under review. The result of the year's working was a net profit of Rs. 9,125-14-9, which may, in all the circumstances, be regarded as satisfactory. Apart from the general trade depression, a factor which contributed to the fall in sales and decline in profits was the increased competition of indigenous soaps of very much lower quality at lower prices, there having been a large increase in the number of small soap establishments throughout the Presidency consequent on the low-level to which prices of vegetable oils have fallen. Although the imports of soaps into the Madras Presidency during the year fell slightly, an unwelcome feature was the increased imports of Japanese soaps. The imports from Japan are not at present large but they are increasing and the effect of this competition is felt very strongly by Indian manufacturers who find it impossible to compete with them. Other factors which contributed to the less satisfactory results were the non-acceptance of the institute's tender for hard and soft soaps by the Indian Stores Department and the unsatisfactory working of certain of the agencies. With a view to arresting the decline in sales, the prices of toilet soaps as well as of Washwell were reduced during the year and the reduction in prices has been justified by the partial recovery in business which has since taken place. It was also found necessary to fall into line with the institute's competitors by giving free delivery of consignments of soaps at any railway station in India. The margin of profit in the soap trade during the year continued to be very small owing to the competition of imported soaps and the

numberless soaps of inferior quality made in India as also to the pronounced fall in the value of soaps since 1929. The toilet soap supplied to Their Excellencies the Earl and Countess of Willingdon was placed on the market during the year under the style of 'Willingdon' soap and it is hoped that the attractive get up and superior quality of the soap will result in a steady and increasing demand for it. Other new soaps introduced to the market during the year were the Anna Toilet, Week End and Shampoo varieties.

69. *Agencies.*—With few exceptions the volume of business introduced by the agents and stockists, both within and without the Madras Presidency was unsatisfactory owing to the general depression in trade and increased competition. The improvement in the economic condition of Ceylon was, however, reflected in an increase in the volume of business introduced by the Colombo agents Messrs. Devar & Co., whose sales amounted to double those of the previous year. The Karachi agents, Messrs. Fakir Walji & Sons, also increased their sales considerably as compared with the previous year, as also did the Cochin agents, the Kerala Swadeshi Stores, Trichur. I would like to take this opportunity of congratulating the Madras agent, Mr. Adam Hajee Muhammad Sait on the distinction of 'Khan Bahadur' conferred on him during the year.

70. *Visits to important markets.*—During the year the Superintendent visited Madras, Bangalore, Mysore, Secunderabad, Bezwada, Cuddapah, Madura, Tanjore, Coimbatore, the Nilgiris, Ernakulam, Cochin, Trivandrum, Alleppey, Nagarcoil, Kottayam, Malappuram, Nilambur and Mangalore, as well as Delhi, Lahore, Amritsar, Lucknow and Cawnpore with a view to developing the sales of the products of the institute. These visits enabled the Superintendent to discuss with the agents and stockists the difficulties in the way of developing the sales of the institute's products and also to investigate the scope for the introduction of new varieties of soap in the different markets, and the personal contact thus established with the agents and stockists has been productive of good results. In fact if the best results are to be obtained from the agents it is very necessary to keep in close personal touch with them. In the course of his tours the Superintendent visited and inspected a number of local soap factories and advised the owners, many of whom were ex-students of the institute, how to improve their methods and products.

71. *Training of apprentices.*—Nine students were under training in the institute during the year of whom six were from the Madras Presidency. Most of the students appear to have secured employment on the termination of their training in other soap works or to have started factories of their own in India, Burma and Ceylon.

72. *Laboratory.*—The high quality and reputation of the institute's soaps are, as has been pointed out before, largely due to the fact that the raw materials as well as the finished products

are carefully examined in the laboratory. During the year under review, 520 analyses were carried out in the laboratory, of which 390 were of raw materials and soaps in different stages of manufacture, the remaining 130 analyses were of soaps, oils, stearine or hardened oils, perfumery and toilet goods received from agents and stockists, ex-students, members of the public or collected by the staff of the institute in the course of their tours. The laboratory also provided work in the practical testing of oils and soaps for six hours a week for the students under training in the institute during the year.

73. *Research and experiments.*—The following is a summary of the research and experimental work carried out in the institute during the year:—

(a) *Oil refining.*—The erection of the oil refining plant was completed early in the year and about five tons of coconut and groundnut oils were refined. The Chemical Examiner to the Government of Madras, as well as several hospital authorities to whom samples were sent have testified to the excellent quality of the product, and some orders have been received from Government hospitals. Steps have been taken to register the trade mark 'Kokol' for the refined oils and it is hoped that they will shortly be placed on the market, although it is more for the purpose of demonstrating the process of oil refining and interesting oil-millers and others in the potentialities of this branch of the vegetable oil industry than to market the product that the experimental plant has been set up. In conjunction with the manufacturing operations experiments were conducted in the laboratory with a view to studying the bleaching action of different kinds of Fuller's earth and decolourizing carbons, and the efficiency of vegetable carbons, such as paddy husk charcoal and coconut shell charcoal which are available locally for decolourizing oils.

(b) *Roasting of cashewnuts.*—The experiments on the roasting of cashewnuts, as also on the preparation of synthetic resins from cashew tar, were continued during the year, but little progress could be made as the firm in Bombay who moulded the powders last year refused to collaborate further in the matter unless they were paid a heavy premium. Two new samples of insecticidal soaps made from cashew tar were forwarded to the Superintendent, Government Cinchona Plantations for trial, but his report had not been received by the end of the year.

(c) *Ginger.*—Samples of bleached ginger were sent to the Indian Trade Commissioner, London, who distributed them to the various trades' associations and firms, from whom favourable reports have been received. The new process was explained to Calicut exporters and they have

adopted the new method. Efforts are now being made to have the Indian ginger recognized by the British Pharmacopœia.

(d) *Carboga Arisi*.—The soap made with the extract of *Psoralea Corylifolia* was tested for its germicidal properties and experiments have now been taken in hand with a view to removing the yellow colouring matter of the extract without affecting its medicinal value.

(e) *Vegetable oils as illuminants*.—The preliminary experiments initiated in the previous year with a view to the ascertainment of the economic value of the common vegetable oils for use as lamp oils compared with kerosene oil were continued during the year, and it was found that under certain conditions it is cheaper to use vegetable oils such as coconut, groundnut and castor than kerosene oil for burning in lamps.

74. *General*.—The institute participated, as usual, in a number of exhibitions, as well as in the Health and Baby Week Celebrations in 28 centres, and secured several awards. The institute was, as usual, visited during the year by a large number of visitors. A considerable number of enquiries in connexion with the manufacture of soaps, equipment of soap factories, methods of refining oils and other problems connected with the oil and soap industry were received and dealt with during the year. A card-board box making plant was installed in the factory during the year as a result of which a considerable economy is expected to be effected in the cost of packing. A new soap dryer was under erection at the close of the year and this is expected to prove very useful for drying soaps in the monsoon months.

TEXTILE SECTION.

75. *Staff*.—Mr. D. M. Amalsad, A.M.C.T., continued as Assistant Director of Industries (Textiles) and Principal of the Government Textile Institute, Madras, throughout the year.

76. *Position of the handloom weaving industry*.—From the standpoint of the well being of the rural population, the handloom weaving industry of the Presidency plays a conspicuous part as there is no other occupation so remunerative as weaving to absorb the population engaged in agriculture or to keep the agriculturists occupied during the slack season. The question of whether the industry is progressing or declining is therefore a matter of great economic importance. The statistics of the consumption of yarn in India show that whilst the average annual consumption of yarn by the mills has increased from 340 million pounds during the nine years ending 1924 to 499 million pounds during the nine years ending 1933, the increase during the same period in the quantity of yarn consumed by the handloom weavers was from 269 million

pounds to 331 million pounds, or in other words whilst the mill consumption of yarn increased by about 47 per cent, the increase in consumption of yarn by the handloom weaving industry was 23 per cent. It will be evident therefore that the development of the mill industry in this country has been largely at the expense of foreign cloth although it may, in all probability, have arrested to some extent the progress of the handloom weaving industry. In the last decade it was not possible to estimate with any degree of accuracy the consumption of yarn by handlooms in the Presidency owing to the discontinuance of the railborne statistics. These statistics, however, have been revived with effect from the beginning of the year under review, and it is found that the consumption of cotton yarn by handloom weavers in this Presidency during the year amounted to 73 million pounds nearly. As the average annual consumption of yarn by handloom weavers in the decade ending with the year 1921 was 59 million pounds it would appear that there has been a considerable increase in the consumption of yarn since then, and that this increase has more or less kept pace with the increase in the number of persons engaged in the industry as revealed by the Census, and also the number of looms employed by it as reported by the Special Officer for the Survey of Cottage Industries. In last year's report reference was made to the memorandum embodying my answers to the questionnaire of the Tariff Board on the subject of the grant of protection to the Indian cotton textile industry wherein I suggested inter alia that a cess should be levied on every pound of yarn manufactured by the mills, the proceeds to be utilized for the development of the handloom weaving industry and distributed among the various provinces in proportion to their population. The Tariff Board commended my proposals for the levy of a cess, but in view of the difficulty, at this juncture, of extending its incidence to the Indian States, they recommended that its imposition should be deferred until the new constitution comes into existence. In my capacity as a non-official adviser to the Indian Textile Delegation in connexion with the Indo-Japanese trade negotiations, I pressed the claims of the handloom weaving industry for some measure of financial assistance from Government, and shortly after the close of the year, the Government of India announced their decision to give grants-in-aid to local Governments and administrations so long as the protective duties imposed by the Indian Tariff ('Textile Protection') Amendment Act of 1934 continue in force. It is estimated that a sum of Rs. 5 lakhs will be available annually for the purpose. A scheme has therefore been drawn up for developing co-operative buying and selling on behalf of the handloom weavers and generally for the better organization and improvement of the handloom industry, and if these proposals commend themselves to the Government of India, it is hoped that the handloom weaving industry of this Presidency will enter upon a new era of progress.

77. *Textile Institute*.—The institute continued to provide instruction on the usual lines. On 31st March 1934, there were

88 students undergoing training in the institute—26 in the first-year Supervisor course, 16 in the second-year Supervisor course and 44 in the Artisan course. Two students underwent a special course of training in Jacquard weaving. The candidates who were admitted in the institute hailed from 23 districts of the Presidency, from three adjacent States and from the Bombay Presidency. In G.O. Ms. No. 1310, Development, dated 25th October 1933, Government sanctioned the institution of classes in cotton power spinning for the benefit of the textile apprentices of the local mills, the requisite machinery having been generously presented to the institute by Messrs. Binny & Co. (Madras), Ltd. On 31st March 1934, 18 apprentices were attending the course. Instruction in cotton power-spinning has also been made available to students undergoing training in the Supervisor course from January 1934.

78. *Assistance to the public.*—Practical assistance is now rendered to the public by the three textile demonstrators and by the institute staff according to circumstances. A textile demonstrator was deputed to the London Mission Boys' School, Erode, and the Wesleyan Mission School, Karur, in order to afford training in modern methods of dyeing direct sulphur and indanthrene colours. As the Immaculate Conception Convent School, Coimbatore, was experiencing some difficulty in getting proper shades and fastness, in large scale dyeing, a demonstrator was deputed to show the school authorities the method of dyeing yarn in lots. The hand-driven hot-air-sizing machine installed by the P.S.G. and Sons Charity Industrial Institute, Peelamedu, Coimbatore, last year worked very satisfactorily throughout the year under report. This institute also undertook the supply of machine-sized warps to the weavers in the locality and thus paved the way for the introduction of weavers beams. A second sizing machine was installed in the London Mission Boys' School, Erode, one of the textile demonstrators erected the machine in the school, trained a school assistant in working the machine and finally handed it over to the authorities. A third sizing machine was installed in the Immaculate Conception Convent Girls' School, Coimbatore. The machine was erected by a textile demonstrator and handed over to the correspondent of the school who undertook to demonstrate it with the aid of one of the school staff. The use of cheap barrel dobbies was also demonstrated as a result of which the correspondent purchased two dobbies for weaving sarees with extra border effects. In connexion with the rural reconstruction scheme for Tiruvallur area, the textile branch arranged for the weaving of Madras handkerchiefs by select weavers of Pulrembakkam, a neighbouring village. The modus operandi was to procure trial orders for the goods in specified patterns from one of the leading exporting firms in Madras and to execute them at Pulrembakkam under the supervision of a departmental demonstrator. Three orders for Madras handkerchiefs were obtained from Messrs. Brunschweiler & Co., Madras, and executed

by select weavers at Pulrembakkam, the first two orders being for eight pieces each and the third for 16 pieces. Among the types of improved dyeing appliances installed in the institute the (hand-driven) ærograph cloth-printing machine and dyeing jigger have been taken up by a number of private capitalists, the appliances being manufactured by private engineering works in Madras. Two jiggers were introduced in Salem and one in Chirala. The knitting demonstrator of the Textile Institute assisted a firm in Madras in putting one of their knitting machines in working order.

79. *Aided textile schools.*—During the year 1933-34, the aided schools dealing with textiles continued to be under the supervision of the Assistant Director of Industries (Textiles). A sum of Rs. 16,550 was sanctioned as maintenance grants to textile schools, while a sum of Rs. 996 was sanctioned as capitation grant. The equipment grants awarded amounted to Rs. 1,362-10-0. During the year a revised system of awarding maintenance grants to recognized industrial schools was sanctioned by Government. Under the new scheme, which aims at securing greater efficiency and economy in the administration of the grants, a maintenance grant to an industrial school is determined by three main factors; the financial position of the school, as ascertained from the audited accounts of the previous financial year, the cost of the teaching staff actually employed in the school, and the number of pupils of the prescribed age-limit and general educational qualifications who received instruction in the school.

80. *Assistance to jails.*—Under the orders of Government the officers of the Industries department are charged with the duty of 'advising' the Jail department on technical matters relating to the equipment and management of industries, the pay and qualifications of technically trained subordinates and other questions. During the year under report, the Assistant Director of Industries (Textiles) visited the textile sections of the Central Jails at Vellore, Coimbatore and Bellary and rendered them technical advice and assistance.

81. *Miscellaneous.*—A set of cheap cottage looms for weaving cotton cloths and pile carpets of small widths and another set of domestic silk reeling, re-reeling and twisting machines, all suitable for part time work have been constructed in the institute. During the year Crepe de Chine and Georgette, two special varieties of silk fabrics, were woven in the institute in order to ascertain whether such cloths could be woven on handlooms from Kollegal silk so as to compete in quality and price with these varieties of silk so as to compete in quality and price with these varieties of imported silks. Some eri silk yarn which was spun on a waste spinning plant in England was also woven at the institute during the year. Samples of cloths sent by Government departments, as well as from five merchants were analysed in the textile testing laboratory.

SERICULTURE.

82. Mr. K. T. Achaya continued as Sericultural Expert until 8th July when he proceeded on leave and deputation to Japan in order to undertake a close study of the organization, technique and economics of the sericultural industries in that country. Mr. Achaya resumed charge of his duties on 9th November 1933, and after his return submitted a comprehensive report on the condition and organization of these industries in Japan with his recommendations as to the lines on which the indigenous sericultural industries in this Presidency could suitably be developed. The Sericultural Expert toured for 71 days and visited all the important silk centres in the Presidency.

83. *Peripatetic Rearing Party*.—In May 1933, the Peripatetic Rearing Party was decentralized and the five moth testers and one rearer were posted to Alhalli, Kuntur, Kamakere, Mangalam, Palyam and Surapuram villages which are centrally situated in the Kollegal sericultural area, while the headquarters of the Silk Superintendent continued to be at Mudigundam. The object underlying this measure was to increase substantially the number of seeds tested and to endeavour to supply the entire requirements of the sericultural area of Kollegal with tested seeds. The results have been very satisfactory as the number of seeds tested by the party during the year increased to about 843,000 as against 200,410 in the previous year. Seed cocoons were purchased by the party as an experimental measure, and converted into disease-free seeds. The moth testers and superintendent inspected the rearings conducted by the rearers out of the seeds tested and supplied by the department, and explained the causes of failure and set things right as occasion arose. The Hosur Silk Farm supplied 81,400 seed cocoons to Kollegal out of which 28,000 disease-free layings were prepared and supplied. The farm also supplied 2,500 disease-free layings which were tested by the moth tester in charge of the farm whilst the silk and silk waste produced by the farm was sold. The Palmaner Silk Farm supplied 87,800 seed cocoons which were converted into seeds and sold. Five thousand two hundred and forty disease-free layings were received from the R.C. Lace School, Vadakangulam and disposed of. The seeds received from Kuppam Silk Farm were also sold. There has been a fall in the income from the farms as a result of the reduction in the price of disease-free layings from 12 annas to As. 5-4 per hundred. The small consignments of silk worms of Japanese race brought by the Sericultural Expert from Japan were reared successfully by the party and the disease-free seeds therefrom distributed to the Government Textile Institute, Madras, and the Government Farms at Coonoor, Hosur and Palmaner. The experiments on hybridization carried on in all the Government Silk Farms have been very satisfactory. The number of hybrid cocoons for a pound is 428 against 550 to 625 of Mysore cocoons, whilst the rearing period is only 24 to 28 days in the

case of hybrid worms as against 32 to 34 in the case of Mysore cocoons. There is thus a saving of four days of work to the rearer. Twelve to thirteen pounds of hybridized cocoons have yielded a pound of silk whereas fourteen to fifteen pounds of Mysore cocoons are necessary to produce the same quantity. A beginning has been made in supplying hybrid layings to Kollegal rearers and 6,000 layings have been distributed, the results are being closely watched. The peripatetic party endeavoured to introduce brass cutters for reeling silk and was able to persuade two fairly large silk producers to adopt them. The yarn reeled by this process is very superior and compares favourably with imported silk and as such realizes attractive prices in the market. It is hoped that as a result of further propaganda the use of brass cutters for reeling yarn will be increasingly resorted to in the area. Shortly before the close of the year Government approved my proposal that with a view to supplying disease-free seed to the Kollegal silk worm rearers and also to keeping up the vitality of the worms, the department should purchase seed cocoons which are produced in localities other than Kollegal to the extent of 15 lakhs at a cost of Rs. 1,500, convert them into disease-free layings by the Peripatetic Party, Kollegal, and sell them to the Kollegal rearers. This scheme has been sanctioned in the interests of the silk worm rearers of Kollegal in order to give them the benefit of the use of tested seeds and also to enable the members of the peripatetic rearing party to be kept fully employed on testing work throughout the rearing seasons.

84. *Silk Farm, Coonoor*.—Hybridization work was continued in this farm during the year, and one crop of Univoltine worms and three crops of hybrid worms were successfully reared. One pure Mysore worm rearing was also conducted. During the year six eri silk worm rearings were conducted with satisfactory results. Eri silk worm seed supplied from this farm has been successfully reared in many district centres. Cocoons harvested out of Univoltine and hybrid rearings were sent to Kollegal for conversion into disease-free layings by crossing with Mysore female moths for distribution to other Government farms and private rearers at Kollegal. This work is progressing satisfactorily. A considerable number of persons visited the farm during the course of the year.

85. *Silk Farm, Hosur*.—During the year, the abandoned police outpost and police huts of Mathigiri were taken over by the department, and the rearing house and office were transferred from Chinnabalagondapalli to Hosur Cattle Farm in June after some minor repairs to the buildings. The output of mulberry leaves was affected by the failure of rains and this in turn affected the number of rearings. Six rearings were conducted in all. The first generation of hybrids was harvested successfully and the layings therefrom were sent to Kollegal. Proposals for extending the area of the farm by the addition of about 13 acres of land belonging to the Hosur Cattle Farm were under the consideration

of Government at the close of the year. Disease-free layings supplied from this farm have become very popular in Kollegal.

86. *Silk Farm, Palmaner*.—Five successful rearings were conducted during the year, and 100,910 cocoons were produced, out of which 87,800 seed cocoons were sent to Kollegal for conversion into disease-free layings and the rest converted into silk. People around the farm are now evincing a keen interest in sericulture. The farm itself suffered from shortage of leaf on account of scanty rainfall and the number of rearings had to be curtailed. If irrigation facilities can be provided, the work of this farm will be greatly facilitated.

87. *Kollegal Farm*.—The bulk of the seed cocoons used by the Kollegal rearers is now derived from Mysore villages. In order to render Kollegal self-contained in this respect, Government, shortly before the close of the year, approved a proposal for the opening of an experimental farm in the seed producing area in Kollegal with a view to investigating the possibility of producing seed cocoons all the year round and of rearing a number of generations of silk worms out of the same seed.

88. *District sericultural work*.—The five assistant demonstrators of sericulture were stationed at the following centres: (1) Kuppam, (2) Penukonda, (3) Ellore, (4) Jaggayapet and (5) Vadakangulam. The sericultural work which was in progress in these areas was further extended during the year under review. The demonstrators in addition to supervising as usual the plantations and rearings of silk worms of private parties who have resorted to sericulture and ericulture in their respective jurisdiction participated in a number of exhibitions and conferences where demonstrations of silk and eri-worm rearings have been conducted for the benefit of the agriculturists. The moth tester at Hosur and the farm foreman, Palmaner, continued to give advice and guidance to a number of private rearers in their respective areas. At Vadakangulam the sericultural work has been progressing satisfactorily, and there are now about 15 acres of mulberry. About 18,000 disease-free layings were produced by the aided grainage at the R.C. Lace School, Vadakangulam.

89. *Green manure*.—At the instance of the department sunnhemp was inter-cultivated with mulberry in Kollegal and afterwards ploughed as green manure resulting in an increased yield of mulberry. The experiments with sunnhemp and other green manure crops are being continued.

90. The flooding of the Indian market by cheap Japanese and Chinese silk at low prices has resulted in a serious set back to the sericultural industry, so much so that many rearers in Kollegal and other areas have been on the point of abandoning the occupation. The necessity for the grant of protection to the industry was recognized by the Tariff Board. The Board pointed out that the sericultural industry is a unique industry differing from other industries in that it cannot stand without Government organization

and assistance. The measure of protection recommended by the Tariff Board was Rs. 2-6-0 per pound. Shortly after the close of the year the Government of India announced their decision to levy a specific duty of annas 14 per pound, over and above the existing duty of 25 per cent ad valorem, and this measure of protection, although falling short of the rate of duty required to restore the industry to its former comparatively prosperous condition, has eased the situation to some extent. The Government of India have since decided to make a grant of Rs. 1 lakh per annum for a period of five years for technological research and investigation in the sericultural industry and application will be made for a grant for Madras to enable research to be conducted inter alia on improving and cheapening the supply of mulberry leaves which constitutes the major portion of the total cost of the production of silk, improving the quality and yield of cocoons by evolving new varieties of worms by hybridization and with a view to the introduction of modern technique suited to the Presidency in the rearing of worms, grainage work and reeling of silk.

ERICULTURE.

91. Efforts continued to be made during the year to take advantage of the opportunities afforded by the extensive cultivation of castor in Madras, to establish eri-silkworm rearing as a cottage industry, and ericulture was successfully demonstrated in a number of new areas, notably at Edapadi and Pedavegi which are very important castor producing centres in the Salem and West Godavari districts. The eri silk spinner was engaged for a period of over eight months in teaching the ryots the spinning of eri silk from eri cocoons under the auspices of the Agricultural Co-operative Society, Edapadi. As stated in last year's report, cocoons are at present being converted into silk yarn for weaving in the absence of a market for cocoons as such, and a number of the improved eri silk spinning wheels were supplied to Government Agricultural Farms and private rearers. About 29 students have been trained in ericulture in the Government Textile Institute, Madras. About 83 oz. of seed besides 32½ lb. of pierced eri cocoons were produced by the Kuppam Farm and distributed throughout the Presidency. The possibilities of developing an Indian market for eri cocoons is being actively explored. The Superintendent of Cottage Industries, Cuttack, has offered Rs. 4-8-0 per pound of fine yarn and Rs. 3-6-0 per pound of thick yarn and has undertaken to dispose of a fair quantity of these yarns. The question of spinning cocoons by power is also under investigation, and a consignment of eri cocoons has been sent to Messrs. Lister and Company, Limited, the well-known silk spinners of Bradford at whose factory the cocoons will be converted into different counts of yarn and sent back here. If the yarn produced is satisfactory, it should be possible for large quantities of eri cocoons to be spun into yarn and then woven and sold in the market. If this proves to be feasible, the future of ericulture should be assured.

ENGINEERING SECTION.

92. *General.*—The work of the engineering section consists mainly of the conduct of boring and pumping operations, the systematic inspection and maintenance under the compounding fee system of pumping installations and industrial machinery already at work, the purchase, erection and maintenance of pumping plants suitable for irrigation as well as of industrial machinery, the investigation of applications for loans under the Land Improvement Loans Act and of certain applications under the State Aid to Industries Act.

93. *Staff.*—Mr. L. S. Pinto held the appointment of Industrial Engineer throughout the year except for a period of two months from 6th June to 4th August 1933, when M.R.Ry. N. M. Adyanthaya, Acting Inspector of Industrial Schools, held additional charge of the office of Industrial Engineer. The Industrial Engineer was assisted by four Assistant Industrial Engineers, one in charge of the Industrial Engineering Workshop, Madras, and one each in charge of the Bezwada, Tanjore and Coimbatore divisions, the Industrial Engineer holding direct charge of the Madras subdivision comprising the districts of Madras and Chingleput.

94. *Boring.*—The department maintained 20 power drills (3 Keystone, 3 Calyx and 14 Armstrong) one air compressor drill and 106 hand-boring sets. One of the old Keystone drills had become unserviceable and since the close of the year arrangements have been made to dispose of it by public auction. The following table exhibits the territorial distribution of the applications received for boring, the number of feet bored in each of the divisions and other relevant particulars:—

Division.	Applications pending on 1st April 1933.	Applications received during 1933-34.	Applications disposed of during the year.	Applications pending on 1st April 1934.	Total number of feet bored.		Number of borings put down.	Number of successful borings.
					FT.	IN.		
Bezwada	64	239	240	63	24,360	0	327	238
Coimbatore .. .	21	142	140	23	10,524	11	243	116
Tanjore	10	185	179	16	18,972	4	305	254
Madras	8	59	59	8	8,451	10	172	71
Total ..	103	625	618	110	62,309	1	1,047	679

The total number of borings put down and the depth bored during the year were 1,047 and 62,309 feet, respectively, as against 899 and 53,014 feet, respectively, in the previous year. The number of feet bored during the year was the highest on record, the increase being due to the special efforts put forth to speed up the work and to increase the outturn of the drills. The depth bored would have been greater had it not been for the fact that some of the hand-boring sets and power drills were engaged for long periods on fishing operations and one of the power drills became

unserviceable. During the year under review, Government issued orders laying down that the claims of agriculturists and small scale industrialists for the use of the departmental sets should have precedence over other interests, that the departmental plants should be hired to the public in a certain order of preference, and that enhanced rates of fees should be charged for services rendered to large scale industrialists and railways. It was also ordered that neither the machinery nor the staff should be employed in sinking wells for pleasure gardens or similar amenities and that borings for tapping drinking water supplies should be restricted to rural water-supply schemes intended to serve the public. As a result of these restrictions several applications had to be rejected, and a few boring sets working in the Cuddapah and Mangalore subdivisions became idle for want of work.

95. *Artesian borings.*—At the close of last year, the department had to its credit 60 artesian boreholes. During the year under review, eleven artesian springs were tapped. Of these, seven were in the Bezwada division, discharging fresh water at rates varying from 4 to 300 gallons per minute at ground level, the height of discharge ranging from 2½ to 13 feet above ground level, and four in the Tanjore division, discharging fresh water from 300 to 2,250 gallons per minute, the height of discharge ranging from 4' 10" to 14' 8" above ground level. Special mention may be made of the artesian spring tapped by a hand drill at Neively village, six miles from Uthangalmangalam railway station, Vriddhachalam taluk, South Arcot district, yielding a supply of 2,250 gallons of fresh water per minute at 14' 8" above ground level. As a result of the tapping of these springs, the value of the lands benefited thereby has considerably increased.

96. *Sub-artesian borings.*—The greatest depth of boring completed during the year by a hand-boring set was 515 feet in the East Godavari district, and that completed by a power drill 468 feet in the City of Madras. A boring by a power drill which was in progress for the Zamindar of Kirlampudi at Bobbili went down to 962½ feet—the deepest boring ever put down by a departmental power drill. A very successful 4" boring was put down for irrigation purposes at Thimarla, Sarvasiddhi taluk, Vizagapatam district, up to 358 feet below ground level, the supply of water being 80 gallons per minute at 10 feet below ground level. The party has sunk a well and has installed a 6 h.p. oil-engine and 3" pump. The well commands 10 acres under sugarcane cultivation. The estimated increase of income to the ryot is Rs. 1,000 per annum. Another successful 4" boring was put down for the sugar factory of the Sri Ramakrishna Industrial Co-operative Credit Society at Thummapala, Vizagapatam district, 88 feet below ground level, the supply of water being 120 gallons per minute at 54 feet below ground level. A very successful 4" boring was put down for irrigation purposes at Kothabomma-varipalem, Tenali taluk, Guntur district, the boring going down to 60 feet below ground level in an existing well and the

supply of water being 200 gallons per minute at 15 feet below ground level. The party intends to convert his dry lands into wet and to cultivate paddy over about 20 to 25 acres and he expects to derive an income of about Rs. 2,000 to Rs. 2,500 per annum.

97. *Rural Development Scheme, Tiruvallur, Chingleput district.*—At the request of the Director of Public Health, Madras, a handboring set was placed at the disposal of the Rural Development Scheme, free of hire, for a period of eight months. Three borings were put down on the surface at an average depth of 80 feet each and they all proved successful.

98. *Work of the power drills—P.D. I—An old type Keystone drill.*—This was engaged for the Madras Telephone Company, until the middle of August 1933; the boring went down to 468 feet below ground level mostly through rocky strata and tapped a spring at 68 feet below ground level, yielding a supply of 20 gallons per minute. Though the water was saltish, the company after an exhaustive test was satisfied with the yield of the borehole and purchased the departmental 10 inches and 8 inches pipes inserted in it. After this work was completed, the drill was lent for the work of the Maharaja of Pithapuram at Adyar, the boring put down for the Maharaja proceeding to 282 feet below ground level in rocky strata. As no spring was tapped and the progress with this old power drill was slow, the work was stopped and an Armstrong drill was applied for. The drill was then shifted to Meenambakkam for the work of Messrs. K. Hajee Muhammed Omer Sahib and Company.

P.D. II—An old type Keystone drill.—At the commencement of the year this drill was under repair in the Industrial Engineering Workshop, Madras, on the completion of which, it was deputed to Hospet for the work of the India Sugars and Refineries, Limited. It reached Hospet on 12th August 1933 and work was started a week later. After the 10 inches boring had gone down to 19½ feet, however, the gear wheel gave way. Subsequently the drill was condemned for further work.

P.D. III—Keystone drill was engaged in putting down a 8 inches by 6 inches boring at Musiri, Trichinopoly district. The boring went down to 438½ feet below ground level through rocky strata, springs being tapped at 247½ and 430 feet and the water rising to 17½ feet below ground level. The bore was connected with the adjoining well by a side bore at 26 feet below ground level and the water level in the well and in the borehole remained the same. The drill was subsequently shifted to the Central Jail at Trichinopoly where an 8 inches boring for the jail was put down. The boring had gone down to 74 feet in hard rock by the end of March 1934.

P.D. IV—Armstrong drill.—Two borings were put down with this drill at Thondapadu, Anantapur district. The first boring was a six inches ground boring. Though the total depth

of the bore was 95 feet, only 10 feet were actually bored during the year, and the boring was abandoned as no spring was tapped and the pipes got stuck up. The second boring was an eight inches ground boring and the total depth of the bore was 135 feet. An eight inches chisel got stuck up in this bore and it could not be removed during the year in spite of several efforts to fish out the stuck up tool. Hence this boring also was considered a failure.

P.D. V—Armstrong drill.—This drill was engaged at Shellianallur, Tinnevely district, and a six inches ground boring was put down to a depth of 122 feet from ground level in rocky strata. A spring was tapped with a discharge of 26 gallons per minute at 15 feet from ground level. The water tapped was not however sufficient for the agricultural requirements of the applicant. The drill was subsequently shifted to the Loyal Mills, Limited, Koilpatti, and was engaged in putting down two six inches by eight inches ground borings to a depth of 60 feet and 289 feet from ground level. Springs tapped in the bores were tested and found to yield three gallons and 24 gallons per minute, respectively.

P.D. VI—Armstrong drill.—This drill was engaged at Courtallam, Tinnevely district, and a six inches boring was put down in hard rocky strata to a depth of 298 feet from ground level. The borehole has been lined with six inches pipes to a depth of 29 feet 9 inches from ground level. At the request of the applicant, two blastings were conducted as a result of which a negligible quantity of water was tapped. The drill was also engaged for the work of the Sri Meenakshi Mills, Madura, and a eight inches by six inches ground boring was put down to a depth of 333 feet from ground level in hard black rock. A spring was tapped at 299 feet from ground level and the water rose up to six feet from ground level. The supply was tested and found to yield 18 gallons per minute at 20 feet below ground level.

P.D. VII—Sullivan's Air Compressor drill.—This is not a drill for boring. It can only be used for deepening wells with rocky bottoms by blasting. This set took up two applications during the year. The first one was for quarry work in the Central Jail, Salem. A depth of 188 feet 3 inches was bored. The second one was for deepening a well in the London Mission Training School Compound, Erode, Coimbatore district. Ten thousand cubic feet of rock was removed by drilling 709 holes each to a depth of three feet making a total depth of 2,127 feet. The water supply in the well has been considerably enhanced.

P.D. VIII—Armstrong drill.—Three borings were put down by this drill at Mangalore. The first one was a six inches boring in a well. The total depth of the borehole was 158 feet of which 154 feet was bored during the year. This is considered a successful one, though the yield from the bore could not be tested. The second one was a six inches ground boring. The total depth of the borehole was 222 feet with a yield of 1,000 gallons of water per hour. The water level remained constant at 60 feet below ground level and a Myer's pump worked by a 5 b.h.p electric

motor has been fitted on the bore. The third one was a six inches ground boring. The total depth of the borehole was 232 feet with an yield of 2,000 gallons per hour. The water level was constant at 55 feet below ground level when tested consecutively for three days with a compressed air pump provided by the applicant.

P.D. IX—Armstrong drill.—This drill was engaged for the work of the President, Taluk Board, Kurnool, at Remata. The total depth of the boring put down was 193½ feet of which 84 feet 3 inches was bored during the year in hard granite rock. Further boring was stopped as the drill and boiler required repairs and were therefore despatched to the Industrial Engineering Workshop, Madras, about the end of February 1934. They remained at the workshop at the close of the year.

P.D. X—Armstrong drill.—An eight inches ground boring was put down with this drill at Krishnavaram, Madura district, and it went to a depth of 53½ feet below ground level. Progress was very slow as the drill was in need of repair, and the work was therefore stopped and the drill despatched to the Industrial Engineering Workshop, Madras, for repairs.

P.D. XI—Calyx drill of the rotary core type.—This drill completed the boring for the Adoni Pinjrapole. A four inches boring was conducted in a well 40 feet deep, to 347 feet below ground level. Water level stood at 34 feet below ground level and the supply was four gallons per minute. The water is utilized for drinking purposes. The drill was then shifted to Molagavalli where a four inches boring was put down in a well 18 feet deep up to 147 feet 9 inches below ground level. No spring was tapped and the party stopped the work. As the drill and boiler required repairs, they were sent to the Industrial Engineering Workshop, Madras, about the end of February 1934.

P.D. XII—Calyx drill of the rotary core type.—Two borings were conducted with this drill for Messrs. Lakshmi Rangam Copper Mines, Limited, Bombay, at Garamanpenta, Nellore district, and they went down to 233 feet and 18 feet, respectively. The borings were for prospecting for copper ore which was reported to exist at Garamanpenta. The drill was then deputed for work at Betamcherla, Kurnool district. A boring was put down in a well 44 feet deep to a total depth of 209 feet 9 inches. No spring was tapped and, as the party applied for a free boring and could not pay fees for further boring until orders were passed on his application, the work was stopped and the drill shifted to the next applicant in the same place. A four inches boring was put down to 93 feet below ground level. A spring was tapped at 77½ feet below ground level and it rose up to 30 feet below ground level. The supply from the bore was tested and found to be three gallons per minute. The party has fitted up a hand-pump to utilize the water for drinking purposes. The drill was finally shifted to a site near the Chennakesavaswami temple at Betamcherla for putting down a boring for drinking water supply

for the pilgrims who visit the temple. The boring went down to 10 feet 3 inches below ground level during the year and was still in progress at the close of the year.

P.D. XIII—Calyx drill of the rotary core type.—This drill was engaged in putting down three borings at Thimmancherla, Guntakal and Gooty in the Anantapur district. The first one was a four inches ground boring to a total depth of 252½ feet of which 18½ feet was bored during the year. This was not a very successful boring. The second one was a four inches ground boring to a depth of 27½ feet and it was given up by the applicant as hard granite was met with. The third one was a four-inches ground boring and it had gone down to 85 feet 4 inches by the end of the year.

P.D. XIV—Armstrong drill.—A six-inches ground boring was put down by this drill for Rev. Lemohan adjacent to a well at St. Paul's Seminary, Trichinopoly, and it was taken to a depth of 320 feet through a layer of very hard rock of various colours. The applicant stopped the work at this depth as it was expensive and unfruitful. Four blastings were conducted in the same bore at 65, 145, 225 and 320 feet from ground level with a view to tapping springs without result. The well was deepened by 10 feet and the yield was found to be 1,000 gallons per day of 24 hours from a depth of about 35 feet below ground level. The drill was shifted in December 1933 to Waltair for the work of the Andhra University. The six-inches boring put down by a hand-boring set was enlarged by this drill and the boring had gone down to 95 feet below ground level by the close of the year. It was in progress at the close of the year.

P.D. XV—Armstrong drill.—This drill was engaged in putting down a eight-inches ground boring at Oomerabad, North Arcot district, to a total depth of 74 feet 4 inches, of which 22 feet 4 inches was bored during the year. The yield of the bore was 15 gallons per minute. Due to the breakdown of a jar, the bottom half of the jar with stem rod and chisel got stuck up in the bore and it has not so far been found possible to fish out the tools.

P.D. XVI—Armstrong drill.—This drill was engaged throughout the year for the Zamindar of Kirlampudi at Bobbili and the depth of the boring was 962½ feet at the close of the year. It is proposed to continue the boring down to 1,001 feet. This is the deepest boring ever put down by a departmental power drill.

P.D. XVII—Armstrong drill.—This drill was engaged throughout the year at Sathanagudem, West Godavari district, and the depth of the boring was 465 feet below ground level at the close of the year. The drill was employed for a major portion of the year on fishing operations.

P.D. XVIII—Armstrong drill.—This drill was engaged till the 20th of June 1933 in putting down a boring in the compound of Spencer's Hotel, Madras. The depth of the boring was 256

feet below ground level and the boring was a successful one. After completion of the work, the drill was sent to the workshops for repair and, after repair it was shifted to Hospet in October 1933 to continue the boring put down by P.D. II for India Sugars and Refineries, Limited, Hospet. This boring proceeded down to 263 feet below ground level and the work was completed during the year, the water-level standing at $17\frac{1}{2}$ feet below ground level. The borehole was tested and found to yield a continuous supply of 40 gallons per minute at 33 feet below ground level. The supply is utilized for factory purposes. A second 10-inches boring was put down for the same company and it had gone down to 26 feet below ground level by the end of the year.

P.D. XIX—Armstrong drill.—The drill was engaged throughout the year for the President, Village Panchayat at Gundugolanu, seven miles from Bhimadole railway station. The boring went down to 341 feet below ground level and subsequently the drill was employed on fishing operations.

P.D. XX—Armstrong drill.—The drill and the boiler were undergoing repairs at the Industrial Engineering Workshop, Madras, and, after repairs, were shifted to Madukarai in October 1933. Two borings were put down with this drill at Madukarai, Coimbatore district, for the Coimbatore Cement Company, Limited. The first one was a 10 inches ground boring to 54 feet below ground level, when it could not be continued owing to meeting a cavity in the strata. Then the boring was continued as a six inches one without trouble up to 258 feet below ground level. A good spring was tapped at 12 feet below ground level. This bore was blasted by the applicants with the help of a water diviner with a charge of 200 lb. of gelignite. Then the yield of the bore was tested with an air compressor and found to be 5,000 gallons per hour. The second one was also a 10-inches ground boring and it went to 14 feet below ground level, when on account of loose strata, the boring was continued with eight inches pipes to $53\frac{1}{2}$ feet, the eight inches bore then being taken down to 80 feet below ground level. Further down, a six-inches bore was commenced and had been carried down to 133 feet by the end of the year.

P.D. XXI—Armstrong drill.—This drill was engaged throughout the year for the President, Village Panchayat at Inagallu, 18 miles from Chirala railway station. The depth of the boring was $526\frac{1}{2}$ feet. The drill was employed for a major portion of the year on fishing operations.

99. Torpedoing operations.—There were at the beginning of the year three applications pending, 20 were received and 16 applications were disposed of during the year.

100. Pumping sets.—The department maintains a number of pumping plants for loaning to ryots to pump water to their crops during periods of drought or for well-sinking. The number of

plants so maintained during the year was 33. The number of applications pending at the beginning of the year was eight, 101 were received and 99 applications were disposed of during the year.

101. New investigations.—There were at the beginning of the year, 26 applications for information and advice on hand and 101 were received during the year; of these 115 applications were disposed of.

102. Assistance to agriculturists and industrialists.—New erections.—The department undertakes the erection of machinery and plant on payment of a nominal fee on the capital cost of machinery installed. The number of plants erected during the year was as follows:—

Division.	Pending on 1st April 1933.	Received during the year.	Disposed of during the year.	Pending on 1st April 1934.	Remarks.
Bezwada	4	11	11	4	7 pumping and 4 industrial plants.
Coimbatore	3	18	17	4	9 pumping, 5 industrial and 3 combined plants.
Tanjore	2	9	9	2	3 pumping and 6 industrial plants.
Madras	..	..	..	..	
Total	9	38	37	10	

The capital invested in the above plants, including the cost of the buildings amounted to Rs. 7,355. It may be of interest to record the horse-power of the largest and the smallest plants erected during the year in each division:—

Division.	Largest plant. B.H.P.	Smallest plant. B.H.P.
Bezwada		5
Coimbatore		3
Tanjore		5

The acreage brought under cultivation, and the probable enhanced income accruing therefrom as a result of the pumping plants erected by the department during the year under review are shown below:—

Division.	Acreage brought under cultivation.	Probable enhanced income accruing therefrom. RS.
Bezwada	4	200
Coimbatore	17	3,400
Tanjore	35	1,700

103. *Compounding system.*—Under this system, owners of private installations are entitled to have their plants inspected and overhauled three times a year on payment of a small fixed fee per annum and also at other times if special requisitions are received for which however a small additional fee is charged. The number of plants compounded during the year under review was 522 as against 582 in 1932-33, 634 in 1931-32 and 686 in 1930-31. The following statement shows the number of plants under maintenance in the four divisions:—

Division.	Industrial plants.	Pumping plants.	Combined plants.	Total.
Bezwada	50	46	3	99
Coimbatore	54	91	16	161
Tanjore	117	68	28	213
Madras	13	27	9	49
Total	234	232	56	522

The largest and the smallest plant compounded in the divisions were as follows:—

Division.	Largest size of plant.	Smallest size of plant.	Total approximate horse-power compounded.
	B.H.P.	B.H.P.	
Bezwada	68	$\frac{3}{4}$	2,069 $\frac{1}{2}$
Coimbatore	157 $\frac{1}{2}$	1 $\frac{1}{2}$	2,481
Tanjore	200	1 $\frac{1}{2}$	4,390 $\frac{1}{2}$
Madras	30	5	730

The fall in the number of plants erected and of those compounded is due to tightness of money market and trade depression.

104. *Sugarcane crushing mills.*—At the beginning of the year the department was in possession of six power-driven sugarcane crushing mills, three with engines and three without engines, which are hired to the public for crushing their canes and three more mills were purchased during the year. These sets serve to demonstrate the advantages of power cane crushing over bullock-driven appliances. There was as usual a heavy demand for the use of these mills by the sugarcane growers and all the departmental mills, with engines attached to each, were engaged during the crushing season. One set was lent to Mr. A. T. Akilandam Mudaliyar for work at Chittawadigai, Hospet taluk; 312 tons of cane being crushed and 170 tons of jaggery produced. Another set was lent to Mr. Kamma Thimmappa of Hospet, Bellary district; in this case 100 tons of cane were crushed and 95 $\frac{1}{2}$ tons of jaggery were produced. Another set was hired out to Mr. Thota Ramaswami of Veeravaram, East Godavari district; nearly 14 acres of cane were crushed, 350 pans of juice were extracted and rabbed and 38,500 lb. of sugar manufactured. Another set was lent to Mr. Thota Subba Rao of Kirlampudi and by the end of the year 690 pans of juice had been extracted 10,250 lb. of jaggery

produced, 28,000 lb. of rab prepared and 44,000 lb. or 90 candel of sugar manufactured with the aid of a sugar centrifugal lent free of charge for demonstration purposes by Messrs. Dankaur Engineering Works, Dankaur, Gurukul, Secunderabad.

Sugar manufacture.—The services of the mechanics of the department were lent free of charge to the undermentioned for the purpose of demonstrating the manufacture of sugar with the aid of sugar centrifugals:—

- (i) Udipi Co-operative Agricultural and Industrial Society at Kalyanpur.
- (ii) K. Muhammad Ismail Brothers, Oomerabad, North Arcot district.
- (iii) Manager, P.S.G. and Sons, Charity Industrial Institute, Peelamedu, for demonstration at Udumalpet and Singanailur.
- (iv) President, Co-operative Society, Perundalayur, Coimbatore district.
- (v) Zamindar of Kayapakkam, Chingleput district.
- (vi) Thota Subba Rao of Veeravaram, East Godavari district.
- (vii) Zamindar Sahib of Muthialampadu, Pedapavani, Nellore district.

Departmental sugar centrifugals were lent free of charge to the Udipi Co-operative Agricultural and Industrial Society at Kalyanpur and to Mr. Doraiswami Ayyar of Vellore for the manufacture of white sugar. Experiments in preparing sugar from date juice were conducted by the department at Pedapavani, Nellore district, with the aid of a departmental centrifugal machine and an oil-engine. Good quality sugar was produced and exhibited at the Nellore Agricultural and Industrial Exhibition and Cattle Show, held in October 1933, by the Zamindar Sahib of Muthialampadu.

105. *Demonstration of sugar manufacture at Vedrupaka, Ramachandrapuram taluk, East Godavari district.*—The Government sanctioned during the year a proposal to demonstrate to the ryots at Rayavaram village, East Godavari district, the working of a sugarcane crushing plant and sugar centrifugal and sanctioned an expenditure of Rs. 250 for the purpose. The actual venue of the demonstration was Vedrupaka, a village about a mile from Rayavaram, as the ryots of Rayavaram expressed their inability to meet the incidental charges and render the necessary facilities while the ryots of Vedrupaka were willing to do so. As Messrs. Burn and Co. Ltd., desired that a mill of theirs should be demonstrated free of charge in some suitable area, their offer was availed of for the demonstration. A departmental oil-engine and sugar centrifugal were also used. The total quantity of cane crushed was about 90,123 lb. and the total quantity of juice obtained was 51,278 lb. out of which 44,596 lb.

were converted into rab and the balance used for mixing with molasses and for the manufacture of jaggery and molasses rab. The quantity of rab obtained was 9,323 lb., the quantity of sugar manufactured—good quality sugar—was approximately 3,850 lb. and the total quantity of molasses jaggery obtained was 4,781 lb.

106. *Bone disintegrating unit.*—A considerable quantity of bones which could advantageously be utilized in enriching the soil is either wasted or exported from this country, the average annual export of bones from the Madras Presidency being approximately 4,550 tons. A comparatively small quantity of bones is crushed in factories but the resulting meal is largely exported. Government therefore approved my proposal that an itinerating unit, consisting of a bone disintegrator mounted on a trolley and drawn and worked by a crude oil tractor should be purchased in order to provide facilities to the ryots to get the bones collected and stored by them disintegrated. The purchase of the unit was effected during the year and the subordinates of the engineering branch were instructed to give wide publicity in the villages to the utility and purpose of the bone crushing unit during the course of their tours. The bone crushing operations were inaugurated during the year at Chunampet and Cheyyur in the Chingleput district, the total quantity of bones crushed being 36 tons and 2½ cwt., and the receipts amounting to Rs. 361-4-0 at Rs. 10 per ton.

107. *Services rendered to co-operative societies.*—Assistance was rendered by the department to several co-operative societies on a variety of engineering matters. The following are instances where services were rendered to co-operative societies :—

- (a) A handboring set and a pumping set were lent to the Sri Ramakrishna Industrial and Co-operative Society, Thummapala, Vizagapatam district.
- (b) A sugarcane mill and a sugar centrifugal were lent to the Udipi Co-operative Agricultural and Industrial Society at Kalyanpur.
- (c) A boring was put down for the Co-operative Town Bank, Limited, Hindupur.
- (d) The erection of a huller, an engine and a sugar centrifugal was undertaken for the Agricultural Co-operative Society, Melshanankuppam.
- (e) An engine was lent free of hire to the Perundalayur Co-operative Society, for running a sugarcane mill and sugar centrifugal.
- (f) The plants of the following societies in the Coimbatore and Tanjore divisions were under departmental supervision during the year :—

Agricultural Co-operative Society, Melshanankuppam.
Udipi Co-operative Agricultural and Industrial Society, Kalyanpur.
Co-operative Society, Kallakurichi.
Co-operative Society, Sankarapuram.

Co-operative Society, Rishibandan.
Co-operative Society, Nangavaram.

108. *Services rendered to departments of Government.*—During the year under review, the value of services rendered to the Agricultural, Revenue, Public Works, Jail, Forest, Educational, Medical, Fisheries, Labour, Excise, Judicial, Health, Electricity and Registration departments in the various divisions amounted to Rs. 11,519-6-11 as detailed below as against Rs. 8,575-15-10 in 1932-33 :—

Division.	Value of services rendered.		
	RS.	A.	P.
Bezwada	4,290	3	8
Coimbatore	2,510	12	0
Tanjore	3,923	7	3
Madras	795	0	0
Total ..	11,519	6	11

109. *Loans for purchase of pumping plants.*—During the year under review, 34 applications were disposed of, of which 30 were either withdrawn or rejected and four loans of an aggregate amount of Rs. 11,200 were sanctioned. The amount actually disbursed during the year was Rs. 4,172-10-6. Of the loans sanctioned, three were in respect of applications from the Coimbatore division, and one from the Tanjore division.

110. *Industrial Engineering Workshops.*—In the departmental workshop at Washermanpet, the machinery employed by the pumping and boring and other branches of the department is maintained and repaired. Work is also executed for private owners of compounded installations, experimental work is conducted and tests are carried out of new boring tools and departmental plants manufactured or repaired at the workshop. The workshop employs a number of apprentices who attend classes in the Government School of Technology, Madras, in order to supplement their practical training by a theoretical course of study. The total value of work orders executed in the workshops for various departments and for private persons during the year under review is shown below :—

Details of work done under different heads.	Amount realized.		
	1933-34.		1932-33.
	RS.	A.	P.
1 Pumping and boring ..	70,541	7	6
2 Inter-departmental ..	158	2	0
3 Other Government departments ..	125	0	0
4 Private parties ..	993	8	0
5 Workshop maintenance.	4,904	6	0
	76,722	7	6
			69,711

The working of the concern during the year 1933-34 resulted in a net loss of Rs. 10,287-14-11 as against a loss of Rs. 15,000 in 1932-33.

INDUSTRIAL EDUCATION.

111. Mr. N. M. Adyanthaya acted as Inspector of Industrial Schools from the commencement of the year till the return from leave of Mr. W. Fyfe who resumed his duties as Inspector of Industrial Schools on 1st November 1933. Mr. Fyfe continued in the post until 3rd January 1934 when he was appointed Chief Inspector of Factories, as a temporary measure, for a period of three months and Mr. Adyanthaya again acted for him. The Inspector of Industrial Schools continued to act as Secretary to the Board of Visitors to the Government Industrial School, Madura, as a member of the Board of Examiners of the Government Fisheries Training School, Calicut, and as official visitor to eleven central jails and the Senior Certified School at Chingleput.

112. *State Technical Scholarship*.—The three scholars who were undergoing training in the previous year (vide paragraph 19 of the report for the previous year) having completed their courses of study, the undermentioned three fresh scholarships of the value of £216 each per annum tenable in each case for two years were awarded during the year for the study of the subjects noted against their names.

Name.	Subject of study.
1 G. S. Siddappa	Canning.
2 M. Moinudin	Sugar manufacture.
3 N. Venkatayya	Bye-products of the sugar industry.

113. *Scholarships tenable at the Victoria Jubilee Technical Institute, Bombay*.—There were five scholars under training at the beginning of the year of whom four completed their courses of study at the end of the year, one in textile manufacture, two in technical and applied chemistry and one in sanitary engineering and plumbing. No fresh scholarships were awarded during the year. In view of the fact that facilities now exist in this Presidency for training in certain of the subjects for the study of which scholarships have hitherto been awarded, and that the majority of the Madrasses trained so far in the Bombay institute are employed outside the Presidency, it has been decided that the award of fresh scholarships at the Bombay institute should be temporarily suspended and that the funds rendered available should be utilized for giving training in industrial subjects in which there is a greater prospect of the students on completion of their training finding immediate employment in this Presidency.

114. *Scholarships tenable at the Benares Hindu University*.—Government having decided to discontinue the award of scholarships for Electrical Engineering in the Benares Hindu University in view of the provision of facilities for training in the subject in

the Engineering College, Guindy, no fresh scholarships were awarded during the year. Of the five scholars under training in this University one completed his course during the year and the scholarship awarded to another was held in abeyance owing to continued illness.

115. *Scholarships tenable at the Harcourt Butler Technological Institute, Cawnpore*.—One scholarship of the value of Rs. 60 per mensem tenable for two years was awarded during the year for training in sugar technology, in addition to the two awarded in the previous year, the scholarships tenable at the Victoria Jubilee Technical Institute, Bombay, having been diverted for this purpose. A subsidy of Rs. 200 per annum on behalf of each student under training in the Cawnpore institute is paid to the Government of the United Provinces.

116. *Post-Graduate Scholarships tenable at the Indian Institute of Science, Bangalore*.—Two scholarships tenable for a period of two years were awarded during the year for Electrical Technology. The number of scholars under training in the institute at the beginning of the year was 11 as shown below:—

Electrical Technology	5
Bio-Chemistry	2
General and Inorganic Chemistry	3
Organic Chemistry	1
	—

Of these, five completed their courses of study during the year and one was awarded a state technical scholarship for 'Canning' tenable in the United Kingdom for two years from October 1933. The tenure of one of the scholarships was extended by another year to enable the scholar to complete the researches on sugar problems on which he has been engaged for some time.

In view of the development of the sugar industry in this Presidency and of the need for the training of the sugar technologists that are likely to be required for the sugar factories in course of erection or under contemplation, Government sanctioned during the year the award, from the year 1934, of two additional scholarships of the value of Rs. 60 each per mensem tenable in the Indian Institute of Science, Bangalore, for the study of "Chemical Engineering with special reference to sugar technology," two of the scholarships tenable in the Victoria Jubilee Technical Institute, Bombay, being temporarily diverted for this purpose. The course will extend over two years and be mainly practical in character.

117. *Scholarships tenable at the Indian School of Mines, Dhanbad*.—As stated in paragraph 124 of the previous report the award of fresh scholarships for study in Mining Engineering and Geology has been discontinued. Of the four scholarships awarded since 1928-29 for study in this institution two have already completed their training and two were under training during the year.

✓ 118. *Scholarships tenable at the Jamshedpur Technical Institute.*—The annual contribution of Rs. 6,000 made by the Madras Government to this institute since 1927–28 having been discontinued from 1930–31, no fresh students from this Presidency have been selected for training since then. Of the twelve students selected for training since the institution of this scheme, nine have so far completed their training and it is understood that all of them have been absorbed in the works establishment of the Tata Iron and Steel Co., Ltd.

119. *Industrial scholarships.*—Under the provisions of Chapter IX of the Code of Regulations for Industrial Schools, sixty new scholarships tenable in each case for a period not exceeding five years and ranging in value from Re. 1–8–0 to Rs. 7–8–0 per mensem were, as usual, awarded with effect from 1st July 1933, to pupils learning trades in various recognized industrial schools in this Presidency. A bonus equivalent to two months' average scholarship was also granted to such of the pupils as had satisfactorily completed the courses of study during the year.

120. *Government School of Technology, Madras.*—M.R.Ry. M. V. Jagannatha Ayyangar, Senior Lecturer, acted as Principal of the school throughout the year during the absence of M.R.Ry. N. M. Adyanthaya Avargal, on other duty and also on leave. M.R.Ry. M. V. Jagannatha Ayyangar also held additional charge of the post of Senior Lecturer.

Admissions.—There was a very large number of applications for admission during the year, particularly to the Electrical Engineering section, but it was considered advisable in the interests of efficient instruction to restrict admissions. The number of new admissions during the year was 397 as against 470 in the previous year, of which 179 were admitted to the Electrical Engineering section, 76 to the Mechanical Engineering section, 43 to the Printing course, the remainder being distributed among the various other courses such as Electrical wiring, Plumbing and Vernacular drawing classes. The strength of the school on the 31st March 1934 was 927. The average number of classes held during a week increased from 87 in the previous year to 97 during the year under review.

Examinations.—The L.M.E. and L.E.E. diploma examinations were as usual conducted by a Board of outside examiners consisting of Messrs. A. Vassie, of Messrs. Massey & Co., Ltd., and E. G. Bowers of the Madras Port Trust. Eleven and fourteen students qualified for the L.M.E. and L.E.E. diplomas, respectively. Messrs. P. V. Chari, Electrical Engineer to Government and J. Meek of the General Electric Co., Ltd., conducted the Electric Wiring Competency examination; 58 students including private candidates appearing for the examination and 17 being awarded competency certificates. Mr. W. H. Warren, Secretary of the Christian Literature Society, Madras, was the examiner in printing, Mr. V. N. Rangaswami of Messrs. Burmah-Shell

Company for Plumbing and Mr. B. R. Cooper, Chief Draftsman, Madras and Southern Mahratta Railway for the Vernacular Drawing classes. Sixty-six candidates appeared for the examinations and 47 qualified themselves for the certificates. The school continued to be the centre for the examinations of the City and Guilds of London Institute for which examinations 232 candidates from all over the Presidency appeared and 90 came out successful, one of the students of the school taking the first rank in typography (Grade II, section 1) and also winning a cash prize and a bronze medal awarded by the institute.

Scholarships.—In addition to the 12 Government scholarships the Commissioner of Labour awarded scholarships to 12 students while the Trustees of the Sri Venkateswara Students' Hostel were pleased to increase the number of scholarships tenable in the school from 9 to 12 during the year. One Mechanical Engineering student of the school was the recipient of the Coorg scholarship of Rs. 15 per mensem and another Electrical Engineering student received a scholarship of Rs. 8 per mensem from the Dhabolkar Scholarship Board, Bombay. The Silver Wedding Fund Committee, New Delhi, also awarded two scholarships to two students of the school. Several other students also received monthly scholarships from private trusts.

Printing classes.—In pursuance of the recommendations of the Royal Commission on Labour, the Printing section was reorganized. Three different courses have been introduced, one for compositors and proof-readers, another for machine minders and the third a diploma course intended for those who have completed the first two courses. The syllabus of instruction for the course was revised in consultation with the various printing organizations in the City and the equipment was strengthened by the installation of additional machinery. It is hoped that the industry will take the fullest possible advantage of the facilities now afforded by the school.

Career of ex-students.—One of the passed students proceeded to England to further his studies in Mechanical Engineering, whilst the majority of the others are believed to have found employment in various industrial concerns. It is understood that the majority of the passed students in Electrical Engineering have secured suitable employment in private firms, railways or Government.

121. *Experiments.*—The following experimental work which was in progress in the previous year were completed during the year under review:—

- (1) Erection and testing of bone disintegrator.
- (2) Setting up of machinery for the manufacture of school slates.
- (3) Improvements to husk burning furnace and coal coke oven.

The following experiments were still in progress at the end of the year :—

- (1) Evolution of a groundnut decorticator.
- (2) Evolution of sunnhemp fibre decorticator machine.
- (3) Evolution of a suitable machine for extraction of cashew-nut oil.
- (4) Evolution of a suitable household lamp for burning vegetable oils efficiently.
- (5) Experiments with Parker Gas Producer plants.

122. *Preparatory section.*—This section of the school which was working on a temporary basis was made permanent with effect from 1st April 1933. The number of new admissions was 50 as against 45 and the strength of the section at the close of the year was 109, as against 115 in the previous year. Twenty-two students appeared for the annual examination and 21 of them came out successful.

123. *Perambur branch school.*—This branch school attached to the Madras and Southern Mahratta Railway Company functioned satisfactorily during the year. The number of new admissions in various courses was 27 as against 67 and the total strength of the school was 175 as against 199 in the previous year. The decrease in strength was due to the restriction in admissions as a measure of economy by the railway company. The final examinations were, as usual, conducted by the railway officials and 14 students came out successful.

124. *Government Industrial School, Madura.*—M.R.Ry. P. Govinda Menon acted as Superintendent in the school until the 23rd July 1933 when he was transferred to Calicut. M.R.Ry. V. Raghava Ayyar who assumed charge on 3rd August 1933 continued as Superintendent during the remaining portion of the year and was eventually confirmed in the post in December 1933 consequent on the demise of M.R.Ry. V. Rama Rao, the permanent Superintendent of the school.

Admissions and withdrawals.—During the year 34 candidates sought admission to the school out of which 29 were selected but only 16 actually joined the school. There were 12 withdrawals during the year and the strength of the school at the end of the year was 76 as against 81 in the previous year and 83 in 1932.

Examinations.—The annual and final examinations were conducted in June 1933 by a Board of Examiners consisting of Mr. J. H. Dickson, Superintendent of Pasumalai Trades School, and Mr. A. Carnie, Chief Engineer, Madura Mills, Limited. Of the 77 students who appeared for the examinations, 75 were declared to have passed. Seven final-year students who satisfactorily completed their training in the metal work and carpentry sections were awarded certificates.

Board of Visitors.—The term of the members of the Board of Visitors for the school having expired on the 31st March 1933, it

was extended for the further period of three years from 1st April 1933. The Board met once during the year.

Hostel.—The hostel attached to the school continued to function satisfactorily. Three separate messes are run and their present strength is 44 consisting of 8 in vegetarian mess and 36 non-vegetarian messes. The vegetarian mess is being managed by the warden while the others are managed by the boys themselves. The mess charges do not exceed Rs. 9 per head per mensem.

Financial condition.—In spite of the drastic retrenchments effected in the previous year the volume of work carried out by the school was almost maintained, though the depleted staff had to work overtime and on holidays to cope with the work. A fairly large number of orders for furniture and metal work were executed for Government departments, local bodies and the public during the year. The receipts and expenditure of the school for the year under review and the previous year were as follows :—

		Receipts.	Expenditure.	Net cost.
		RS.	RS.	RS.
1932-33	:: :: :: ::	27,038	39,314	12,276
1933-34	:: :: :: ::	24,523	29,230	4,707

It will be observed that the net cost to Government of running the institution was only Rs. 4,707 as against Rs. 12,276 in the previous year—a result which can only be regarded as very satisfactory indeed.

125. *New Government schools.*—The Government Industrial Schools at Calicut and Bellary and the Trade School at Mangalore continued to function satisfactorily. The first batch of students who were admitted to the five-year courses completed their training after the close of the year. The schools are still on a temporary basis, Government having sanctioned their retention up to the end of March 1935, but as they have justified their existence proposals for their permanent retention will be submitted for the consideration of Government in connexion with the budget for 1935-36. The strength of these schools on 31st March 1934 was, Bellary 69, Calicut 50, and Mangalore 66. The woodworking machinery which was transferred from the Forest Department to Calicut was erected during the year and found very useful in providing practical training for the students of the woodworking classes. The Boards of Visitors constituted for each school met once during the year.

The receipts and expenditure of these schools for the year under review were as follows :—

		Receipts.	Expenditure.
		RS.	RS.
Calicut	:: :: ::	8,230	22,291
Bellary	:: :: ::	7,241	16,750
Mangalore	:: :: ::	1,078	10,236
Total	::	16,549	49,277

The net recurring cost of these schools amounted to Rs. 32,728 as against 39,392 in the previous year.

126. *Aided industrial schools.*—The Inspector of Industrial Schools continued to supervise the non-textile schools, while the Assistant Director of Industries (Textiles) continued to supervise the textile schools. The C.M.S. Industrial School, Vidyanagar, the Anbian Industrial School, Arumuganeri and the Methodist Mission Industrial School for Women, Dharapuram, were recognized by the department during the year. In addition to the schools managed by the department direct, there were on the 31st March 1934, 69 recognized schools. At the end of the year there were 6,199 pupils under training in these schools, as against 5,975 in the previous year. Of these, 2,722 were Indian Christians, 1,657 Non-Brahman (Hindus), 600 Brahmans, 520 Depressed Classes, 318 Muhammadans, 144 Europeans and Anglo-Indians, 31 Criminal tribes, 15 Aborigines and hill tribes, one Buddhist and 191 others. A sum of Rs. 87,708 was distributed in the form of maintenance grant (including Rs. 4,196 capitation grant), representing an average of Rs. 14-2-0 per pupil per annum for the Presidency as against Rs. 14-8-0 in the previous year. A further sum of Rs. 19,132 was distributed as equipment and Rs. 11,425 as building grant to some of the schools. The teachers training sections attached to the St. Joseph's Industrial School, Tindivanam, the C.S.M. Girls Industrial School, Madras, and the American Mission Industrial School for Women, Palmaner, continued to function satisfactorily.

127. *Revision of grant-in-aid system.*—A reference was made in the report of the previous year to the revision of the system under which maintenance grants are distributed to the aided schools, with a view to securing greater efficiency and economy in the administration of such grants and the orders of Government were received in January approving the revised system which has been brought into force since the close of the year.

LEATHER TRADES INSTITUTE, MADRAS.

128. *Staff.*—M.R.Ry. P. K. Rajamanikkam Nayudu continued as Superintendent of the institute, and M.R.Ry. K. Seshachallam Chowdhury as Leather Research Chemist throughout the year.

129. *Visits to tanneries.*—The Superintendent visited several of the tanneries in and around Madras, and also some at Coimbatore, in order to demonstrate to tanners on the spot the advantages of improved methods. During the course of these visits advice was given in regard to the manufacture of roller skins, sole leather and gin washers. The manner in which imported synthetic tans could be used to the best advantage was also demonstrated. A number of local tanners visited the institute during the year and advice was sought and given in regard to the preparation of cheap chrome liquors for the manufacture of linings and sole leather, the processes to be adopted in the manufacture

of roller skins, the installation of leather machinery and the preservation of raw hides and skins for export. The Superintendent also gave advice in regard to the lay out of tanneries.

130. *Experiments.*—Experiments on the effect of using synthetic tans with different proportions of avaram bark and at different stages of the tanning processes continued to be carried on during the year. Many new synthetic tans are coming on to the market and these have to be experimented with before advice can be given in regard to their merits and use. The experiments on the soaking of dry hides were also proceeded with. Dry hides were soaked with the addition of different chemicals, sodium sulphide, caustic soda, chlorine, perchloron, etc., in various strengths and at different periods in order to note the soaking effect and also the difference in weight gained by dry hides during the various processes of liming, etc. A comparative study was made of the swelling and plumping effect of the use of a new lime which had been placed on the market and ordinary shell lime. Experiments with a view to the production of a better class of roller skins from Madras tanned skins were carried out. The bacteriological condition of Anthrax on dry skins for export was examined in the Veterinary College Laboratory and slides were prepared in order to note the formation of the bacteria; the microscopic examination of the sections of pelt and leather has also been taken up.

131. *Past students.*—Most of the past students of the institute are running tanneries or businesses of their own or are acting as managers of tanneries in various parts of India, Ceylon and Straits Settlements. The Industrial Leather Company, Madras, which was started by two past students of the institute, has developed an extensive business in the manufacture of chrome gin washers. Another student who was previously working in a tannery at Trichinopoly has secured an appointment as manager of a tannery in Secunderabad.

132. *Leather Research Chemist.*—The Leather Trades Institute contains a laboratory in which all the chemical work of the department, other than that connected with the oils and fats industry is carried out, Mr. Seshachallam Chowdhury functioning as the departmental industrial chemist in addition to his duties as Leather Research Chemist. In addition to the conduct of research work, the Leather Research Chemist carried out a number of analyses of water from tanneries, tanning materials, tanning liquors and leathers, etc. Of the 86 samples of different materials analysed in the laboratory during the year, 70 were of materials used in tanning, comprising 32 of waters used in tanneries, 18 of tanning materials, tannin extracts and tan liquors, 14 of the leathers for adulteration, fat content, ash content, etc., and six of lime and lime liquors.

133. The activities of the Leather Research Chemist in the sphere of leather, apart from the carrying out of the analyses

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referred to in the previous paragraph, are briefly summarized below :—

- (i) *Adulteration of leather.*—It was stated in last year's administration report that the tests hitherto used to determine the adulteration of leather with epsom salts had become difficult of application owing to the growing use of synthetic tannins in Madras tannages, and that further experiments had therefore been taken up with a view to determining the presence of epsom salts in leather tanned with syntans. In view of the number of syntans used in the trade it has become necessary to make a systematic study of the bleaching of tanned skins with syntans in order to achieve the object of the experiments, and owing to the preoccupation of the Leather Research Chemist on other work it was not possible to continue the experiments until shortly before the end of the year.
- (ii) A tanner wished to ascertain the difference between an advertised tanning substance and a synthetic tanning material very popular with Madras tanners. Experiments were conducted on these two products and the difference between the two explained to the enquirer.
- (iii) The Leather Research Chemist investigated the PH and other technical details of tan liquors in the tannery of Messrs. Jamal Moideen Sahib & Co., Thangal, and analysed a series of tan liquors—starting from the oldest to the most fresh liquor—besides determining the acidities and colours of the liquors. These results, along with certain others, go to show that the constituents and properties of the series of tan liquors in the different tanneries of the Presidency producing prime tanned skins for export require to be carefully studied, starting from the raw skins water and tanning materials used, in order to arrive at a standard which can produce Primes.
- (iv) The Leather Research Chemist visited Mr. N. Mohamed Mian Rowther's tannery at Palakarai, Trichinopoly, in order to demonstrate the official method of the International Society of Leather Trades Chemists of analyses of tanning materials and tan liquors, and to determine the refractive index of a few samples of oils with the Abbe's Refractrometer with a view to determining the degree of purity of the samples of oils. Several kinds of bleach liquors were also prepared and the colour and PH of these liquors determined as also the degree of bleaching of each liquor. Experiments were also carried out in order to see if any tannin diffuses out of the tanned skins when put in the bleaching liquors. The water used in the tannery was found to be slightly alkaline in addition to having a temporary hardness. The question of overcoming this alkalinity and temporary hardness of the water was under investigation at the close of the year.

134. *General chemical work.*—The carrying out of analyses and chemical experiments, and of special investigations in which industrial chemistry plays a predominant part now absorbs a not inconsiderable proportion of the time of the Leather Research Chemist who dealt with about 90 chemical inquiries during the year. These included requests for information in regard to the preparation of jaggery, sugar and sugarcandy, manufacture of coir from coconut husks, chemicals required for the manufacture of matches, preparation of alcohol from molasses and rice, preparation of absorbent cotton, manufacture of sand and emery paper and of black paint for slates, etc. Sixteen samples of different industrial materials and water were analysed in the laboratory during the year.

135. *Preparation of sealing-wax.*—The Superintendent of Prisons, Madras, had been supplying sealing-wax to the Superintendent of Stationery, Madras, but it was found to be unsuitable and the department was asked whether it could supply a recipe which would enable a better quality of sealing-wax to be produced at a cost of not more than As. 2-3 per pound. Experiments were carried out by the Leather Research Chemist and the Superintendent of Prisons was supplied with four recipes. A sample prepared according to one of the recipes was accepted by the Superintendent of Stationery, and the Superintendent of Prisons was asked to supply 10,000 lb. of this sealing-wax before the end of the year. It was also arranged that the Leather Research Chemist should periodically inspect the manufacture of sealing-wax in the Madras Penitentiary.

136. *Sunnhemp retting.*—The importance of Indian sunnhemp fibre establishing itself firmly in the British market where it is employed for the manufacture of such articles as ropes, cables, twines and nets has been brought into prominence in recent years as a result of the investigation conducted by the Empire Marketing Board. It has been found that the crude and careless methods of cultivation, harvesting, retting and improper grading of sunnhemp stand in the way of the more extensive use in the United Kingdom of Indian sunnhemp and lower its market value. The question to be first examined is that of retting, the question of grading coming in at a later stage. Arrangements were made during the year for the growing of sunnhemp in the compound of the Leather Trades Institute and for the study of the methods of retting under varying temperatures in order to determine the most suitable condition for retting. A study was carried out in the laboratory during the year on (i) the temperature of the water, (ii) the effect of changing of water, (iii) the quality of the water and (iv) the duration of the retting period. These experiments were repeated on a larger scale at the Agricultural Research Station, Koilpatti, Tinnevely district, shortly before the end of the year.

137. The Leather Research Chemist was in charge of the teaching of general chemistry to the first-year students in the

Government Textile Institute. This consisted of two lectures and four hours' practical work per week in addition to correcting periodically the record books of about 30 students.

SCHOOL OF ARTS AND CRAFTS, MADRAS.

138. *Staff*.—M.R.Ry. D. P. Roy Chowdhury was in charge of the school during the year.

139. *Strength and attendance*.—The number of students on the rolls on 31st March 1934 was 266 as against 271 in the previous year. The average attendance during the year was 222. The percentage of attendance during the year was 78 as against 79 in the previous year, the small decrease being attributable to the absence of some of the students owing to ill-health.

140. *Departments of the school*.—The steady progress in all the departments of the school recorded in the last year's report was well-maintained during the period under review, the students evincing a keen interest in their work. Designs for the various articles manufactured in the school are prepared by the Principal, the senior teacher and other members of the staff and supplied to the students, many of the articles being executed independently by the students who are also trained to produce original designs of their own in their respective spheres of work. Experiments on cotton printing and painting, and on lacquer work were continued and improved results were obtained. A reference was made in the last year's report to the initiation of experiments on enamelling on gold and silver and other metals, and Mr. V. R. Chitra, the senior teacher, has prepared some excellent enamelled articles designed either by himself or the Principal. The enamelled articles turned out in the school are becoming very popular with the public and the demand for them is steadily increasing. When an electric lathe and furnace now under supply are installed in the school the scope and usefulness of the enamelling section will be still further increased.

141. *Fine Arts section*.—The Fine Arts section of the school has again made excellent progress during the year, the students producing some excellent specimens of work in painting and sculpture many of which were exhibited at the annual School Exhibition and the Madras Fine Arts Society's Exhibition held in the months of January and March, respectively. A considerable number of the student's pictures were sold to the public and several students were awarded money prizes by the Madras Fine Arts Society.

142. *Examinations*.—The results of the various Government Technical examinations during the year are shown below with the comparative figures in respect of the two preceding years :—

		Number appeared.	Number passed.	Per cent.
1931-32	.. .. .	34	20	59
1932-33	.. .. .	31	21	73.5
1933-34	.. .. .	18	12	67

The results may be considered satisfactory especially if regard be had to the fact that no special facilities are now provided in the school for the students who appear for these examinations. The Grigg Memorial Gold Medal, awarded by the Director of Public Instruction to the one who stands first in the Presidency in the painting examination—higher grade—was won by George De Souza, a student of the Fine Arts section of the school. The annual school examinations were conducted early in the year and the students of the arts and crafts sections who left the school after completing their training and passing the examinations were for the first time awarded diplomas. Devalinga Pathar, a student of the Modelling section of the Fine Arts class who stood first in the Modelling examination, final year, was awarded the Cotton Memorial Prize by the Victoria Technical Institute.

143. *Stipends and scholarships*.—The stipends and scholarships awarded to students in the school from various sources is 93 as shown below :—

(i) Adi-Dravida stipends	.. .. .	66
(ii) School stipends	.. .. .	15
(iii) Victoria Technical Institute scholarships	.. .. .	8
(iv) Hyderabad State scholarships	.. .. .	2
(v) Sri Venkateswara Hostel scholarship	.. .. .	1
(vi) Mayurbanj State scholarship	.. .. .	1
		—
Total	.. .. .	93
		—

144. *Financial statement*.—The expenditure for the year amounted to Rs. 43,560-13-7 against Rs. 40,880-11-6 and Rupees 46,577-12-3 in the years 1932-33 and 1931-32, respectively. The net cost of the school was Rs. 34,606-2-2. The annual stock verification of the school was conducted by the Sericultural Expert.

145. *Exhibitions*.—The annual exhibition of Fine and Applied Art representative of the work of the students and staff of the school was held between the 23rd January and 4th February 1934, and was, as in the previous year, attended by His Excellency the Governor of Madras and Lady Stanley and by a number of other distinguished persons. The visitors to the exhibition were very numerous and articles valued at Rs. 2,588 were sold of which the paintings of the students alone accounted for Rs. 1,588. The exhibits included drawings, paintings, and sculptures, etchings, wood engravings, die cutting and copper plate engravings, jewellery and metal work, book covers, ladies hand-bags and letter-cases, hand-tooled and hand-painted on leather, as well as carved furniture and suites of furniture of original and modern design suitable for Indian homes. The quality of the work of the various exhibits seems to have been generally recognized by the public.

PROGRAMME OF WORK FOR 1934-35.

I. Engineering section.

146. (a) Further endeavours to be made to increase the depth bored during the year and to reduce as far as possible the cost of boring.

(b) Continuance of demonstrations and propaganda in connexion with the manufacture of sugar with centrifugal machinery.

(c) Conduct of experiments of the manufacture of sugar from palmyra juice in the Tinnevely district.

II. Education section.

(a) Introduction of the revised scheme on which recurring grants are given to industrial schools, and the revision of the Code of Regulations for Industrial Schools to suit the changed conditions.

(b) Formulation of proposals for the permanent retention of the Industrial Schools at Bellary and Calicut, and the Trades School at Mangalore.

(c) Drawing up schemes in conjunction with the District Boards of Tanjore and Ramnad for the establishment of industrial schools under the Board's management.

III. Textile section.

If the Government of India's contribution for the organization of the handloom weaving industry is received during the year the textile section will render assistance on the technical side by—

(a) Deputing two textile demonstrators for work in connexion with the productive side of the marketing organization.

(b) Deputing the cloth designer for designing patterns and colour schemes for the various kinds of fabrics to be produced by the weavers.

(c) Deputing the lecturer in textiles and lecturer in textile chemistry to assist middlemen in the districts in starting, sizing, dyeing and finishing factories.

IV. Sericulture.

(a) Production of improved qualities of cocoons by hybridization and arranging for their distribution to rearers on a large scale.

(b) Increasing the quantity of mulberry leaf by cultural and manurial improvements.

(c) Improving the methods of reeling by the supply of cutters.

(d) Rearing of Uni-voltine European worms and hybrid Japanese and Chinese crosses in the Government farms.

(e) Development of Ericulture if a market can be found either for the cocoons or for the spun yarn.

(f) Supplying tested Mysore seed on a large scale to the Peripatetic Weaving Party, Kollegal.

V. Kerala Soap Institute, Calicut.

(a) Continuance of experiments on the refining and deodorizing of oils.

* (b) Blending of vegetable oils and the manufacture of ghee substitutes.

* (c) Conduct of experiments on cashew shell oil and plastics.

* (d) Manufacture of Turkey red oil and Monopole soaps.

* Provided that a subsidy is granted by the Imperial Council of Agricultural Research.

VI. Leather Trades Institute.

(a) Continuance of experiments on the soaking of dry hides.

(b) Conduct of further semi-factory scale experiments on the effect of using synthetic tans with different proportions of avaram bark.

(c) Continuance of the investigations of the bacterial effect in the elangaram process.

(d) Conduct of semi-factory scale experiments on the soaking of dry hides with different chemicals.

(e) Conduct of experiments with a view to the eradication of salt-stains on skins.

(f) Conduct of experiments with a view to the determination of adulteration in the presence of synthetic tannins.

(g) Systematic study of the methods employed in Madras tannages.

VII. School of Arts and Crafts.

Continuance and further development of the experiments on (a) enamelling on gold, silver and other metals and (b) cotton printing by means of blocks.

RECEIPTS AND EXPENDITURE.

147. The following statement compares the receipts and expenditure of the department during the years 1932-33 and 1933-34. Details are exhibited in Appendix I:—

Item.	1932-33.	1933-34.	Decrease — Increase +
	RS.	RS.	
Expenditure	9,59,100	9,13,206	— 45,894
Receipts	1,98,719	1,58,403	— 40,316
Net cost of the department ..	7,60,381	7,54,803	— 5,578

Expenditure.—There has been a slight increase in expenditure under the heads, Direction, District Engineering, School of Technology, School of Arts and Crafts and Sericulture as compared with the figures of the previous year and this is attributable mainly to the removal of the 10 per cent cut during the year. The increase under Grants-in-Aid is due to the larger amounts provided for equipment during the year. The fall in expenditure under Leather Trades Institute is due to the abolition of the post of Leather Expert. During the year a sum of Rs. 68,214 was recovered from Government commercial concerns under capital expenditure and this has more than offset the increase in expenditure due to the removal of the 10 per cent cut and to other causes.

Receipts.—The decrease in the receipts is due mainly to the falling off in the profits earned by the Kerala Soap Institute during the year. The net cost of the department decreased by Rs. 5,578 as compared with the previous year.

APPENDIX I.

Statement showing the Receipts and Charges of the Department of Industries for the year 1933-34.

Receipts.			Expenditure.		
	RS.	A. P.		RS.	A. P.
Pumping and boring	68,451	12 4	A. Direction	1,26,213	13 6
Industrial installations	3,525	8 0	B. District Engineering	3,07,514	6 4
Industrial schools	60,786	2 8	C. Industrial Schools—Grants-in-aid	1,23,878	6 0
School of Arts and Crafts	5,317	8 0	D. " Scholarship	27,642	3 0
Textile Institute	366	13 5	E. Industrial Schools	93,240	7 8
Sericulture	421	1 5	F. School of Technology	1,00,014	9 6
Sugarcane mills	1,182	8 0	G. Leather Trades Institute	23,945	9 5
Printers' ink	1,300	0 0	H. School of Arts and Crafts	43,551	9 7
Rents of buildings	149	14 0	J. Textile Institute	43,518	0 7
Other receipts	4,684	7 3	L. Sericulture	27,360	1 5
Total	1,46,185	11 1	M. Miscellaneous minor experiments—		
Recoveries of overpayments			Experiments on oils and fats at the Kerala		
Collection of payments for services rendered			Soap Institute	7,695	4 6
Profits from Government commercial undertakings			Miscellaneous	4,997	14 6
Kerala Soap Institute	4,765	8 3		9,29,572	6 0
Recoveries of indirect charges from Government	87	8 0	Total	10,287	14 11
commercial undertakings—	9,125	14 9	Loss on Government Commercial undertakings—		
Kerala Soap Institute			Industrial Engineering Workshops		
Industrial Engineering Workshop	4,203	8 0	Expenditure in England—		
Gain by exchange	2,151	12 0	Stores		
			Other than stores		
Grand total	1,66,519	14 1		9,133	5 4
Deduct Refunds	—	8,117 4 4		32,426	10 8
Net Receipts	1,58,402	9 9		9,81,420	4 11
Net cost of the department	7,54,803	5 8	Deduct—		
Total	9,13,205	15 5	Recoveries of investments in Government com-		
			mercial undertakings	—	68,214 5 6
			Total	9,13,205	15 5

N.B.—The figures are purely provisional as they are subject to modification in the March Final Accounts.

APPENDIX II.

Statistics relating to Government and recognized Industrial Schools for 1933-34.

Serial number, name and place of institution.	Number on rolls on 31st March.		Metal working or Engineering trades.		Machine tending.		Wood working trades.		Basket work.		Textiles cotton.		Textiles wool.		Other textile trades.		Lace embroidery and needle work.		Other subjects (specified in remarks column)		Remarks.	
	1933.	1934.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
GOVERNMENT INSTITUTIONS.																						
1 Government Textile Institute, Madras.	80	85	..	..	..	..	..	..	..	..	..	..	..	..	86	..	..	..	..	..	(a) Jewellery. 26	
2 School of Arts and Crafts, Madras.	271	266	33	..	..	..	74	..	..	..	..	..	..	..	..	..	..	..	(a) 159	..	Engraving .. 45	
3 Government School of Technology, Madras.	1,154	927	581	25	..	..	..	..	..	..	..	..	..	..	..	..	..	..	(b) 346	64	Drawing and design .. 43	
4 Government Industrial School, Madras.	81	78	57	..	..	..	21	..	..	..	..	..	..	..	..	..	..	..	..	..	Fine arts .. 30	
5 Government Industrial School, Bellary.	38	58	37	..	..	..	21	..	..	..	..	..	..	..	..	..	..	..	..	..	Advanced Drawing.. 15	
6 Government Industrial School, Calicut.	57	55	32	..	..	..	23	..	..	..	..	..	..	..	..	..	..	..	..	..	159	
7 Government Trade School, Mangalore.	78	56	37	..	..	..	9	..	..	..	..	..	..	..	..	..	..	..	(c) 10	..	(b) Printing .. 62	
AIDED SCHOOLS (BOYS).																						
8 A.A.M. Industrial School, Katpadi.	107	93	8	6	..	..	84	..	..	..	..	..	..	..	..	..	..	..	(d) 1	..	(c) Electrical Wiring 10.	
9 Anjuman Industrial School, Vellore.	75	80	..	..	..	..	80	2	..	..	..	..	..	..	..	..	..	..	..	..	(d) Carving.	
10 Anjuman Industrial School, Melvisharam.	45	52	..	..	..	..	52	..	..	..	..	..	..	..	..	..	..	..	..	..		
11 Anjuman Industrial School, Tirupattur.	23	28	..	..	..	..	28	..	..	..	..	..	..	..	..	..	..	..	..	..		
12 Don Bosco Industrial School, Vellore.	32	25	..	..	..	..	25	..	..	..	..	..	..	..	..	..	..	..	..	..		
13 St. Joseph's Industrial School, Tindivanam.	96	77	7	..	..	..	70	19	..	..	..	..	..	..	..	..	..	..	..	..		
14 Danish Mission Industrial School, Panruti.	81	87	..	..	..	4	60	..	..	..	23	..	..	..	..	..	..	..	..	..		
15 C.S.M. Agricultural School, Chingleput.	69	62	..	..	10	..	..	..	..	..	12	..	..	..	15	..	..	..	(e) 25	14	(e) Poultry farming 25.	
16 A.A.M. Industrial School, Saidapet.	5	26	..	..	..	..	26	..	..	..	..	..	..	..	..	..	..	..	..	..		
17 Victory Memorial School for the Blind, Poonamallee.	29	24	..	..	..	..	..	..	10	5	14	5	..	..	..	..	..	..	..	..		
18 St. Joseph's Industrial School, Coimbatore.	199	230	57	..	..	..	173	19	..	..	..	..	..	..	..	..	..	..	..	..		
19 London Mission Boys Weaving School, Erode.	52	109	..	..	..	..	..	..	..	..	109	..	..	..	..	..	..	..	..	..		
20 P.S.G. & Sons Charity Industrial Institute, Peelamedu.	75	75	45	..	..	..	15	14	5	..	10	..	..	..	..	..	..	..	..	..		
21 Raja's Industrial School, Parakimidi.	26	25	..	..	..	..	25	3	..	..	..	..	..	..	..	..	..	..	..	..		
22 C.B.M. Industrial School, Samalkot.	32	42	..	..	..	..	42	2	..	..	..	..	..	..	..	..	..	..	..	..		
23 U.L.C.M. Rural Reconstruction School, Guntur.	1,817	26	..	..	..	..	..	..	..	..	18	..	..	..	8	..	..	..	..	..		
24 American Mission Cabinet making School, Guntur.	21	27	..	..	..	..	27	5	..	..	..	..	..	..	..	..	..	..	..	..		
25 Commonwealth Trust Engineering Classes, Mangalore.	14	8	8	8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
26 Sri Krishna Parishramalayam, Kavutaram.	22	25	..	..	..	..	25	3	..	..	..	..	..	..	..	..	..	..	..	..		
27 C.M.S. Industrial School, Vidyanagar.	..	50	..	..	..	..	..	..	..	..	19	..	..	..	..	..	..	..	(f) 31	..	(f) 23 Agriculture. 8 Leather work.	
28 St. Joseph's Industrial School, Gunadala.	64	67	5	2	..	..	62	10	..	..	..	..	..	..	..	..	..	..	..	..		
29 Municipal Technical Institute, Masulipatam.	54	85	85	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
30 C.N.T. Institute, Vepery.	416	424	250	115	6	1	32	9	..	..	17	16	..	..	..	..	..	..	(g) 119	..	(g) 7 Electrical Wiring. 112 Drawing. 18 Tailoring.	
31 Anjuman Industrial School, Madras.	93	79	..	..	..	..	43	..	5	..	..	..	..	..	6	..	..	..	18	..		

APPENDIX II—cont.

Statistics relating to Government and recognised Industrial Schools for 1933-34—cont.

Statistics relating to Government Schools																						
Serial number name and place of institution.	Number on rolls on 31st March.	Metal working or Engg. trades.	Machine making.	Wood working trades.	Rattan work.	Textiles, cotton.	Textiles, wool.	Other textile trades.	Lace, Embroidery and needle work.	Other subjects (except those in remarks column).	Particulars as to career of students passed out in last two years.	Remarks.										
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
ANDRD SCHOOLS (BOYS)—cont.	1933.	1934.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.		
32 Orr Asisted Industrial School, Madras.	34	40	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	40 (a) ..	(a) 26 Scientific instrument making, 14=3 B.A.
33 Ramakrishna Mission Industrial School, Mylapore.	21	20	20	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	12 ..	Automobile engineering.
34 Sri Ram Mook School, Madras.	34	12	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11 ..	Printing.
35 The Pentecostary, Madras.	52	53	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
36 Paumalai Trade School, Paumalai.	44	60	16	9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
37 C.S.M. School, Dindigul.	48	51	8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
38 St. Joseph's Industrial School, Ottavannam.	38	56	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
39 St. Thomas's Industrial School, Salem.	20	29	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
40 St. Francis Xavier Industrial School, Mysore.	86	108	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	(b) 44 Band, 43 Tailoring, 18 Masonry, 61 Gardening and agriculture
41 St. Mary's Industrial School, Kumbakonam.	71	74	10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	166(b) ..	
42 Senior Certified School, Chingleput.	295	27	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	166	

43 Municipal Industrial School, Kumbakonam.	80	23	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	(c) 20 Tailoring—8 Binding.
44 Borealis School, Tanjore.	166	120	25	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	(d) Motor Mechanism 7
45 S.P.G. Art Industrial School, Naravah.	114	130	10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	(d) Tailoring 15
46 St. Joseph's Industrial School, Adakalapuram.	65	45	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
47 C.M.S. Industrial School for the Blind, Palamcottah.	61	38	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
48 St. Ignatius Industrial School, Tuticorin.	29	33	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Details not furnished.
49 Annan's Industrial School, Arumuganeri.	..	123	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
50 St. Joseph's Industrial School, Titchinopoly.	69	73	27	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Motor mechanism.
51 Methodist Industrial School, Kavar.	83	92	7	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
52 All Saints Industrial School, Puttur.	35	28	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Motor mechanism.
53 St. Aloysius Industrial School, Vizagapatnam.	25	24	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	

ANDRD SCHOOLS (GIRLS.)

54 Danish Mission Industrial School, Keerthi.	86	32	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	32 2
55 St. Joseph's Convent Industrial School, Bellary.	86	87	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	87
56 C.S.M. Lace School, Chingleput.	71	60	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	60
57 Methodist Industrial School, Ikkanu.	171	119	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	73
58 St. Anthony's Industrial School, St. Thomas Mount.	57	56	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	18
59 A.A.M. Women's Industrial School, Palamalai.	77	70	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	70
60 I.M. Girls Industrial School, Erode.	76	72	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	15
61 Methodist Industrial School for Women, Dharampuram.	..	36	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	36 12

Mat and basket-making.

Cotton Spinning 14
(e) Lacquer Work 4

Statistics relating to Government and recognized Industrial Schools for the year 1933-34.

Serial number, name and place of institution.	Number on rolls on 31st March.		Metal working or engineering trades.		Engine tending.		Wood working trades.		Rattan work.		Textiles cotton.		Textiles wool.		Other textile trades.		Lace embroidery and needle work.		Other subjects (specified in remarks column).		Remarks.
(1)	1933.	1934.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Particulars as to after career of students passed out in last two years.	(22)	(23)
ADDED SCHOOLS (GIRLS)—cont.																					
62 The Immaculate Conception Convent, Coimbatore.	81	80	..	..	..	..	..	..	..	..	..	..	..	..	..	..	80	..	..	..	
63 St. Joseph's Orphanage Industrial School, Guntur.	22	23	..	..	..	..	..	..	..	..	..	..	..	..	..	..	23	7	..	..	
64 C.S.M. Girls' Industrial School, Kilpauk.	53	55	..	..	..	..	..	..	..	..	..	..	..	..	..	..	55	44	..	..	
65 Madras Seva Sadan Industrial School, Chetput.	50	57	..	..	..	..	..	9	..	..	..	..	..	..	..	..	41	..	7(a)	..	
66 St. Bridget Industrial School for Girls, Nungambakkam.	40	40	..	..	..	..	..	..	..	..	..	..	..	..	..	..	40	..	..	..	Enamelling. 2 Lamp shade work. 2 (a) Lacquer work. 3
67 St. Joseph's Industrial School, Madura.	79	61	..	..	..	..	..	..	..	..	..	..	..	..	..	..	40	..	..	..	
68 The Commonwealth Embroidery School, Calicut.	36	35	..	..	..	..	..	..	..	..	..	..	..	..	..	..	61	19	..	..	
69 O.E.L.M. Girls' Industrial School, Gudur.	32	29	..	..	..	..	..	..	..	..	..	..	..	..	..	..	35	3	..	..	
70 Nazareth Convent Girls' Industrial School, Ootacamund.	51	50	..	..	..	..	..	..	..	..	..	..	..	..	..	..	29	5	..	..	
			..	..	..	..	..	..	..	..	..	..	..	..	..	..	50	..	..	..	
71 Leipzig Mission Women's Industrial Home, Mayavaram.	65	37	..	..	..	..	..	..	..	26	8	..	..	..	..	..	3	..	8	2	Mat weaving.
72 B.C. Lace School, Vadaikulam.	51	51	..	..	..	..	..	..	..	..	..	..	..	..	..	..	38	4	13	..	Sericulture.
73 Hindu Girls' School, Mudangulam.	41	40	..	..	..	..	..	..	..	..	..	..	..	..	..	..	40	4	..	..	
74 Holy Cross Convent Industrial School, Tuticorin.	84	78	..	..	..	..	..	..	..	..	..	..	..	..	..	..	78	18	..	..	
75 Methodist Mission Lace and Embroidery School, Karur.	25	15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	15	4	..	..	
76 Holy Cross Convent Industrial School, Trichinopoly.	72	66	..	..	..	..	..	..	..	..	..	..	..	..	..	..	66	10	..	..	
77 Sacred Heart Convent Industrial School, Anjengo.	26	37	..	..	..	..	..	..	..	..	..	..	..	..	..	..	37	1	..	..	

APPENDIX III.

Statistic relating to Government and recognized Industrial Schools for the year 1933-34.

Serial number, name and place of institution.	(1)	(2) Number on rolls on 31st March 1934.	(3) Total recurring cost (excluding expenditure on new buildings and equipment).	Receipts from		(6) Total, columns (4) and (5).	(7) Net recurring cost, column (3) minus column (5).	(8) Net recurring cost per pupil, column (7) + column (2).	Receipts and expenditure to the nearest rupee				(12) Recurring grants from other departments or public bodies.	(13) Total recurring grant, add columns (9), (10), (11) and (12).	(14) Balance or recurring cost met by managers' funds, column (7) minus column (13).	Non-recurring			
				(4) Fees.	(5) Sales.				(9) Maintenance.	(10) Scholarships.	(11) Stipends.	(15) Expenditure on new buildings.				(16) Building grant.	(17) Equipment grant.		
GOVERNMENT INSTITUTIONS.																			
1 Government Textile Institute, Madras.	86	..	..	..	..	..	..	..	2,850	..	..	..	..	..	..	..	..	..	..
2 School of Arts and Crafts, Madras.	266	43,820	260	5,410	5,670	38,160	143	..	5,405	..	..	..	..	5,405	82,745	..	..	..	..
3 Government School of Technology, Madras.	927	99,950	..	..	..	99,950	107	..	2,166	..	..	..	..	2,166	97,784	..	..	..	..
4 Government Industrial School, Madras.	78	29,205	..	21,869	21,869	7,336	94	..	48	..	..	..	..	48	7,288	..	..	..	..
5 Government Industrial School, Bellary.	58	16,949	..	7,241	7,241	9,708	167	..	2,034	..	..	..	..	2,034	7,674	..	..	..	..
6 Government Industrial School, Calicut.	55	11,444	..	8,230	8,230	3,214	58	..	2,594	..	..	..	..	2,594	620	..	..	..	..
7 Government Trade School, Mangalore.	56	10,969	46	687	733	10,236	183	..	..	..	..	..	..	..	10,236	..	..	..	..
AIDED SCHOOLS (BOYS).																			
8 A.A.M. Industrial School, Karpadi.	93	74,387	..	1,264	1,264	73,123	786	3,500	150	..	..	..	..	3,650	69,473	..	..	..	450
9 Anyman Industrial School, Vellore.	80	7,078	..	864	864	6,224	78	2,450	580	..	..	..	..	3,080	3,194	..	..	..	729
10 Anyman Industrial School, Melvisharam.	52	9,494	..	2,900	2,900	6,594	126	1,290	142	..	..	..	..	1,432	6,102	..	..	..	820
11 Anyman Industrial School, Thrippettur.	28	3,587	..	135	125	3,462	124	650	114	..	..	..	..	764	2,698	..	..	..	231

12 Den Bosco Industrial School, Vellore.	25	4,579	..	..	2,114	2,114	2,465	98	900	28	..	..	..	..	..	..	828	1,637	..	..	..	122
13 St. Joseph's Industrial School, Tiruvannam.	77	42,312	..	..	11,630	11,630	30,682	397	3,600	619	2,160	..	..	..	..	..	6,379	24,203	..	..	..	401
14 Danish Mission Industrial School, Paruthi.	87	5,400	..	..	3,200	3,200	2,200	25	3,200	366	..	..	..	..	..	..	3,566	..	..	..	..	254
15 C.S.M. Agricultural School, Chingleput.	62	4,957	..	..	744	744	4,113	66	1,200	180	..	..	..	..	..	..	1,380	2,783	..	..	..	..
16 A.A.M. Industrial School, Saidapet.	26	2,810	..	..	..	..	2,810	108	500	96	..	..	..	..	..	..	596	2,214	..	..	..	..
17 Victory Memorial School for the Blind, Poonamallu.	24	9,153	..	..	2,263	2,263	6,890	287	..	..	..	..	..	..	..	..	..	6,890	..	..	..	..
18 St. Joseph's Industrial School, Coimbatore.	230	67,255	130	61,453	61,598	5,667	24	3,302	372	..	..	..	..	..	..	..	3,672	1,995	..	..	..	347
19 London Mission Boys' Weaving School, Erode.	109	7,220	..	..	3,179	3,179	4,041	37	1,400	40	..	..	..	..	..	..	1,440	2,601	..	..	..	112
20 P.S.G. & Sons Charity Industrial Institute, Peelamedu.	75	1,54,242	..	..	1,14,902	1,14,902	39,340	25	2,300	391	..	..	..	..	..	..	2,691	36,649	..	..	..	2,702
21 Raj's Industrial School, Perakulam.	25	4,215	..	..	1,875	1,875	2,340	93	500	..	..	..	..	..	..	..	500	1,840	..	..	..	138
22 C.B.M. Industrial School, Samalok.	42	5,006	..	..	4,006	4,006	1,090	26	1,000	31	..	..	..	..	..	..	1,031	..	..	..	..	265
23 U.I.C.M. Rural Reconstruction Gunjur.	26	7,388	59	993	1,052	6,296	242	1,206	32	..	..	..	..	..	..	..	1,232	5,054	..	..	..	618
24 American Mission Cabinet-Making School, Gunjur.	27	3,376	548	..	..	548	2,828	105	500	32	..	..	..	..	..	..	532	2,296	..	..	..	210
25 Commonwealth Trust Engineering Classes, Mangalore.	8	1,104	..	..	..	..	1,104	138	300	24	..	..	..	..	..	..	324	780	..	..	..	..
26 Sri Krishna Pararamalayam, Kavartharam.	25	2,200	..	..	..	..	2,200	84	400	789	..	..	..	..	..	..	1,189	1,011	..	..	..	..
27 C.M.S. Industrial School, Virayam.	50	3,594	..	..	..	..	3,594	72	..	..	..	..	..	..	..	..	..	3,594	..	..	..	..
28 St. Joseph's Industrial School, Gundal.	67	10,114	..	..	1,334	1,334	8,780	131	2,400	741	..	..	..	..	..	..	3,141	5,639	..	..	..	..
29 Municipal Technical Institute, Masulipatan.	85	23,514	756	10,168	12,364	11,150	131	2,000	52	..	..	..	..	..	..	..	2,052	9,098	..	..	..	1,773
30 C.N.T. Institute, Vepery.	424	52,885	22,508	5,994	28,898	23,687	55	6,000	1,686	..	..	..	..	..	..	..	7,636	16,051	..	..	..	1,895
31 Anyman Industrial School, Madras.	79	20,870	..	..	10,273	10,273	10,597	134	6,000	251	..	..	..	..	..	..	6,251	4,346	..	..	..	181
32 Orr Assisted Industrial School, Madras.	40	5,400	..	..	..	..	5,400	135	2,700	..	..	..	..	..	..	..	2,700	2,700	..	..	..	..
33 Ramakrishna Mission Industrial School, Mylapore.	20	14,382	387	910	1,297	14,985	749	2,200	130	..	..	..	..	..	..	..	2,330	12,655	..	..	..	4,700
34 Sri Ram Motor School, Madras.	12	8,300	8,200	..	..	3,200	5,100	425	..	..	..	..	..	..	..	..	..	5,100	..	..	..	..
35 The Pentecostary Madras, Poomal.	53	19,027	..	..	4,650	4,650	14,377	269	1,500	168	..	..	..	..	..	..	..	14,377	..	..	..	..
36 Poomal Trade School, Poomal.	60	63,875	..	..	53,020	53,020	10,855	180	..	..	..	..	..	..	..	..	1,658	9,197	..	..	..	551

Statistics relating to Government and recognised Industrial Schools for the year 1933-34—cont.

Serial number, name and place of institution.	Number on rolls on 31st March 1934.	Total recurring cost (excluding expenditure on new buildings and equipment).	Receipts from		Total, columns (4) and (5).	Net recurring cost, column (3) minus column (5).	Net recurring cost per pupil, column (7) ÷ column (2).	Receipts and expenditure to the nearest rupee.				Total recurring grant, add columns (9), (10), (11) and (12).	Balance of recurring cost met by managers' funds, column (7) minus column (13).	Non-recurring.		
			Fees.	Sales.				Maintenance.	Scholarships.	Stipends.	Expenditure on new buildings.			Building grant.	Equipment grant.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
AIDED SCHOOLS (BOYS)—																
37 C.B.M. Industrial School, Dindigul.	51	6,416	..	6,143	6,143	273	4	1,200	138	..	..	1,338	— 1,065	..	..	561
38 St. Joseph's Industrial School, Ootacamund.	56	33,780	..	26,043	26,043	7,737	133	1,450	98	..	..	1,548	6,189	..	..	299
39 St. Theresa's Industrial School, Salem.	29	3,000	..	1,540	1,540	1,460	50	500	15	..	..	..	..	..	..	..
40 St. Francis Xavier Industrial School, Tanjore.	108	26,045	..	8,400	8,400	17,645	163	2,400	234	..	..	2,684	14,961	..	..	299
41 St. Mary's Industrial School, Kumbakonam.	74	30,120	..	16,186	16,186	14,935	292	2,750	268	..	..	3,043	11,867	..	..	148
42 Senior Certified School, Chingleput.	295	23,025	..	..	..	23,025	96	..	..	..	..	..	23,025	..	..	..
43 Municipal Industrial School, Kumbakonam.	23	2,868	..	376	376	2,492	103	1,122	46	..	..	1,132	1,370	..	..	74
44 Portai School, Tanjore.	120	13,307	..	704	9,704	3,603	28	3,500	804	..	..	4,304	— 701	..	..	..
45 S.P.G. Art Industrial School, Narareth.	130	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
46 St. Joseph's Industrial School, Adulata-peram.	45	5,304	..	2,803	2,803	2,303	56	1,100	75	..	..	1,175	1,327	..	..	..
47 C.B.M. Industrial School for the Blind, Palamcottah.	38	7,768	..	4,714	4,714	3,054	80	1,175	270	..	..	1,445	1,609	..	..	..

48 St. Ignatius Industrial School, Tuticorin.	33	4,214	..	1,142	1,142	3,072	93	750	102	..	..	..	..	832	2,220	..	..	186
49 Ambian's Industrial School, Arumangalur.	123	5,288	..	100	100	5,188	42	700	..	..	..	..	..	700	4,488	..	..	..
50 St. Joseph's Industrial School, Tiruchopoly.	73	37,071	..	20,441	20,441	16,630	223	1,500	266	..	..	..	..	1,763	14,864	..	..	744
51 Methodist Mission Industrial School, Karur.	92	24,000	..	16,814	16,814	7,186	73	1,900	348	..	..	..	..	2,248	4,938	..	..	54
52 All Saints Industrial School, Puthur.	28	6,581	..	1,300	1,300	5,281	133	1,000	143	..	..	..	..	1,143	4,133	..	..	..
53 St. Alphonsus Industrial School, Viraapattam.	24	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

AIDED SCHOOLS (Girls).

54 Danish Mission Industrial School, Keelur.	32	6,075	..	3,034	3,034	2,991	93	200	170	..	..	..	..	370	2,621	..	..	..
55 St. Joseph's Convent Industrial School, Bellary.	87	2,504	..	617	617	1,887	22	700	..	..	..	..	..	700	1,187	..	..	..
56 C.B.M. Industrial School, Chingleput.	60	3,228	..	858	858	2,370	40	500	232	..	..	..	..	732	1,638	..	..	..
57 Methodist Mission Industrial School, Ikkan.	119	34,422	..	47,032	47,032	7,370	62	..	372	..	..	..	..	372	6,998	..	..	..
58 St. Antony's Industrial School, St. Thomas Mount.	56	6,585	..	..	..	6,585	117	450	..	..	..	..	..	450	6,145	..	..	..
59 A.A.M. Women's Industrial School, Palnathur.	70	15,853	224	4,699	4,923	10,930	136	1,400	112	480	..	..	..	1,992	8,938	..	..	89
60 L.M. Girls' Industrial School, Erode.	72	1,305	..	327	327	978	13	400	95	..	..	..	..	405	483	..	..	112
61 Methodist Mission Industrial School for Women, Dhanurpattam.	36	4,541	..	2,550	2,550	1,991	55	..	..	..	..	..	..	..	1,991	..	..	..
62 The Intermediate Conception Convent, Coimbatore.	80	5,816	..	2,116	2,116	3,700	46	950	..	..	..	..	..	950	2,750	..	..	..
63 St. Joseph's Orphanage Industrial School, (Muthu).	23	2,922	..	605	605	2,317	101	500	14	..	..	..	..	514	1,803	..	..	66
64 C.B.M. Girls' Industrial School, Kripak.	55	5,640	324	1,266	1,590	4,050	73	700	369	..	..	..	..	1,069	2,981	..	..	64
65 Madras Sivan Industrial School, Chelapaz.	57	6,938	133	839	1,022	5,916	104	850	..	..	..	..	..	850	5,066	..	..	..
66 St. Bridget Industrial School for Girls, Nungambakam.	40	765	..	..	..	785	19	600	..	..	..	..	..	600	165	..	..	..
67 St. Joseph's Industrial School, Madurai.	61	5,623	..	3,708	3,708	1,916	31	800	449	..	..	..	..	1,249	667	..	..	36
68 The Commonwealth Kimbrobery School, Calicut.	35	1,764	..	750	750	1,034	29	750	..	..	..	..	..	750	..	..	..	..

APPENDIX III—cont.

Statistics relating to Government and recognized Industrial Schools for the year 1933-34—cont.

Serial number, name and place of institution.	Number on rolls on 31st March 1934.	Total recurring cost (excluding expenditure on new buildings and equipment).	Receipts from		Receipts and expenditure to the nearest rupee.										Non-recurring.		
			Fees.	Sales.	Total, columns (4) and (5).	Net recurring cost, column (8) minus column (6).	Net recurring cost per pupil, column (7) ÷ column (8).	Recurring grants from Department of Industries.			Recurring grants from other departments or public bodies (specified in remarks column).	Total recurring grant, add columns (9), (10), (11) and (12).	Balance of recurring cost met by managers' funds, column (7) minus column (13).	Non-recurring.			
								Maintenance.	Scholarships.	Stipends.				Expenditure on new buildings.	Building grant.	Equipment grant.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	
AIDED SCHOOLS (GIRLS)— cont.																	
69 O.E.L.M. Girls' Industrial School, Gudur.	29	4,203	..	1,269	1,269	2,934	101	350	47	..	..	397	2,537	..	..	..	
70 Nazareth Convent Girls' Industrial School, Ootacamund.	50	9,534	..	3,208	3,208	6,326	127	800	350	..	..	1,150	5,176	..	..	115	
71 Leipzig Mission Women's Industrial Home, Mayavaram.	37	8,490	..	4,362	4,362	4,128	111	1,800	154	..	..	1,954	2,174	..	..	..	
72 R.C. Lace School, Vada-kangulam.	51	1,607	..	260	260	1,347	26	600	276	..	..	876	471	..	..	..	
73 Hindu Girls' School, Kudangulam.	40	2,586	..	440	440	2,146	54	400	..	..	..	400	1,746	..	..	23	
74 Holy Cross Convent Industrial School, Tuticorin.	78	7,912	..	3,600	3,600	4,312	55	1,000	..	..	..	1,000	3,312	..	..	72	
75 Methodist Mission Lace and Embroidery School, Karur.	15	1,163	..	864	864	300	20	300	14	..	..	314	— 14	..	..	..	
76 Holy Cross Convent Industrial School, Trichinopoly.	66	4,755	..	1,878	1,878	2,877	44	700	276	..	..	976	1,901	..	..	..	
77 Sacred Heart Convent Industrial School, Anjengo.	37	1,305	..	22	22	1,283	35	400	202	..	..	602	681	..	..	..	

APPENDIX IV.

Statistics relating to recognized Industrial Schools for the year 1933-34.

I-12

Serial number and name of the institution.	Subjects in which instruction is provided.	Number of students who passed out in each subject.	Particulars as to the after-career of passed students.	Approximate total value of work turned out.	RS.	A.	P.
(1)	(2)	(3)	(4)	(5)			
AIDED SCHOOLS (BOYS)							
1 A.A.M. Industrial School, Katpadi	(a) Carpentry, cabinet-making and (b) blacksmith and motor mechanics, (c) carving.	6	 All are working as carpenters in Chittoor, North Arcot district, and in Bangalore.	1,750	0	0	
2 Anjuman Industrial School, Vellore	(a) Cabinet-making and (b) freehand outline drawing.	(a) 1, (b) 1	 One doing piecework, the other employed as teacher.	12,057	0	0	
3 Anjuman Industrial School, Melvisharam.	Cabinet making	1	.. ..	3,271	0	0	
4 Anjuman Industrial School, Tiruppattur.	(a) Cabinet-making and (b) drawing	..	.. ..	1,262	0	0	
5 Don Bosco Industrial School, Vellore	Carpentry and cabinet-making	..	.. ..	2,164	0	0	
6 St. Joseph's Industrial School, Tindivanam.	(a) Carpentry, cabinet-making and (b) smithy and fitting.	19	 Six are teachers and five are carpenters.	15,000	0	0	
7 Danish Mission Industrial School, Panruti.	(a) Cabinet-making, (b) cotton weaving and (c) motor-car driving.	..	 Most of the students after training have settled down as independent workers in their villages; a few are employed as teachers.	7,823	0	0	
8 C.S.M. Agricultural School, Melrosapuram.	Agriculture and allied trades	14	 Two are teachers; one mechanic and the rest agriculturists.	780	0	0	
9 A.A.M. Industrial School, Saidapet	Cabinet-making	..	.. ..	2,200	0	0	
10 Victory Memorial School for the Blind, Poonamallee.	Weaving and rattan work	Each 5	 All absorbed in the school workshops.	67,000	0	0	
11 St. Joseph's Industrial School, Coimbatore.	(a) Carpentry and (b) fitting	(a) 14, (b) 5	 Two in South Indian Railway Workshops, four carpenters in mills and two in factories as fitters. One undergoing teacher's training at Tindivanam.	2,785	0	0	
12 L.M. Weaving School, Erode	Weaving and dyeing	14	 Seven employed in mills	1,31,765	0	0	
13 P.S.G. & Sons Charity Industrial Institute, Peelamedu.	Mechanical engineering, oil-engine tending, carpentry and weaving.	3	 All employed as pieceworkers locally	2,630	0	0	
14 Raja's Industrial School, Parlakimedi	Carpentry and cabinet-making	2	.. ..	1,672	0	0	
15 C.B.M. Industrial School, Samalkot	Do	16	.. ..	1,200	0	0	
16 U.L.C.M. Rural Reconstruction School, Guntur.	Agriculture and allied trades including weaving.	5	 Two undergoing teacher's training at Tindivanam.	1,200	0	0	
17 American Mission Cabinet-making School, Guntur.	Carpentry and cabinet-making	8	 Working as improvers.	..			
18 Commonwealth Trust, Mangalore	Mechanical drawing and workshop mathematics.	..	.. ..	550	0	0	
19 Sri Krishna Paraisramalayam, Kavutaram.	(a) Carpentry, (b) mechanical drawing and freehand drawing.	(a) and (b) 3	.. ..	10,800	0	0	
20 St. Joseph's Industrial School, Gunadala..	Cabinet-making and blacksmithy	12	 A few are employed as job workers.				

APPENDIX IV—cont.

Statistics relating to recognized Industrial Schools for the year 1933-34—cont.

Serial number and name of the institution.	Subjects in which instruction is provided.	Number of students who passed out in each subject.	Particulars as to the after-career of passed students.	Approximate total value of work turned out.
(1)	(2)	(3)	(4)	(5)
				R.S. A. P.
AIDED SCHOOLS (BOYS)—cont.				
21 Municipal Technical Institute, Masulipatam.	Mechanical engineering and electrical engineering.	....	....	18,315 0 0
22 C.N.T. Institute, Vepery	(a) Cabinet-making, (b) mechanical engineering and metal work, (c) weaving, (d) oil-engine driving, (e) motor-car driving, (f) electrical engineering and wiring, (g) printing and proof-reading and (h) fitting, turning and blacksmithy.	(a) 9, (b) 20, (d) 28, (e) 16, (f) 46, (h) 22.	Two employed in bioscopes, two as engine-drivers, three as draughtsmen.	5,862 0 0
23 Anjuman Industrial School, Madras	Carpentry, carpet-weaving and tailoring ..	13	One is a drawing instructor in a high school, four employed as carpenters, two as carpenters in the school, two are under training in advance course in carpentry, one carpet weaver employed outside and another in the school—two employed outside as tailors.	7,082 0 0
24 Orr's Assisted Industrial School, Madras.	(a) Mechanical engineering, (b) workshop, theory and practice, (c) machine-drawing, (d) scientific instruments making and jewellery.	....	....	..
25 Ramakrishna Mission Industrial School, Mysapore.	Mechanical engineering	6	One in Pykara Works, one in Vellore Electric Supply Corporation and one in a motor firm.	1,880 0 0
26 Sri Ram Motor School, Madras	Motor-driving and mechanism	11	Employed as assistant convict instructors in carpentry in jails.	14,377 0 0
27 Madras Penitentiary, Madras	Cabinet-making .. ..	.. ..	One is a motor driver, two are wiremen, one fitter and two carpenters.	51,582 0 0
28 Pasumalai Trade School, Pasumalai ..	(a) Printing, (b) carpentry, (c) blacksmithy, (d) motor-car repairs and (e) engine tending.	(b) 1, (c) 3, (d) 6 ..	One is employed in the Western India Match Factory, Madras, two are teachers.	7,000 0 0
29 C.S.M. Industrial School, Dindigul ..	Carpentry and cabinet-making	13 .. ..	....	26,200 0 0
30 St. Joseph's Industrial School, Ootacamund.	Cabinet-making .. ..	....	....	1,700 0 0
31 St. Therese's Industrial School, Salem ..	Woodwork .. ..	.. ..	....	9,520 0 0
32 St. Francis Xavier's Industrial School, Tanjore.	(a) Cabinet-making and (b) weaving ..	(a) 4, (b) 2	Four employed, one under training at Tindivanam.	16,328 0 0
33 St. Mary's Industrial School, Kumbakonam.	(a) Cabinet-making, (b) smithy and (c) rattan work.	(a) 6	Doing job works.	516 0 0
34 Municipal Industrial School, Kumbakonam.	(a) Cabinet-making and (b) weaving ..	....	....	..
35 Borstal School, Tanjore	Cabinet-making, weaving, tailoring, smithy and binding.	....	....	9,704 0 0
36 S.P.G. Art Industrial School, Nazareth ..	(a) Carpentry and cabinet-making, (b) blacksmithy, (c) motor-car driving mechanism and (d) tailoring.	(a) 8, (d) 2	One employed in Ceylon and the rest in their villages.	1,380 0 0
37 St. Joseph's Industrial School, Adakkalapuram.	Carpentry and weaving .. ..	....	....	4,333 0 0
38 C.M.S. Industrial School for the Blind, Palamcottah.	Carpentry, weaving and rattan-work ..	....	....	1,223 0 0
39 St. Ignatius Industrial School, Tuticorin..	Cabinet-making and carpentry	(a) 3, (b) 3	Two employed as carpenters ..	26,078 0 0
40 St. Joseph's Industrial School, Trichinopoly.	(a) Carpentry, (b) blacksmithy, (c) motor engineering, (d) rattan-work and (e) cotton weaving.	(a) 4, (b) 1, (c) 1, (e) 2 ..	Four employed under the Mission and two prosecuting higher studies.	15,953 0 0
41 Methodist Mission Industrial School, Marur.	Cabinet-making	11	Two employed in South Indian Railway Workshops, one is a carpenter at Palamcottah.	2,500 0 0
42 All Saints Industrial School, Puthur ..	Motor-car driving and carpentry .. ..	....	....	..
43 St. Aloysius Industrial School, Vilaspattam.	(a) Leather work and (b) agriculture ..	....	....	1,340 0 0
44 C.M.S. Industrial School, Vidyanagar ..	(a) Carpentry, (b) tailoring and (c) sewing ..	....	....	154 0 0
45 Arabian's Industrial School, Arumuganeri.	....	....	....	..
AIDED SCHOOLS (GIRLS)				
46 Danish Mission Industrial School, Keelur.	(a) Lace-making and (b) embroidery ..	(a) nil, (b) 2	One married and one working in the school.	7,520 0 0
47 St. Joseph's Convent Industrial School, Bellary.	Lace-making, embroidery and general needle-work.	....	....	865 0 0
48 C.S.M. Lace School, Chingleput	Lace-making	10	One married, six under training and three at home.	1,948 0 0
49 Methodist Mission Industrial School, Ikkadu.	(a) Lace-making, (b) embroidery, (c) weaving, (d) general needle-work and lacquer work.	....	....	..
50 St. Anthony's Industrial School for Girls, St. Thomas' Mount.	(a) Embroidery, (b) needle-work, (c) dress-making, (d) tape-making, (e) matting, (f) rattan-work and (g) raffa work.	(a) 5, (b) 5, (c) 2 ..	Two employed, three married ..	1,504 0 0
51 A.A.M. Women's Industrial Home, Palmaner.	Lace-making, embroidery, general needle-crafts, and dress-making, child care, home nursing and hygiene.	18	Seven are cottage workers, seven left for marriage.	4,739 0 0
52 London Mission Girls' Industrial School, Erode.	Mat-making, basket-work and weaving ..	20	One went for Nurse's training, eight have left to be married, two have gone for high school education, others are unemployed.	454 0 0
53 Immaculate Conception Convent School, Coimbatore.	Embroidery, general needle-crafts and dress-making.	....	....	..
54 St. Joseph's Orphanage Industrial School, Guntur.	Dress-making and general needle-crafts ..	7	Four are teachers, three undergoing other special course.	787 0 0
55 C.S.M. Girls' Industrial School, Kilpauk..	(a) Embroidery, (b) general needle-crafts and (c) dress-making.	(a) 27, (c) 17. ..	Some have taken teaching work, some are married and a few are readmitted for further studies.	1,997 0 0
56 Madras Seva Sadan Industrial School, Chetput.	....	....	....	..

APPENDIX IV—cont.

Statistics relating to recognized Industrial Schools for the year 1933-34—cont.

Serial number and name of the institution.	Subjects in which instruction is provided.	Number of students who passed out in each subject.	Particulars as to the after-care of passed students.	Approximate total value of work turned out.
(1)	(2)	(3)	(4)	(5)
AIDED SCHOOLS (GIRLS)—cont.				
57 St. Bridget's Girls' Industrial School, Nungambakam.	Embroidery and general needle-crafts ..	....	....	..
58 St. Joseph's Industrial School, Madura ..	Do.	19	Three got married, three dead, others emigrated elsewhere.	3,917 0 0
59 Commonwealth Embroidery School, Calicut.	Embroidery, lace-making and needle-work ..	3	Transferred to working section ..	1,942 0 0
60 O.E.L.M. Girls' Industrial School, Gudur..	Lace-making	5	Three married, two have not returned after passing.	1,179 0 0
61 Nazareth Convent Girls' Industrial School, Madhavand.	Dress-making, embroidery and general needle-crafts and tailoring.	Nil .. ..	....	2,473 0 0
62 St. Mary's Convent Industrial School, Kefagiri.	....	....	....	....
63 Lelwig Mission Women's Industrial School, Majavaram.	Cotton-weaving, mat-weaving, basket-making and general needle-work.	10	Five have left to marry, four doing household work, four are employed as weavers in a local private weaving factory, one is a cook, one is a teacher in the same school, one is undergoing teacher's training and two got married.	4,770 0 0
64 K.C. Lace School, Vadakkangulam.	Lace-making, embroidery, general needle-work and sericulture.	4	All engaged in home industries ..	684 0 0
65 Hindu Girls' Industrial School, Madhavand.	Lace-making	4	All are engaged in lace-work ..	681 0 0
66 Holy Child Convent Industrial School, Kuthirai.	Lace-making, embroidery and dress-making ..	18	Continue in their cottages the work they learnt at school.	3,600 0 0
67 Methodist Mission, Lace and Embroidery School, Karur.	Lace-making and embroidery	4	Continue their studies in day school.	600 0 0
68 Holy Child Convent Industrial School, Trichinopoly.	Embroidery, general needle-crafts, laundry and cooking.	10	Some are married and others are engaged in needlework.	1,878 0 0
69 Sacred Heart Convent Industrial School, Anjengo.	Lace-making, embroidery and dress-making ..	1 in all subjects	One employed as an assistant in the same school.	33 0 0
70 Methodist Mission Industrial School, Dharapuram.	Embroidery	12	Six went to teacher's training, one is a teacher, four got married and one went to village work.	3,000 0 0