

9
Administration Report
of the Department of
Industries

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ADMINISTRATION REPORT OF THE DEPARTMENT OF INDUSTRIES FOR THE YEAR ENDING 31ST MARCH 1931.

Direction.—M.R.Ry. Diwan Bahadur A. Appadurai Pillai Avargal, M.A., 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. *Director's tours.*—Mr. Appadurai Pillai was on tour for 177 days during the year. His tours covered most of the industrial centres in the Presidency and he also visited Mysore, Bombay, Delhi, Agra, and Cawnpore.

3. *Exhibitions.*—In pursuance of the policy adopted by the department that exhibitions at district headquarters or other suitable places should be encouraged and assisted as far as possible, the department participated during the year in a number of agricultural and industrial exhibitions held in various parts of the Presidency, e.g., at Tiruppur, Srirangam, Mangalore, Tenali, Erode, Kodaikanal, Beltangadi, Chinnaganjam, Mysore and Madras. A representative range of soaps manufactured at the Kerala Soap Institute, Calicut, was displayed at almost all these exhibitions and wherever feasible, the working of pumping and boring machinery and of improved textile appliances was demonstrated for the benefit of the agriculturists and handloom weavers. A very successful departmental display was arranged in connexion with the annual Park Fair held in December 1930 and the exhibits which attracted considerable attention resulted in a considerable number of enquiries from the public. The engineering exhibits on this occasion comprised a hand-boring set, high-speed pumping set, Boulton elevator, sugarcane mill, model of multiple furnace and model of an artesian boring. Improved methods of cloth printing by aerograph machine were also demonstrated by the Textile section. The department participated in the National Health and Baby Week celebrations held in Madras and Ellore. At the Dasara exhibition held in Mysore a representative range of soaps from the Kerala Soap Institute was displayed and a gold medal awarded for the exhibit. Samples of soap manufactured at the Kerala Soap Institute were also sent to Dehra Dun for exhibition in the Minor Forest Products Museum.

4. The Colonial and International Exhibition proposed to be held in Paris this year under the auspices of the French Government and the Milan International Samples Fair, Milan, were brought to the notice of the several Chambers of Commerce and firms in this Presidency. The British Industries Fair held in London and the Leipzig International Industries Fair held at Leipzig were brought to the notice of firms in this Presidency and their attention invited to the advantages of participating in them. The Indian Trade Publicity Officer undertook, as usual, to meet all expenditure in connexion with displays at these exhibitions, including, in the case of the Leipzig Fair, the charges on the transport of exhibits from London to Leipzig and back.

5. *Committees—Agricultural Advisory Committee.*—The Director attended the meetings of the Committee held during the year.

Railway Local Advisory Committees.—The Director of Industries continued to represent Government on the Local Advisory Committees of the South Indian and Madras and Southern Mahratta Railway Companies.

Provincial Cotton Committee.—The Director of Industries continued to be a member of the Provincial Cotton Committee.

Economic Depression Enquiry Committee.—The Director of Industries attended the meetings of the Committee. The Committee was constituted to examine the effects of the general economic depression and to report whether any measures should be adopted by Government to mitigate them.

6. *Statutory Board of Industries.*—The composition of the Board of Industries as it stood at the close of the year 1929–30 was as noted below :—

- | | |
|---|--|
| (1) Director of Industries—Chairman. | } Ex-officio. |
| (2) Secretary to Government, Finance Department. | |
| (3) G. H. Hodgson, Esq., elected by the Madras Chamber of Commerce. | |
| (4) M.R.Ry. Narayan Doss Girdhar Doss Avargal, elected by the Southern India Chamber of Commerce. | } Elected by the Madras Legislative Council. |
| (5) F. G. Luker, Esq., elected by the Madras Trades Association. | |
| (6) J. A. Saldanha, Esq., B.A., LL.B., M.L.C. | |
| (7) M.R.Ry. Diwan Bahadur P. C. Ethirajulu Nayudu Garu, M.L.C. | |

- | | |
|--|---|
| (8) M.R.Ry. Diwan Bahadur G. Narayanaswami Chetti Garu, C.I.E. | } Nominated by Government under section 3 (2) of the Act. |
| (9) Dr. R. Nagan Gowda, M.L.C. | |
| (10) M.R.Ry. Rao Bahadur M. K. Venkatachariyar Avargal. | |
| (11) M. Muhammad Ismail Sahib Bahadur. | |
| (12) The Registrar of Co-operative Societies. | |

with Mr. L. B. Green, M.B.E., Deputy Director of Industries, as Secretary of the Board.

Under rule 5 of the rules framed under the Act, M.R.Ry. Narayan Doss Girdhar Doss Avargal vacated his seat on the Board in March 1930 and in his place the Southern India Chamber of Commerce elected Mr. Chandulal M. Kothari, B.A., LL.B., as their representative on the Board. Similarly, Messrs. Saldanha and Ethirajulu Nayudu, representing the Madras Legislative Council, vacated their seats on the Board by efflux of time, and in the subsequent election by the Council, M.R.Ry. Diwan Bahadur P. C. Ethirajulu Nayudu Garu was re-elected along with M.R.Ry. Rao Sahib V. I. Muniswami Pillai. Subsequently, owing to the dissolution of the old Legislative Council and the amending of rule 5 of the rules, these two gentlemen vacated their seats and the Legislative Council thereupon elected Messrs. Yakub Hassan Sahib Bahadur and M.R.Ry. Sri Raja Venkataramayya Apparao Bahadur Garu, Zamindar of Mirzapuram, as members of the Board. The Registrar of Co-operative Societies and Messrs. G. Narayanaswami Chetti Garu and R. Nagan Gowda, who also vacated their seats by efflux of time, were renominated by Government to the Board for a further period of three years. Mr. F. G. Luker, having been absent from three consecutive meetings of the Board, was declared to have ceased to be a member and in his place the Madras Trades Association elected Mr. A. T. Luker as member. The latter resigned his seat on the Board in March owing to his departure on leave out of India and the Madras Trades Association were arranging at the close of the year to elect a member in the vacancy thus caused.

7. The application of Messrs. Abbas Magnesite Company referred to in paragraph 7 of the last year's report was rejected by Government as the security offered by the applicants was inadequate.

The loan of Rs. 500 sanctioned to the Tholampalayam match factory was disbursed to the proprietor in May 1931.

Of the applications under consideration at the close of last year, that from M.R.Ry. K. S. Sankaram Pillai for a loan of Rs. 10,000 for the purpose of establishing a tobacco redrying

factory was sanctioned by Government but recently the applicant has written to say that he does not propose to avail himself of the loan owing to adverse trade conditions. The application from the Kallakurichi Co-operative Agricultural and Industrial Society and the Tanjore Tile Works were further considered by the Board; the former was finally rejected unanimously by the Board while in the latter case a loan of Rs. 4,250 was recommended and was subsequently sanctioned by Government.

8. During the year under review, four meetings of the Board were held on the 12th May, 11th August, 8th December 1930 and 27th March 1931 at which besides the two applications referred to above, the following applications were considered:—

(1) Application from Messrs. M. Kassim & Sons, Calicut, for a loan of Rs. 10,000 for the purpose of developing the manufacture of umbrella sticks, walking sticks, etc.

(2) Application from M.R.Ry. L. Nanjundaswami, Basthipuram, for a loan of Rs. 750, for purpose of working capital for his silk-reeling concern.

(3) Application from Mr. H. M. Buckner, Ootacamund, for the guarantee with a bank of an overdraft up to Rs. 40,000 for the purpose of developing the leather industry.

(4) Application from M.R.Ry. Namburu Venugopala Rao, Bezvada, for a loan of Rs. 2,500 and the guarantee of a cash credit of Rs. 1,000 for the purpose of developing the chalk crayon industry.

(5) Application from M.R.Ry. V. Ramanujachari, Rawalpindi, for various forms of financial assistance for starting soap, match and hosiery factories.

(6) Application from M.R.Ry. Variankandi Rarunni, Kallai, for the guarantee of an overdraft up to Rs. 5,000 for the purpose of reviving his tarpaulin and water sheet industry.

(7) Application from M.R.Ry. E. Ramaswami Ayyar, Big Conjeeveram, for a loan of Rs. 1,000 for the purpose of reviving his ink factory.

(8) Application from four toy manufacturers of Kondapalli for loans for developing the toy industry.

(9) Application from M.R.Ry. A. R. Pichumany Ayyar, Aruppukottai, for a loan of Rs. 6,000 for the purpose of setting up an oil mill.

(10) Application from T. E. Abdul Sathar Sahib, Tirukkoyilur, for a loan of Rs. 1,000 for undertaking the manufacture of furniture.

(11) Application from Messrs. Boddu Pydenna & Sons, Vizianagram, for a loan of Rs. 50,000 for the purpose of developing the oil-milling industry.

(12) Application from M.R.Ry. Vasudev H. Manohar for a loan of Rs. 6,500 for establishing an ice factory at Madura.

(13) Application (revised) from Mr. H. M. Buckner, Ootacamund, for the guarantee of an overdraft up to Rs. 25,000 for the purpose of developing the leather industry.

(14) Application from Mons. Jules Guerre, Pondicherry, for a loan of Rs. 25,000 for the purpose of developing the manufacture of tiles and allied products.

(15) Application from Mr. F. L. Silva, Bangalore Silk Filature, Mudigundam Branch, Coimbatore district, for a loan of Rs. 30,000 for developing his silk filature at Mudigundam.

(16) Application from the Managing Agents, The Sree Meenakshi Mills, Madura, for permission to use the water of the Avaniapuram channel free of charge for their steam turbines.

(17) Application from M.R.Ry. Babu Raya, Panemangalore, for a loan of Rs. 500 for the development of his comb manufacturing industry.

9. Of the above Nos. 1, 3, 4, 5, 6, 7, 10, 12, 14 and 16 were unanimously rejected by the Board, the last on the ground that the provisions of section 5 (1) were not satisfied while the others were rejected on one or other of the following grounds:—

- (a) Consideration of their merits;
- (b) failure to satisfy the provisions of section 9 of the Act,
- or
- (c) the inadequacy of the security offered.

The application from A. R. Pichumany Ayyar (No. 9) was still under investigation at the close of the year. No. 2 has been granted and the loan disbursed. Loans were granted only to two of the four applicants included under No. (8) and arrangements were in progress at the close of the year to disburse the loans. The aid applied for by Messrs. Boddu Pydenna & Sons, Buckner, Silva and Babu Raya has been recommended by the Board and their applications were under the consideration of Government at the close of the year.

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

(i) *The Sri Lakshmi Silk Factory, Peddapuram.*—The proprietors failed to maintain accounts on the lines drawn up by the auditor and as they offered to repay the balance of the loan immediately, Government agreed to such repayment. They have recently repaid almost the entire outstandings.

(ii) *The Kallakurchi Co-operative and Agricultural Society* earned during the year ended 30th June 1930 a net profit of Rs. 1,402-3-0. The value of the assets at the close of the year 1929-30 amounted to Rs. 96,030-11-0 and after deducting the liabilities of Rs. 94,370-2-0 the net value of the surplus assets on 30th June 1930 was Rs. 1,660-9-0. The society repaid the instalment of the loan by the due date and also renewed the insurance policies.

(iii) *The Andal Mills, Gudiyattam*.—As stated in the report of the previous year attempts were made to find a sale for the two gins installed by the borrower and these realized an amount of Rs. 800. There is still a balance of over Rs. 3,000 including interest due on the loan and steps have been taken to recover the balance in accordance with the orders of Government.

(iv) *Bellary Match Factory, Bellary*.—The suit filed by Muthyala Seenappa Ramanna in the High Court to recover the full damages claimed by him from the insurance company is still dragging on. By consent of both parties an arbitrator has again been appointed to assess the damages sustained by the plaintiff as a result of the fire and the arbitrator has not yet filed his award in court. Meanwhile the machinery in the factory was brought to sale by Government and realized a sum of Rs. 4,500. The minor sons of the borrower have filed a suit in the Bellary District Munsif's Court, impleading both Muthyala Seenappa Ramanna and the Secretary of State for India, contending that the borrower carried on the match industry on his own account and responsibility and that the plaintiffs derived no benefit whatsoever from the said business which was a rash, hazardous and speculative concern and that as such it was an avyavaharika concern for the debts of which the plaintiffs were not liable according to Hindu Law. This suit is being defended.

(v) *The Parvatipur Industries, Parvatipuram*.—This concern sustained a net loss of Rs. 1,391-1-4 during the year ended 31st December 1930, although the gross profits as shown by the trading account amounted to Rs. 4,464-10-11. The liabilities of the concern at the close of the year stood at Rs. 42,266-2-9 and the assets at Rs. 36,968-0-5. There was thus an excess of liabilities over assets of Rs. 5,298-2-4. The firm paid the instalment of the loan by the due date.

(vi) *The Salem Dye Works Syndicate*.—The factory still remains idle and no attempts have so far been made by the management to start working. The instalment of loan was paid by the due date.

(vii) *The Tanjore Tile Works, Tanjore*.—The loan of Rupees 4,250 was disbursed to this firm in December last. The proprietor has not yet selected an auditor to audit the accounts of the concern, but the factory has been insured.

(viii) M.R.Ry. L. Nanjundaswamy was granted a loan of Rs. 750 for providing working capital for his silk-reeling concern at Bastipuram and the loan was disbursed in December last. It is reported that the factory is not working at present. The explanation of the borrower has been called for in the matter and suitable action will be taken upon its receipt.

(ix) The loan of Rs. 500 to the proprietor of the Tholampalayam Match Factory has been disbursed since the close of the period under review.

11. During the year under review, the possibility of rendering the aid under the Act more readily attainable by cottage industries by simplifying the formalities connected with the rules was examined and proposals were submitted to Government for the grant of certain concessions to cottage and small-scale industries, e.g., waiving of stamp and registration charges and search fees for production of encumbrance certificates, simplification of form of mortgage, exemption from insurance, etc. The question of amending the definition of the term "Cottage industries" was also taken up with Government and their orders on this question are awaited.

12. During the year reviewed by this report, the Madras Presidency, in common with the rest of the world, was passing through a period of unprecedented economic depression and it was not to be expected therefore that there would be any marked progress to record in respect of the working of the State Aid to Industries Act. The number of applications for aid increased during the year from eight to seventeen, but a large proportion of these were of so unsatisfactory a character as to render their rejection by the Board inevitable, while the position of the majority of the concerns to which financial assistance has been rendered since the Act was brought into force affords little ground for satisfaction.

GENERAL ASSISTANCE TO TRADE AND INDUSTRY.

This work is carried on in the Bureau of Industrial and Commercial Information, the organization and objects of which have been fully described in previous administration reports. The number of enquiries received on industrial and commercial questions during the year under review was well maintained and evidence of the Bureau's usefulness is forthcoming not only in the number of persons who resort to it for advice and assistance, but also by the number of letters of thanks received for services

rendered and information supplied. In fact it is not too much to say that the public have learnt to look to the Bureau for counsel when in any difficulty in regard to industrial and commercial matters, and to recognize it as an organization specially established to help them.

Commercial and industrial intelligence.—The Bureau works in close touch with the Director-General of Commercial Intelligence and Statistics, Calcutta, and to a less extent, either directly or indirectly, with the Indian Trade Commissioner in London. The Bureau also maintains close touch with His Majesty's Trade Commissioner at Calcutta and with the various foreign consuls at Bombay, Calcutta and Madras with whom information is freely exchanged. It is through these authorities that information in regard to current developments and trends in world trade is obtained to some extent, although in the absence of any organization for collecting such information from abroad, much depends on the reading and knowledge of the officer in charge of the Bureau. The Government of India have recently appointed a Trade Commissioner at Hamburg and it is believed to be under contemplation, as soon as financial conditions permit, to appoint Trade Commissioners at other commercial centres. When Trade Commissioners are functioning in various commercial countries, it will obviously be much easier than it is now for the commercial intelligence departments in India to maintain touch with current commercial trends and to interpret their reaction on conditions in this country at a sufficiently early stage. It may then perhaps be possible to take up the study one by one of the various export products and investigate the world position with a view to gauging over a period whether the demand for them is likely to expand or contract and whether an improvement in the quality or methods of preparation would stimulate demand and bring in a bigger return to the cultivator. The Deputy Director continued to furnish the Director-General of Commercial Intelligence and Statistics with a short weekly review of trade and market conditions in respect of the main classes of produce.

It is difficult to illustrate in a few paragraphs the range and variety of the work carried on by the Bureau, or to summarize briefly the scope of the enquiries received during the year, but the following examples of measures taken to assist firms or individuals will, it is hoped, serve to illustrate the many and varied ways in which the Bureau is of practical use in supplying information and advice on industrial and commercial subjects:—

(i) The Consul for the United States of Venezuela, Calcutta, was supplied with specimens of silk worms, cocoons, etc., for transmission to his Ministry in Venezuela.

(ii) A Government department in Calcutta was supplied with the names of importers into the Presidency of cold bitumen emulsions.

(iii) An enquirer in Arcot was furnished with information in regard to the chief importers of sandpaper.

(iv) A list of the chief centres in the Bombay Presidency in which cotton lungis are woven on handlooms was furnished to an enquirer in Porto Novo.

(v) A firm in England was supplied with information as to the prices and places of availability of ferruginous gravel together with samples.

(vi) A few specimens of Indian art work, e.g., silver embossed copper pot and rosewood model of the gopuram of the Madura temple were sent to the High Commissioner for India for display in the India House Show Room.

(vii) A range of toilet articles manufactured by a local manufacturer was analysed at the Kerala Soap Institute, Calicut, and a report on the analyses sent to the proprietor.

(viii) The Director, International Labour Office, Delhi, was furnished with information in respect of hours of work, rates of wages, etc., in the coir mat industry in this Presidency.

(ix) His Majesty's Trade Commissioner in Calcutta was supplied with a report in regard to the canning industry in India.

(x) The Director, Geological Survey of India, was supplied with information in respect of the sources of supply of chrysotile asbestos.

(xi) Information in regard to the price of the several varieties of bamboo suitable for the manufacture of spikes and the quantity available was furnished to an enquirer in Brahmadesam.

(xii) A Government department in the Punjab was supplied with a list of manufacturers of eucalyptus oil in the Nilgiris.

(xiii) A Government department in Bengal was supplied with a note on the process of manufacture of eucalyptus oil in the Nilgiris.

(xiv) A list of the names and addresses of cultivators and suppliers of black pepper and cardamoms in the Malabar district was supplied to a Government department in the United Provinces.

(xv) Information in regard to suppliers of chalmooogra oil in South India was furnished to a Government department in Bengal.

(xvi) A list of importers of sandalwood oil in Europe was furnished to an enquirer in Kalianpore.

(xvii) An enquirer in Banganapalle was supplied with a list of important purchasers of divi-divi in Madras city.

(xviii) Information in respect of the availability of hydno-carpus oil in this Presidency was given to a prominent firm in Madras.

(xix) A firm in Tuni was furnished with information regarding fruit-preserving and fruit-juice preserving.

(xx) A Government department in the Punjab was furnished with information in regard to the quarrying of china clay or white clay in this Presidency.

(xxi) An enquirer in Nandyal was supplied with information in regard to the match industry.

(xxii) A list of essential oil distillers was furnished to a Government department in Lahore.

(xxiii) A list of principal dealers in ritha (soap-nut) powder was supplied to a Government department in Bengal.

(xxiv) A Government department in Bombay was furnished with a list of the more important dealers in graphite in South India and Ceylon together with samples of graphite and cedar wood used in the manufacture of pencils in this Presidency.

(xxv) A Government department in Calcutta was supplied with a list of hosiery factories in Salem with information in regard to their working.

(xxvi) A Government department in this Presidency was supplied with information in regard to the advisability of leasing certain trees for lac cultivation.

(xxvii) A list of the more important cultivators and suppliers of betel-nuts on the West Coast was furnished to a Government department in the United Provinces.

(xxviii) An enquirer in Aruppukottai was supplied with a list of the more important wholesale dealers in bengal gram in this Presidency and in the Presidency of Bengal.

(xxix) The Consul for Japan, Bombay, was supplied with a note on the trade in and industry of palmyra and coir fibres.

(xxx) A list of important manufacturers of tinctures for pharmaceutical purposes was supplied to a Government department in Bombay.

(xxxi) A gentleman in Cuddapah district was furnished with the names of importers of barytes in Bombay.

(xxxii) A firm in Guntur was supplied with the names and addresses of important manufacturers of tobacco-moistening machines in the United Kingdom and America.

(xxxiii) An exporter and importer in Madras was furnished with information in regard to the occurrence of Artimesia Maritima in Kashmir and the Punjab.

(xxxiv) A list of persons and firms engaged in mining operations in this Presidency was supplied to an enquirer in Bombay.

(xxxv) A firm in Madras was furnished with a list of the principal dealers of musk in the Sadiya Frontier Tract, Assam.

Statistics.—The department continued to compile statistics relating to industries including statements of cotton, jute, paper and woollen mills, planting products, mines and minerals, as also an annual review of the working of the Indian Mines Act. The usual summaries on the subjects of manufactures, mines and quarries, were also prepared for inclusion in the Administration Report of the Presidency. A fortnightly statement of wholesale prices of certain products at Madras and Coonoor continued to be supplied to the Director of Contracts, Army Headquarters, to enable him to exercise control over rates paid to the agents for military purchases. The Director-General of Commercial Intelligence and Statistics continued to be supplied with a fortnightly statement, showing the wholesale prices of certain basic commodities at Madras. During the year under review the compilation of the quarterly statement of the retail price of Indian-made matches at Madras was discontinued by the Government of India.

Pamphlet on the industrial potentialities of Mettur.—The Deputy Director was entrusted with the preparation of a pamphlet giving a general description of Mettur camp. In it the industrial potentialities of the area and the industries which appear prima facie to offer scope for development were described in considerable detail. The preparation of this pamphlet involved a study of such factors as the situation of Mettur in relation to raw materials and industrial crops, communications and transport, resources of the area and adjacent districts, labour supply, water-supply and cost of power. The potentialities of Mettur as an industrial centre are considerable, for not only will the area have all the weighty advantages of cheap power, ample supply of water, proximity to cotton and groundnut tracts, reasonably good communications and climatic conditions, housing accommodation for a large industrial population and an organized and contented labour force but in addition Mettur has a plenitude of excellent factory sites in proximity to the railway and the river Cauvery, whilst the red and gravel subsoil of the area is very suitable for building construction. The object of the pamphlet is to invite the attention of manufacturers in India and abroad to the facilities which will be afforded by Mettur on the completion of the project in 1934, as a suitable location for the establishment of manufacturing industries and the setting up of mills and factories of various kinds and an endeavour has been made to supply such information as may be of interest to manufacturers who may be considering establishing factories in the Madras Presidency. The pamphlet was in the press at the close of the year.

Coir industry.—The experiments referred to in the report of last year in respect of the retting of coir at Thopputurai in the Tanjore district were completed during the year under report and the results embodied in bulletin form. Arrangements are in progress for the publication of the bulletin in English and the principal vernaculars. The results of the experiments show that it is possible by retting in fresh water to obtain fibre very closely approaching the quality of yarn produced on the back waters of the West Coast, provided there is movement of water. This is important as it will enable retting operations to be successfully undertaken in places devoid of backwater facilities. The demonstration of coir-retting processes was conducted in other important centres in the Tanjore district, such as Mayavaram, Mutupet, Pichakattalai, etc.

Lace and embroidery industry.—Reference was made in last year's administration report to the question of the establishment of an emporium in Madras for the sale of Madras industrial products. Further information on the subject was obtained from the Director of Industries, Bihar and Orissa, and a comprehensive report was submitted to Government, advocating the establishment of an emporium in Madras and the appointment of an agent in London jointly with the Government of Bihar and Orissa. Owing to the financial stringency, however, Government were compelled to defer consideration of the central emporium scheme. It was therefore not possible to agree to the joint scheme for the sale of articles in London.

Ceramic industry.—During the year, orders of Government were received approving of the proposal for the conduct of a survey of the ceramic industry in the Presidency as a preliminary to the institution of an experimental ceramic factory. The survey includes, besides an investigation of the location and character of raw materials available for use in the ceramic industry, the extent of their deposits, their commercial value and the facilities available for quarrying and transporting them, an investigation of the present position and potentialities of the tile industry on the West Coast and the problems, if any, with which the tile factories are confronted. The officer selected who has undergone training in England and has had practical experience in the industry entered on his duties in July 1930 and during the year completed the survey of the ceramic possibilities of eight districts of the Presidency as well as the investigation of the tile industry in the South Kanara district. The raw materials used in the ceramic industry are china clay, plastic clays, flint, felspar and gypsum or plaster of paris. Valuable deposits of china clay occur in Trichinopoly and Cuddapah districts while white clay with impurities and

felspar are reported to occur in Bellary and Kurnool districts. Pegmatite, a variety of felspar of very good quality, is available in large quantities in Nellore district. The raw materials required for the manufacture of porcelain and other ceramic goods such as stoneware jars, drainage pipes, electric insulators, are also available in the districts so far surveyed. The Ceramic Assistant has also demonstrated the working of an improved potter's wheel for the benefit of potters in certain select places, and further rendered practical technical assistance to a gentleman in Madras in the erection of a ceramic test kiln for the manufacture of porcelain goods. The period of the appointment of the Ceramic Assistant has been extended by another year to enable him to complete the survey of the remaining districts considered important from the standpoint of ceramic possibilities. It is hoped that the results, when published, will be taken advantage of by persons interested in the subject and that the development and organization of the industry in the Presidency will receive a distinct stimulus.

Retting of sunnhemp.—The Empire Marketing Board, London, drew attention during the year to the opportunity afforded by the increased demand for sunnhemp, for India to secure for her commodity a good market in overseas countries. It is generally held that the crude and careless methods attending the cultivation and production of sunnhemp in India, as well as the lack of proper grading, stand in the way of any considerable development in the demand for the product, or of its commanding a better value in overseas markets, unless serious efforts are made to improve matters in these directions. The Leather Research Chemist was therefore asked to initiate at Topputurai experiments on improved methods of retting sunnhemp both in salt and fresh water, soaking the sunnhemp for varying periods. The Director of Agriculture who was consulted in regard to the samples prepared by the Leather Research Chemist pointed out that they were retted for a longer period than was the case with the samples prepared by his department and tested by the Imperial Institute, London, and that therefore there was a distinct possibility that these samples would be defective in strength, as if sunnhemp is soaked in water for more than four days, the strength of the fibre diminishes and it is rendered unsuitable for the London market. It was decided therefore to prepare further samples cutting down the period of retting and experimenting with the quality of the water used and the temperature at which the process is carried out, the object being to produce a clean fibre of good colour and possessed of the maximum possible strength. An investigation into the possibility of extracting the fibre of the sunnhemp plant by machinery,

thus avoiding the retting process altogether, was also decided upon.

GENERAL CONDITIONS OF THE IMPORTANT INDUSTRIES IN THE PRESIDENCY.

During the year under review, the Madras Presidency in common with the rest of the world was passing through a period of unprecedented economic depression and like all producers of primary products suffered severely from the fall in prices. The production of agricultural products has run ahead of demand and the real problem is the correction of over-supply extending over a wide range of commodities. The prices of primary products have fallen more rapidly than those of the manufactured articles imported in exchange and the economic crisis will not be over until sellers of finished goods succeed in equating their prices in terms of money with those of their impoverished customers rich only in primary stocks, but considerable difference of opinion exists as to whether better conditions would be more quickly established by readjusting prices of manufactured goods to the new level of agricultural products or by an attempt to raise agricultural products to the artificial level of manufactured goods. The general basis of world prosperity undoubtedly lies in a satisfactory level of commodity values whereby the primary producer can earn satisfactory profits but this can only be effected when excess production is overtaken by an increase in consumption, and the expansion of consumers' demand, which is so greatly to be desired, may be expected to be a gradual one.

New industrial undertakings.—The new registrations during the year were 115 as against 105 in the previous year. Of the new registrations, nearly 51 per cent were trading and industrial concerns, and 23 per cent banking and loan companies, the remainder consisting mostly of insurance and transport companies. The large increase under trading and industrial concerns is accounted for by the fact that no less than twelve have been promoted for encouraging swadeshi goods and the manufacture of khaddar. Among the new registrations may be mentioned the Hydro-Electric Power Distributing Company, Limited, Madras, with an authorized capital of Rs. 10 lakhs and the Guntur Power and Light, Limited, the Kumbakonam Electric Supply Corporation and the Nellore Power and Light, Limited, each with an authorized capital of Rs. 5 lakhs. Seven film companies were registered during the year. Fifty-eight companies ceased to exist as against 40 in the previous year.

Mining operations.—The following prospecting licences and mining leases were granted during the calendar year 1930:—

	ACS.
* Fifty-four prospecting licences for prospecting for barytes over an area of	1,873.74
Thirteen prospecting licences for prospecting for mica over an area of	237.93
Three prospecting licences for prospecting for asbestos over an area of	4,024.27
One prospecting licence for prospecting for manganese ore over an area of	70.00
One prospecting licence for prospecting for pyritis ore over an area of	2 square miles.
Twelve mining leases for working mica over an area of ..	364.22
One mining lease for working asbestos over an area of ..	189.36
Do. working magnesite over an area of ..	1,573.34
Do. working garnet sand over an area of ..	0.42
Do. working china clay over an area of ..	38.99
Do. working barytes over an area of ..	16.00

Mining continued to be carried on in the districts of Bellary, Vizagapatam, Salem, Nellore, the Nilgiris, Kurnool, Cuddapah and Trichinopoly and the minerals raised were manganese, magnesite, mica, barytes, corundum, asbestos, phosphatic nodules and gypsum.

Manganese.—The mining of manganese was carried on in the districts of Bellary, Vizagapatam and Cuddapah and the total quantity mined was 16,723 tons against 35,068½ tons mined in the previous year and 34,351½ tons in the year 1928. There was a large decrease during the year in the output of manganese in the Vizagapatam district and the total value of the mineral raised at the mines was Rs. 1,03,034-7-5 as against Rs. 1,91,695 in the previous year. In the Bellary district, the decrease in the output was even more marked, the total quantity of manganese raised being 3,460 tons as against 10,535½ tons in the previous year. The fall in the output is attributable to the restricted demand owing to the severe depression in the iron and steel industry.

Magnesite.—The output of magnesite in the Salem district decreased further from 22,134 tons to 15,563½ tons and the value of the mineral raised from Rs. 1,08,772 to Rs. 67,978. Of the five magnesite kilns in Suramangalam, only one worked during the year owing to the limited demand for the mineral. The production was the lowest for many years past, the Magnesite Syndicate's mines and works operating at only 20 per cent of

* Of the 54, one application covering an area of 18.08 acres was subsequently withdrawn during the year.

capacity. The chief market is America and in that country buyers have to pay heavy railway and steamer freights in addition to the enhanced import duty on calcined magnesite imposed by the United States of America. As the Grecian and Californian mines are nearer to the consumers, the mineral is apparently obtainable therefrom at cheaper rates and the Indian magnesite trade is greatly affected by this competition. Sales within India have not also shown much improvement and the progress in the demand for flooring tiles is slow.

Mica.—There was an appreciable increase in the output of mica in the districts of Nellore and the Nilgiris, the year's output being 764½ tons against 561 tons in the previous year. The increase is apparently due to its growing demand in the electrical industry.

Barytes.—The output of barytes in the Kurnool district increased from 762 tons to 4,235 tons whilst 154 tons were mined in the Cuddapah district as against 43 tons. This large increase in production is apparently due to the increased demand for barytes from the Calcutta paint works.

Asbestos.—The output of asbestos in the Cuddapah district declined from 88½ tons to 33¼ tons since the Mysore Development Syndicate were not able to carry on mining operations and the Mysore Asbestos Mines, Limited, temporarily suspended their mining work.

Phosphatic nodules and gypsum.—Thirty-one and a half tons of phosphatic nodules and 8¼ tons of gypsum were raised during the year as against 22½ tons and 22½ tons respectively.

Textile industries.—The area of the crop under cotton during the year under review was smaller than in the previous year. Exports of raw cotton from the Presidency by sea were—

	TONS.
1929-30	41,122
1930-31	21,167

The big falling off in exports was due to the smaller crop, the general depression in the textile industry and possibly the tariff protection given to Indian mills. World prices for cotton are now lower than they have been since the beginning of the War and it seems probable that the amount realized by the ryot for this year's crop will be one of the lowest on record.

Cotton mills.—There are 22 spinning and weaving mills working in this Presidency, five in Malabar, four each in Coimbatore, and Madura, three each in Madras and Tinnevely, two mills in East Godavari and one in West Godavari. 753,520 spindles were at work in these mills during the year. The number of looms at

work was 5,034. Cotton spinning and weaving in common with most other industries passed through a difficult time during the year under review owing to the severe fall in commodity prices and consequent reduction in the purchasing power of consumers, as also to the lack of confidence accentuated by the political situation and the fall in cotton values. Competition has been very keen and although output was well maintained, prices were unremunerative.

Jute mills.—There are four jute mills in the Presidency and these are situated in Nellimerla, Chittivalasa, Ellore and Guntur. The number of looms and spindles installed in them are 941 and 20,394 respectively. The jute industry has been in a very depressing condition and prices declined during the year.

Hosiery mills.—There are twenty fairly large factories in the Presidency which are generally run by power, but two of these—The Andhra Hosiery Factory, Bezwada, and the Sree Lakshmi Hosiery Works, Madras—suspended operations during the year. The Premier Hosiery Factory in Calicut has installed three machines for manufacturing fine plain banians. The more important hosiery factories are situated in Malabar and at Karur and Salem, the Malabar and Karur concerns manufacturing mainly net banians, whilst those at Salem are engaged mainly on the manufacture of ribbed banians. The factories appear to have been fairly well employed during the year as, although they experienced severe competition from the cheap and inferior Japan goods, some benefit was derived from the preference shown for swedeshi article. The indiscriminate introduction of Barfuss looms, however, has intensified competition and prices throughout the year were unremunerative to manufacturers. Consignments of hosiery goods are frequently forwarded by manufacturers for payment as and when they are sold, and sales conducted on these lines are expensive.

Madras handkerchief industry.—The industry has suffered from the general world depression and the reduced purchasing power of the consuming centres with the result that there was a very considerable reduction in shipments of Madras handkerchiefs, exports declining by Rs. 22·10 lakhs. In order to compensate for the low prices offering, the weavers took to producing inferior goods by using inferior yarn and dyes, in reducing the ends and picks per end, as well as the length and breadth of the pieces. This deterioration in quality has had a further adverse effect on the industry.

Lungis.—The lungi trade remained in a very depressed condition throughout the year as the Indian labourers employed on the plantations of Ceylon, Strait Settlements and Federated Malay

States returned to this country in large numbers during the year. Most of the lungi weavers took to weaving Madras handkerchiefs, but being inexperienced, produced only inferior goods.

Tanning industry—General.—In common with practically every other industry the tanning industry of the Presidency has suffered severely during the period under review from the worldwide depression in trade. The table that follows shows the extent to which shipments have fallen off:—

<i>Exports of hides and skins, tanned or dressed.</i>				
Year.	Quantity.		Value.	
		TONS.		RS.
1929-30	...	18,595		689.44
1930-31	...	16,218		558.41

The figures show that the exports dropped by 2,377 tons in quantity and by Rs. 131.03 lakhs in value representing 13 per cent in volume and 19 per cent in value. Tanners of both hides and skins have lost considerable amounts and failures and compositions with creditors have been numerous.

Tanned cow hides.—Exports decreased by 1,472 tons and by Rs. 39.92 lakhs in value. Except for a few weeks in October and again in February, there has been a steady fall in prices throughout the year. At the beginning of the year, prices for Prime Bangalores 8/8½ lb. were on the basis of 18d. c.i.f. London, while at the end of the year, prices had fallen to 13¼/13½d. The heavier weights of 10 lb. and 16 lb. average have fallen less in proportion, but lights 5/5½ lb. have been exceedingly badly hit, owing to the imposition of the duties on leathers imported into the United States. These 5/5½ lb. hides are used very largely for shoe linings and a very large business was done in them by English curriers with the United States, prior to the enhancement of the American duties.

Tanned buff hides.—These have followed approximately the same course as tanned cow hides, but owing to the exceedingly low prices realized for the ordinary tanned buffalo, tanners found it paid them better to dhori tan larger quantities, particularly of the heavier hides, since there was quite a good local demand.

Tanned cow calf on the whole kept up in price more than any other class, with the exception of buffalo calf and although prices have fallen, the drop has only been one of 15 per cent during the year.

Buffalo calf.—The very low prices ruling, particularly in October and November, had the effect of practically stopping production. As a consequence, during January and February, the

accumulations of stock in the London market were cleared and owing to the very short supplies, prices advanced quite appreciably during March. This advance has been maintained.

Tanned sheep-skins.—These ruled fairly steady in price for the first four months of the year, but from the August sales a rapid decline in prices set in and prices fell fully 30 per cent. Taking the average prices obtained in 1929 as 100, the price in July 1930 was 90 and in March 1931 this had fallen to about 63.

Tanned goat-skins.—Prices dropped fairly steadily until October, when owing to rather shorter supplies and probably the demand for the Christmas trade, prices advanced slightly and this advance was maintained up to the end of January. Since then, although the quantities in the March sales were small, prices declined and in the May sales, owing to the very much larger quantities, a tremendous drop in prices, over a shilling a pound in some cases, took place. It is likely that the large increase in quantities of goat-skins tanned is due to the following two causes. In the first place skin tanners were losing heavily on sheep-skins during January, whereas the goat-skin tanners in the November and January sales had at any rate lost very little. In addition to this the raw goat-skin market was very weak owing to an entire absence of export demand, during the period of the year when the majority of goat-skins in the Presidency are at their best. Prices for raw goat had fallen all over India and Madras tanners bought large quantities from Northern India at prices which they considered to be very low and which, presuming that prices for tanned skins were maintained, would show them very substantial profits. As a consequence of these large purchases all over India, the quantities of goat-skins in the May sales were almost double those in the March sales, and owing to the adverse trade conditions on the Continent and in England a very heavy drop in prices resulted.

Chrome tanning industry.—The demand for chrome leather fell off very considerably partly owing to the importation of cheap Japanese canvas footwear, and partly to the reduced purchasing power of the public. The industry is also handicapped by the heavy import duty levied on the chemicals and tanning materials which have to be procured from England or the Continent. The standard of quality of chrome upper leather productions has been very greatly improved during recent years.

Export duty.—During the year considerable agitation was raised by Madras tanning interests with a view to raising the export duty on raw hides and skins. The American market which took the ordinary East Indian tanned hides and skins direct from India, and the tanned skins and finished leathers made from both tanned

hides and skins from English and Continental dressers, has been to all practical purposes completely closed, owing to the imposition of a high tariff, particularly on fancy leather, and the Madras tanner is not in a position to pay as high a price for his raw-skin, as the American manufacturer of glaze kid.

Wattle bark.—Receipts of wattle bark mainly from Natal for tanning purposes declined from 259,093 cwt. valued at Rs. 18.80 lakhs to 203,523 cwt. valued at Rs. 13.98 lakhs. The decline is evidently due to the depression in the tanning industry.

Oil-milling industry.—This industry sustained a severe set-back owing to the low prices realized for all varieties of vegetable oils consequent on the world wide trade depression, and the external and internal demand for oils has been very poor. Several mills are reported to have either stopped working or to have reduced their output considerably, as with prices constantly dropping, the miller was not able to crush with confidence. The prices of coconut, groundnut and other vegetable oils have dropped to the lowest level recorded for very many years. Copra fell in price from Rs. 260 to Rs. 310 in the previous year to an average price of Rs. 225 per ton in the period under review, whilst the price of coconut oil declined from about Rs. 387 to Rs. 287 per ton. The price of coconut-oil would have declined still further had the copra crop been a good one. The price of groundnut oil fell to such a low level as to render milling unremunerative.

Fish-oil.—The disappearance of sardines on the West Coast has caused much hardship to the fish-oil manufacturers, and very little oil was produced.

Essential oils.—There has been a fall in the price of sandalwood and other essential oils in conformity with the general fall in prices of all commodities. The Kangundi Industrial Works and the South Indian Industrial Works, Kuppam, have been distilling the usual quantities of oils but their turnover is said to be slightly less owing to less demand from foreign countries. The demand for eucalyptus and lemon-grass oils also underwent a contraction and prices declined.

Sugar and jaggery industries.—The present depression in the sugar industry throughout the world has been brought about by an excess of production over consumption and by a large increase in the stocks held by producers in the principal sugar-manufacturing countries and consequently the prices of both sugar and jaggery have ruled very low. The question whether and to what extent protection was required for the development of the Indian sugar

industry was referred to the Tariff Board which submitted its report in March last. Acting on the recommendations contained therein, Government raised the import duty on sugar to Rs. 7-4-0 per cwt.

Tile industry.—Owing to the general economic depression, building operations have been greatly restricted in all markets and consequently the demand for tiles has dropped very considerably with the result that there has been over-production and prices have fallen to a marked extent. The outlook is therefore gloomy unless there is a general revival of trade in the near future. The demand from Colombo, Rangoon and Straits Settlements has greatly decreased. With regard to the latter market the Indian factories are reported to compete at a great disadvantage as it is impossible to get steamers to convey tile shipments to Penang and Singapore, while the French tiles are being imported by every steamer direct from Marseilles. Only occasional opportunities occur for the shipment of tiles and hence the value of the Indian tiles taken by the Straits Settlements is so small as to be almost negligible.

Chemical industries.—These have not escaped the results of the trade depression, the value of the imports of the various articles comprised under the head "Chemicals—Chemical Preparations" declining from Rs. 32.84 lakhs to Rs. 31.79 lakhs.

Manure industry.—The low prices ruling for all classes of agricultural produce has had very detrimental results on the fertilizer trade and sales have been considerably reduced. Imports of manures fell from Rs. 46.02 lakhs to Rs. 32.48 lakhs. The demand from the rubber, tea and coffee plantations fell off considerably, whilst as regards country crops, the ryot has been unable to expend money on manures for paddy, coconut, etc., owing to the low prices ruling for agricultural products.

Match industry.—Local manufacture continues to expand but suffers through competition. The value of the foreign import of matches declined from Re. 0.50 lakh to Rs. 28,248.

Saw mills.—The condition of the timber industry has been extremely difficult. Usually there is a large quantity of timber exported from Kallai to Bombay and Karachi, but in the year under review and particularly in the last six months of that period, this business fell away almost entirely, with the result that the season closed much earlier than usual. The Arab trade, that is, the purchase of timber by sailing vessels from Persian Gulf ports, was similarly affected and business was negligible. The export of rose-wood logs and other timbers to Europe and America, usually of fair dimensions was non-existent, the markets being completely moribund. As regards the internal trade, conditions were no better

as all building programmes were restricted to the absolute minimum and dealers who usually purchased very large stocks merely bought from week to week to cover their immediate requirements.

Pencil industry.—The Madras Pencil Factory continued to receive the patronage of the Central and Provincial Governments in the matter of their purchase of pencils. The management report that they have effected considerable improvements by the installation of up-to-date machinery and the adoption of modern methods of manufacture as a result of a study of the industry in Germany.

Coir industry.—Owing to the general trade depression the prices of all grades of coir yarn fell consistently during the year and the export demand for coir and coir products fell off considerably, manufacturing concerns reducing their output by 50 per cent. It is however believed that stocks in foreign countries are now very low indeed, and that an improvement in world trade should lead to a greatly increased demand for coir in order to replenish stocks and a steady, though probably lower, demand for the manufactured articles. The fall in the price of the raw materials has enabled production to be made at a much lower cost, thus meeting the world-wide demand for lower prices.

Soap industry.—The imports of all classes of soap into the Madras Presidency declined from 2,613 tons 17 cwt. valued at Rs. 26,60,288 in 1929–30 to 2,501 tons 4 cwt. valued at Rupees 23,10,806 in the year 1930–31. In the case of household soaps although there was an increase of 0.88 per cent in quantity, the value declined by 7 per cent indicating that the prices of foreign soaps have been reduced to meet the competition of cheap locally made household soaps and that the consumption of soap is gradually increasing in India. In the case of toilet soaps the quantity imported fell by 18 per cent and the value by about 19 per cent. This decline may be attributed to the political situation and the consequent preference on the part of the educated classes for Indian-made goods. The aggregate net fall in the imports of soap as compared with the previous year was 112 tons in quantity and Rs. 3,49,482 in value being 4.31 per cent and 13.1 per cent respectively. An impetus was given to the local manufacture of soap owing to the boycott of foreign goods and several persons have begun to make soap in a small way on a cottage industry basis, by the simple cold and semi-boiled processes using coconut-oil as the chief base. Two fairly large factories for making toilet soaps by the modern process have been established in Madras and are producing soaps of good quality. The fall in the price of vegetable oils contributed to the development of the industry. The number of soap factories in the Presidency is estimated at 125, Malabar and the Tamil districts claiming the largest number.

Aluminium utensil industry.—The period has shown no improvement in this industry and during the first few months a fierce fight took place between manufacturers who were loath to curtail production although the purchasing power of the public had been greatly reduced. The result was further reductions in prices which were already below the economic level. The price of metal imported into the Presidency dropped considerably and is now standing at the lowest figure on record, but it is very doubtful whether producers will be prepared to continue supplies at such a low figure for any length of time. It is reported that the aluminium factories in India and Burma could supply about 100 per cent in excess of the current requirements of these countries for aluminium goods.

Cigar manufacture.—The industry experienced a very marked falling off in trade—both local and export. The steadily increasing habit of cigarette smoking has very greatly affected the consumption of cigars all over the world, while the establishment of cigar factories in Great Britain, Africa, Australia and New Zealand in order, no doubt, to secure the advantage of the tariff protection, has diverted a larger share of the demand for Indian cigars to the home-made articles. The serious depression in trade all over India has undoubtedly affected the purchasing power of the public for a commodity regarded by many as a luxury. Although the industry will no doubt improve when conditions generally take a turn for the better the prospects of the restoration in the future of manufacture and demand to anything like the basis of ten years ago appears to be remote.

Rubber industry.—The rubber position during the period under review has been the most serious in the history of the industry. Owing to the marked falling off in consumption coupled with the heavy shipments from the East, stocks in London at the end of December totalled 117,921 tons as compared with 73,319 tons in the previous year. The May cessation of tapping did little to stem the tide of falling prices, and with the failure of the negotiations for an Anglo-Dutch Restriction Plan in the middle of the year, the resulting average price of the commodity for the period must have involved practically all producers in losses. Consequently estates in South India are gradually closing down though they are being maintained for the time being on a 'care-taker' basis. Even this cannot continue indefinitely as most estates and companies have only very limited resources and even if prices improve, recovery will be very slow owing to the prolonged period of absence of proper cultivation and also owing to the present dispersal of labour.

Tea industry.—This industry is also faced with the condition of a crisis and very few low elevation estates can now produce tea at a profit. Exports declined by 1.10 million lb. valued at Rs. 13.50 lakhs. In spite of the Restriction Scheme the statistical position at the close of 1930 was anything but favourable with a stock of over 260 million lb. in London. The best hope for this industry is a steady increase in consumption of tea in India itself which is being encouraged in every way possible by the Indian Tea Cess Committee and other bodies.

Coffee industry.—The general conditions under which trade had to be done in coffee were unsatisfactory, owing to the world-wide depression. Crops during the year, though not equal to the bumper crops of the previous year, were fairly good; but prices fell heavily though there was a slight improvement towards the end of the year.

Pepper.—The crop harvested in North Malabar was a large one, being about 20 per cent larger than the previous one. Prices were very unsatisfactory and fell as low as Rs. 30 a cwt. as against Rs. 80 in the year before.

Groundnuts.—The exports of groundnuts to foreign countries during the year declined from 582,963 tons valued at Rs. 1,338.97 lakhs to 457,204 tons valued at Rs. 735.02 lakhs. It will thus be seen that the shipment of groundnuts which represented 91 per cent of the trade in oil-seeds declined by 125,759 tons in quantity and by Rs. 603.95 lakhs in value in spite of the fact that the total area under groundnut showed an increase of 7 per cent over the previous year's acreage while the yield was estimated to be about 8 per cent larger. The general depression in all commodity markets led to an exceptionally low level of prices during the months of December and January, and Coromandel D.M.D. quality was quoted at one time at the low price of £9-5-0 c.i.f. European ports. It is quite possible that the charges incurred on unshelled nuts swallowed up the proceeds of the sale of kernels at this level of price and that it was not worth while for the ryot to dig his crop. In any case a larger proportion of the crop than usual seems to have been left in the ground and it seems probable that the acreage under groundnut next year will show a considerable reduction. Indian oil-seeds in general and groundnuts in particular are suffering not only from the world-wide trade depression but from the world-over production of oil-seeds, as well as from the increasing number of sources of oil of a similar type such as palm-oil and soya bean-oil, the supply of which has been increasing rapidly in recent years. Everything possible should therefore be done to encourage the setting up of factories in India utilizing vegetable oils as a raw material such as soap factories or factories for the manufacture of vegetable fat

as the establishment of such factories would result in the utilization in the country itself of an increasing quantity of the oil-seeds produced in the Presidency, while an increased quantity of oil-cake would become available to the ryots at a cheaper price for use as manure. It is hoped that as a result of the experiments initiated at the Kerala Soap Institute on the refining and deodorization of oils and the hydrogenation of oils and fats, it will shortly be possible to advise firms and industrialists who contemplate engaging themselves in the development of the oils and fats industries. It will be a long time, however, before any large proportion of the groundnut crop will be worked up within the Province itself in the form of manufactured products.

COTTAGE INDUSTRIES.

During the year under report, the department continued to assist the several cottage industries in the Presidency in their difficulties and the following instances are given of the action taken in this regard.

Toy industry.—In the course of his tours the Director inspected the toy factory run by Haffiz Meah & Sons, Cuddapah. Toys of good workmanship representing fruits, such as limes, and oranges and other articles such as pen-holders, small containers, jars, paper-weights and the like are made and sold locally. The timber used in the industry is a light wood known as 'Palakarra.' With a view to securing a concession similar to that obtained for the Madura toy workers, viz., permission for the toy-maker to fell and to remove the 'Palakarra' wood used for toy-making on payment of a fee to the contractor, the District Forest Officer, North Cuddapah, was addressed by this department, but he reported that 'Palakarra' is so very sparsely distributed in the forest of his division that it would not pay to exploit it, that sufficient quantities for commercial purposes are not available, that the price of the wood 'Palakarra' in situ (in coupe) supplied through the agency of contractors would be Rs. 2 to Rs. 3 and the cost of transport by road to Cuddapah would be about Rs. 8 per ton and that not more than a few tons could be supplied annually through this means. The toy manufacturer has been informed accordingly.

Mat industry.—Government accepted the proposals put forward by the Collector of Nellore at the instance of this department to permit the mat-makers in the deltaic parts of Nellore district to remove 'tunga' grass free of charge for mat-making and have ordered that in the deltaic parts of the district the local mat-makers may be allowed to remove 'tunga' or 'kora' grass free of charge for mat-making subject to

the condition that no damage is caused to channels or other Public Works Department works and that if the mat-makers abuse this privilege, the concession should be withdrawn. They have also no objection to the free removal of reeds by the mat-makers from unreserves in the Markapur taluk of the Kurnool district. It has been represented by the mat-makers in Kocherla village that the demand at present is more for baskets, screens and hampers made of wild creepers and of such creepers as mallathiga, kambithiga, thavatharithiga, janathiga and kumpathadithiga found in reserve and panchayat forests and that if they are permitted to remove these wild creepers free of seigniorage fees, it will benefit them to an appreciable extent. The Collector of Guntur was addressed on the matter and he has obtained the permission of the two panchayats of Muppalla and Kundramutla for the free removal of creepers in their reserves by the Erukulas of Kocherla village. The Collector of Guntur was also requested to move the local District Forest Officer to grant a similar concession in respect of the reserved forests.

Button manufacture.—The machine brought over from Narayanaganj in Bengal was tried and was not found so useful as the local lathes. The Research Engineer arranged for the manufacture of a treadle machine at the Industrial Engineering Workshop for making shirt buttons out of bones. It is proposed to have this machine demonstrated at Parlakimedi and Samalkot with a view to developing the indigenous button industry.

Cane industry.—A supply of seeds of *Calamus caesius* was obtained from the Federated Malay States and arrangements were made with the Revenue Divisional Officer, Cuddalore, to have the seed cultivated along the banks of the odais, channels and water-courses in Cuddalore taluk. The District Forest Officer, Nellore, also asked for some seeds for introduction in Sriharikotta range of his district and as the first consignment of seeds had all been distributed, the Deputy Forest Research Officer, Federated Malay States, was addressed for a further supply of seeds.

Palmyra industry.—Arrangements were made about the close of the year for some tappers from Repalle to go to Cuddapah, but as the palmyra-tapping season had then much advanced, the tappers could pick out only ten trees for tapping. These were duly tapped and the palmyra juice was boiled into jaggery. The tappers also taught the local Idigas the art of climbing palmyras and of making baskets, mats, pot-rests and ropes. The beginning made has been an entire success though if the season had permitted, more extended tapping could have been done. As it is, the work will be resumed next January.

Palmyra baskets.—The Indian Trade Publicity Officer, London, to whom samples of Pulicat baskets were sent with a view to ascertaining whether there was any demand for them has reported that some of the baskets are marketable but that certain alterations will have to be made in others to suit the market in London. The manufacturers have been informed accordingly. At the instance of the Indian Trade Commissioner in London, Mr. J. Reid and a firm in London have been put in touch with manufacturers of such baskets in South India.

Match industry.—The Madras Corporation who were addressed with a view to granting exemption from the municipal duty in respect of aspen wood imported into the City so as to assist the local match manufacturers to hold their own against the Swedish Match Company having replied that no exemption of a particular class of timber is permissible, Government have been addressed with a view to levying only a nominal tax on aspen wood.

Bee-keeping.—The Superintendent, R. E. I. Dairy Farm, Dayalbagh (Agra), was furnished with instructions and advice as to how to start the industry. Bee-keeping has recently been added to the curricula of the Convent Industrial School, Coimbatore.

Handmade paper.—Experiments on handmade paper were completed during the year and the results obtained have been embodied in the form of a bulletin. Arrangements are in progress for its publication in the vernaculars—Tamil and Telugu—for distribution to actual workers and others interested in the development of the industry.

During the year Miss B. M. Tweddle, Wesleyan Mission, Tiruvallur, Chingleput district, was given a non-recurring grant of Rs. 750 to enable her to examine indigenous industries and to purchase samples of industrial products in the countries which she proposed to visit en route to England. She left India about the end of 1930 and is expected back in the month of July when she will submit a report to Government on the results of her visits and forward the samples brought by her for circulation to other industrial schools in the Presidency, with a view to ascertaining whether they can be produced in this Presidency.

MANAGEMENT OF MANUFACTURING CONCERNS OWNED BY GOVERNMENT.

Kerala Soap Institute, Calicut.

Staff.—M. R. Ry. A. K. Menon was in charge of the institute as Superintendent throughout the year except from the 23rd April to 21st May 1930 when he was on leave when M. R. Ry. P. S. Sreenivasa Ayyar, First Assistant, acted as Superintendent in his absence.

Production and accounts.—The trade depression which had set in during the previous year continued unabated during the period under review. Merchants and traders who suffered financial loss owing to the general fall in prices were disinclined to lay in any considerable stocks of soaps and the difficulties of the position were intensified by a boycott of the institute soaps by a certain section of the public on the score that they were produced by a Government factory. On the other hand, new outlets were opened up and an increased demand was forthcoming from some quarters. The year opened with a stock of 223 tons 4 cwt. 82 lb. of soap and 280 tons 18 cwt. 4 lb. of all classes of soap valued at Rs. 1,33,002-13-1 were manufactured during the year as against 218 tons valued at Rs. 1,11,825 in the previous year. In spite of the difficult conditions prevailing throughout the year, the sales showed a marked improvement increasing from Rs. 1,72,070-8-10 in the previous year to Rs. 2,23,552-9-1 during the year under review. The result of the year's working was a loss of Rs. 5,451-4-9. The interest charged in the accounts at 5.44 per cent was Rs. 19,830-9-0. The net result of the year's working therefore was that in spite of the unfavourable conditions, the institute after providing for all overhead charges, was able to earn interest at the rate of 3.92 per cent on the capital invested in it a result which may be regarded as satisfactory in all the circumstances. During the second half of the year there was a profit of Rs. 888-8-9 after allowing for overhead and interest charges.

Military orders.—The orders received from Army Headquarters, Simla, during the year were on a very small scale. It was pointed out in last year's report that in view of the increased competition from manufacturers in India whose factories are nearer to the large centres of consumption, it was doubtful whether the institute could hope to secure in the future as large a volume of business from the Director of Contracts as it has in the past. The prices quoted to the Director of Contracts in recent years have been unremunerative and were it not for the fact that they enable the overhead charges of the factory to be spread over as large an output as possible, they would not be worth accepting. The business of the institute during the year continued to suffer by the putting on the market of colourable imitations of its products and many complaints were received in regard to this from agents as well as from customers. The question of instituting legal proceedings against one of the offenders was under consideration at the close of the year.

Sales organization.—Mr. R. C. Dalal continued to act as agent for Malabar, Coimbatore, the Nilgiris, and the State of Mysore including Bangalore. The volume of business transacted during the

period by Mr. Dalal compared somewhat unfavourably with that of the previous year. Messrs. The Anglo-German Trading Company, Calicut, who were appointed during the previous year as agents for Cochin and Travancore, introduced a fairly satisfactory volume of business. The orders placed by Mr. Adam Hajee Muhammad Sait, the agent for Madras, Chingleput, North and South Arcot and Chittoor showed a slight decrease as compared with the previous year and this was attributed by him to the prevailing trade depression and the difficulty of realizing outstandings. M.R.Ry. G. Palaniappa Mudaliyar, agent for Madura (excluding Kodaikanal), Ramnad, Tinnevely and Trichinopoly districts, transacted a considerably increased volume of business with the institute during the year and showed commendable energy and enterprise in canvassing orders in his jurisdiction. M.R.Ry. K. Raghavendra Rao, Kumbakonam, who was originally a stockist was appointed as agent for the Tanjore district from the 1st July 1930 and the volume of business transacted by him was satisfactory. Messrs. Rao Sahib P. V. Rangiah & Sons, Masulipatam, were appointed agents for Ganjam, West Godavari and Kistna districts in December 1930 and the orders placed by them before the end of the year were inconsiderable. It is hoped, however that they will be able to develop a fair business during the current year. Messrs. Devar & Co., Colombo, continued as agents in Ceylon, and considering the severely depressed state of trade in that island, the business done by them may be regarded as satisfactory. Messrs. P. Muncherji & Co., Bombay, who were appointed agents for the Bombay Presidency in September 1930 appear to be making every endeavour to develop sales in that important market. M.R.Ry. K. Visvanatham Chetti, Secunderabad, and the Kodaikanal Co-operative Stores continued as stockists during the year and placed fairly satisfactory orders with the institute as also did the Popular Stores of Nagpur City in the Central Provinces, the Sri Ganesh Stores in Rangoon, Sarab Dayal & Sons, New Delhi and Simla and Fakir Walji & Sons, Karachi. New stockists were appointed during the year at Rajahmundry, Vizagapatam, Anantapur, Kurnool and Cuddapah.

Visits to important markets.—During the year the Superintendent visited Mangalore, Ootacamund, Coonoor, Chittoor, Madras, Bangalore, Tiruppattur, Vaniyambadi, Tinnevely, Tuticorin, Madura, Parvatipuram, Vizagapatam, Rajahmundry, Bezwada, Tenali, Colombo, Nagpur, Bombay, Kirkee, Delhi and Simla. Most of these tours were undertaken with a view to inspecting the indigenous soap factories and advising them as to how to improve their methods and products, whilst in the course of the tours opportunity was taken to visit the various markets and discuss matters with the

agents and stockists. The Superintendent visited Simla for the purpose of interviewing the Director of Contracts, Army Headquarters, with reference to the supply of soap.

Training of apprentices.—Eleven students were under training in the institute during the year of whom two continued their training in the advanced course. The course of training includes instruction in general chemistry, oil technology and soap manufacture, and besides receiving theoretical instruction the students undergo a thorough practical training both in the laboratory and factory. A few of the ex-students have set up soap factories of their own at Madras, Tanjore and Rajahmundry and the soaps made by them have been tested and found to be of good quality. In time these former students of the institute should be able to develop successful business; at present they are handicapped by limited financial resources and the prevailing trade depression.

General.—During the year under report, 660 analyses were carried out in the laboratory of which 485 were of raw materials and factory products at different stages of manufacture and the remaining 175 were samples of soaps and allied products received from the public for analyses, a number of them having been collected by the Superintendent during the course of his tours. The apprentices receive practical training in the laboratory for nine hours a week in the testing and analysing of soaps, oils and other materials. The oil from the seeds of a tree believed to be *Pterocarpus marsupium* was extracted and analysed. Experiments were conducted during the year with a view to determining simple methods whereby the extent of rancidity in oils could be estimated approximately when such oils are refined by a small manufacturer with little or no knowledge of chemistry. A considerable number of enquiries in connexion with the manufacture of soap refining of oils and miscellaneous questions affecting the oils and fats industry were received and dealt with during the year. The Superintendent reports that many of the engineering firms and workshops in Calicut, Mangalore and other centres were given an opportunity of taking drawings of many of the items of machinery in the factory with a view to enabling them to copy such items and supply them to private factories, and that several of the ex-students of the institute ordered soap making machinery from these firms. The institute is thus assisting the public in every possible way.

Visitors.—The institute was honoured by a visit from His Excellency the Governor of Madras who was accompanied by Lady Beatrix Stanley on the 20th October 1930. The institute was, as usual, visited during the year by considerable number of visitors, and several parties of students from educational institutions both from within and without the Presidency.

Government Industrial Institute, Madras.

Staff.—M.R.Ry. S. Venkatarama Ayyar continued to be in charge of the institute throughout the year.

Printer's ink.—The experimental manufacture of printer's ink was in progress at the institute throughout the year. Research work continued on the preparation of a rotary ink for high-speed rotary machines and the ink was favourably reported on by the newspapers in Madras, who gave it a trial. The ink used for this purpose is imported from America and the question, whether it is possible to manufacture in India a suitable quality ink at a price which will admit of competition with the imported product, cannot be definitely decided until the lampblack experiments now in progress are brought to a conclusion. A quantity of foreign inks which hardened on storage and became unfit for use were sent to the institute for retreatment, but attempts to render them suitable for use have not so far been successful. An important ingredient in the manufacture of printer's ink is linseed oil and the question whether kusumba oil, which is cheaper, can be substituted for linseed oil, wholly or partially, was investigated during the year. In the absence of a triple roller mill difficulty was experienced in preparing superior quality inks, but an experimental mill was received in January and set up in March. Preliminary trials were carried out and the necessary adjustments made and a small quantity of book ink was manufactured shortly before the close of the year.

Lampblack experiments.—The experiments on the apparatus for the collection of lampblack—one of the chief ingredients in printer's ink—to which reference was made in last year's report, were continued during the year and they appear to hold out good prospects of success. If success is achieved, the manufacture of printer's inks in India will be, it is scarcely necessary to point out, greatly facilitated. In the course of the current year it should be possible to ascertain definitely whether the apparatus for the collection of lampblack is a technical success and whether as a result the commercial manufacture of lampblack and printer's ink in Madras is likely to prove a commercial proposition.

Miscellaneous experiments—Lemon-grass oil.—Experiments on the extraction of oil from lemon-grass were continued during the year, and it was found that the extracts of the oil vary in their characteristics according to the quality of the grass and its habitat. It seems doubtful whether definite conclusions can be drawn unless the individual characteristics of the different species in their different habitats are studied and the right samples for the extraction of marketable oil selected. The question of pursuing these experiments was under consideration at the close of the year.

Screw-pine flowers.—As the flowers are seasonal, the experiments extended over only a short period in August and September. The extract is best made by distillation of flowers along with water, but the perfume is fugitive and requires a fixative of the fat type or of sandalwood oil. The experiments will be continued when the flowers are next in season.

Fibres.—Yercum fibre was the first to be studied. The plant grows wild in dust heaps in waste tracts and near fences, etc. It is short and the fibre is in the mature bark the latter of which is peeled off from the stem and the fibres detached by finger. The process of gathering the fibre is laborious and the workmen complain of painful after-effects in their nails. The fibre is silky and has a good appearance and samples of it were sent to Indian and overseas firms for expert opinion as to its commercial value.

Enquiries.—Enquiries in regard to writing fluids, casein preparation, wood-oil, varnish, umbrella handles, senna leaves, purification of common salt, stoppage of leakage in barrels, fruit preservation and limestone analyses were received and dealt with during the year.

Research Engineer.

In G.O. Ms. No. 680, Development, dated 8th April 1930, Government sanctioned the proposal that a Research Engineer should be appointed for a period of two years for introducing improvements in existing appliances and for devising new appliances for use in cottage-industries and especially in the textile industry. M.R.Ry. Rao Sahib C. S. Ramachandra Ayyar was appointed to the post and assumed charge on the 4th June 1930.

Chank cutting machine.—It was stated in last year's report that the Research Engineer, then Superintendent of the Government Industrial Institute, Madura, had designed a lathe for cutting the chank by means of a circular saw. When this machine was demonstrated at Periapattinam the workers and merchants regarded it with considerable suspicion as they apparently feared that its introduction would result in their having to give up their hereditary calling. It was not therefore possible to convince them of the economic advantages of the improved machine. Arrangements were therefore made to transfer the venue of demonstration to Kilakarai where the workers were induced to take an interest in it and some 500 feeding cups were polished on the machine and later found a ready market in the City of Madras. On the completion of the demonstration, the machine was purchased by a local merchant and it has been in operation ever since.

Lampblack experiments.—A reference to the lampblack experiments has been made elsewhere in this report. The experiments were commenced by the Research Engineer in December with the object of devising a simple method for manufacturing lampblack, and after some consideration it was decided that the waste lubricating oil in garages and petroleum crude oil could be utilized for the purpose. The problem then was how to arrange for the material to be suitably burnt so as to yield the maximum amount of carbon. The high flash point of the burning oil, the temperature conditions of the burning chamber and of the collecting chambers, the highly inflammable nature of the product of combustion consisting partly of carbon monoxide and hydrogen, the necessity of burning the oil with a limited supply of air in order to avoid volatilization and complete combustion and of causing the maximum splitting up of the oil (hydro-carbon) into carbon (lampblack) and hydrogen, the maintenance of a steady stream of combustion product, and the provision of facilities for the deposition and collection of the material, were among the many points which had to be considered in determining the lay-out of a suitable plant. Improved burners were evolved as a result of a number of trials while the design of the collecting chambers was modified from time to time in the light of experience. The position at the end of the year was that an improved furnace had been constructed for regular production, and trials preliminary thereto were about to commence. In the course of the small-scale trials, lampblack was collected from the experimental chambers out of which printer's ink was manufactured. About a hundredweight of rotary ink was prepared out of the lampblack collected from the experimental plant and forwarded to the *Hindu*, the proprietors of which, it is understood, printed their newspaper with it for three consecutive days and were satisfied with the product.

Sizing machine.—The attention of the Research Engineer was chiefly directed during the year towards the evolution of an improved hot air sizing machine. An experimental machine has been constructed and it now remains to ascertain its practical utility and economic value. It is proposed therefore to try the machine under actual working conditions at a weaving centre where different kinds of yarn are sized on a considerable scale.

TEXTILE SECTION.

Mr. D. M. Amalsad continued as Assistant Director of Industries (Textiles) and Principal of the Government Textile Institute, Madras.

Government Textile Institute.—The weaving shed continued to be located in the rented building in Mukernallamuthu Street,

Georgetown, Madras. The construction of a room to accommodate the Practical Weaving section in the premises of the institute will be completed shortly and the looms erected and made ready for work. The wool and the silk sections however will have still to be housed in the corrugated iron roofed shed which formed the old Pencil Factory. Towards the close of the year under report, the Pile Carpet section of the School of Arts and Crafts was transferred to the Government Textile Institute.

There were 60 students on the rolls on the 31st March 1931, undergoing training in the various courses, as detailed below :—

I. Supervisor's course, second year	...	...	...	11
Supervisor's course, first year	...	...	...	11
II. Artisan course, Weaving	...	...	...	25
Do. Knitting	...	...	...	3
Do. Pile Carpet Weaving	...	...	...	3
Do. Dyeing and Printing	...	...	...	5
III. Special courses—				
Knitting	...	...	...	1
Jacquard Weaving	...	...	...	1
Total	...	...	...	60

After-career of students.—As far as information is available, of the students who have passed the Supervisor's course in May 1930, two are employed as teachers in weaving schools under district and taluk boards, one is serving in the dyehouse of the Carnatic Mills at Madras, one is an apprentice in the dyehouse of the Kaleeswarar Mills at Coimbatore, one is an assistant in the Imperial Chemical Industries, Limited, Madras branch, two are demonstrators of the Textile Parties and one is a stencil cutter in the Government Textile Institute. Of the students who have passed the Artisan courses in May 1930 five are teachers in weaving schools under district and taluk boards as well as missions, one is a dyeing and printing instructor in a mission school, and one is an apprentice in the dyehouse of the Coimbatore Spinning and Weaving Co. at Coimbatore; the remainder have presumably gone back to the looms in their homes.

District Textile Demonstration.—There were five Textile Parties at the commencement of the year. In October 1930, the Madras Party was converted into an inspection party with the Supervisor of Weaving Parties as its head. Two Parties, worked with their headquarters at Ichchapuram and Conjeeveram throughout the year. The two other Parties had their headquarters at Salem and Madura for a part of the year and at Coimbatore and Vizianagram for the remaining part. The working

of the departmental hot air sizing machine was demonstrated at the above centres. The Parties sized and supplied 171,015 yards of warp to the weavers, and thus paved the way for the introduction of weavers' beams. Demonstration of fly-shuttle slay was conducted at three centres of the Agency tracts of the Ganjam district, viz., Badanaj, Kumberakuppa and Rothingia which are backward weaving areas. The usefulness of improved appliances such as jacquards, dobbies and weavers' beams was also demonstrated by the Party at Conjeeveram. As a result of the demonstration, Mr. A. K. Thangavelu Mudaliyar of Conjeeveram purchased a 200 hooks Jacquard machine. Efforts were also made to persuade some of the cloth merchants and weavers of Conjeeveram to form themselves into a co-operative society for working the sizing machine for their benefit. Apart from the centres referred to above, a hot air sizing machine was demonstrated at the Kangundi Industrial Works, Kuppam. The firm sized various counts of yarn on the machine and were satisfied as to its usefulness. The demonstrators of the Inspection Party displayed the working of a fly-shuttle slay and a dobby at Koyampalli near Karur, and of a Jacquard machine at Kornad (Mayavaram) for the benefit of the local weavers. Assistance was rendered to Messrs. Muppanna Somaraju and Veerraju, Peddapuram, in the erection and working of a power Jacquard loom.

The Dyeing Party demonstrated aerograph printing and improved methods of dyeing in Cocanada, Gollapaliam and Peddapuram in East Godavari district, Narasapur, Palacole and Ellore in West Godavari district, Masulipatam in Kistna district, Mangalagiri, Guntur, Rentapalla, Kunchannapalle, Gollapadi, Tenali and Battriprolu in Guntur district, Cheyyar, Wallajah and Kuppam in North Arcot district. Besides the visits to the above places, the members of the Party have also had to attend to special calls from the following centres: Peddapuram, Ellore, Coimbatore and Nandyal. The Party gave demonstrations on a commercial scale at the Kangundi Industrial Works, the Imperial Weaving Establishment and the Kangundi Textile Company, all at Kuppam. A demonstrator visited the Immaculate Conception Convent Industrial School, Coimbatore, and gave demonstration of dyeing with indanthrene and naphthol dyes and of aerograph printing. So far, the following firms and institutions have taken to aerograph printing: (1) Messrs. G. Venkateswarlu & Sons, Cloth Merchants, Chirala, (2) London Mission Industrial School, Erode, and (3) Danish Mission Industrial School, Panruti.

The Supervisor of Weaving Parties inspected the work of the Parties at Conjeeveram, Coimbatore and Vizianagram.

Evolution of improved appliances.—An improved hot air chamber for the hand-driven sizing machine is in process of evolution by the Research Engineer. The hot air chamber has been replaced by five tubes, the draught being conducted by automatic pressure, the intensity of the heat being considerably increased so as to enable quicker drying of sized yarn. The width of the machine has also been increased, so as to permit larger number of threads being sized at a time. The efficacy of these improvements remains to be tested under actual working conditions. Improvements were effected in the beaming arrangement of the sectional warping mill. The tedious and unsatisfactory method of fixing iron separators for dividing the yarn and keeping the several sections separate from one another has been dispensed with.

Linked organizations.—In last year's report, it was stated that the department was considering the possibility of transferring the power dresser sizing plant to a co-operative organization of weavers, but it was not found possible to arrange for such an organization to take over the plant. In view of this and in consideration also of the fact that a power dresser is required in the Textile Institute for demonstration purposes, Government have approved of a proposal again to set up the plant at the institute. At the instance of the Textile branch, Messrs. Saraf P. Nagarajappa and C. K. Nagiah, Silk Merchants of Kollegal, obtained a Continental Silk-Throwing Plant during the year under report. When the machinery is installed and worked, it will enable uniformly twisted silk yarns to be supplied to a larger number of silk weavers in the Kollegal area. The centres where silk-throwing plants were previously installed are Peddapuram and Salem, the firms who installed them being Messrs. Muppanna Somaraju & Veerajau and Messrs. Venugopala Chetti & Bros., respectively.

Aided industrial schools dealing with textiles.—In pursuance of a recommendation of the Textile Advisory Committee which aimed at securing the most efficient working of the Textile sections of Aided Industrial Schools, these were brought under the control of the Assistant Director of Industries (Textiles) in September 1930 and M.R.Ry. S. Swaminatha Ayyangar, who was appointed as Supervisor of Weaving Parties, was also appointed as Superintendent of Weaving Instruction with reference to these schools. By the close of March 1931, M.R.Ry. Swaminathan had visited the following institutions:—Coles Industrial School, Kurnool; Wesleyan Mission Industrial School, Ikkadu; Chengalvaraya Naicker Institute, Vepery; London Mission Boys' School, Erode; Municipal Industrial School, Kumbakonam; Leipzig Mission Women's Industrial School, Mayavaram; St. Francis Xavier's Industrial School, Tanjore; Wesleyan Mission Industrial

School, Karur; the Agricultural School, Guntur; the S.P.G. School, Nazareth; the Y.M.C.A. School, Areakode; the Danish Mission School, Panruti; the Seva Sadan, Mylapore; the St. Joseph's School, Adaikalapuram, and C.M.S. School for the Blind, Palamcottah; *Borstal Schools*:—Senior Certified School, Chingleput; Junior Certified School, Rajahmundry, and Borstal School, Tanjore. In the case of the textile section of aided industrial schools, there has so far been no uniformity in the syllabus, equipment, standard of training, duration of course, or the general educational qualifications of the pupils and the aim during the year has been to bring all the schools into a uniform line of working. A difficulty in the way however is the unwillingness on the part of the managers of some schools to replace their present inadequately qualified teachers by duly qualified men, competent to coach up the pupils in accordance with the revised syllabus.

SERICULTURE.

Control.—During the year under report the Sericultural section of the department was taken away from the Textile branch and the Sericultural Assistant Mr. K. T. Achayya, whose designation was changed to Sericultural Expert, was placed in independent charge of the section. The Sericultural Expert toured for 135 days and visited all the silk centres besides Penukonda and South Kanara district and parts of Malabar for surveying possibilities.

General.—The year under report has been an exceptionally difficult one and the industry has been passing through a crisis on account of the continued depression in prices and unsatisfactory seasonal conditions, prices now ruling for mulberry leaves, cocoons, raw silk and silk waste leaving little or no margin of profit to the several persons concerned. The Indian silk market is controlled mainly by such factors as foreign imports, tariff duties, and the Chinese exchange. China being eminently suited for sericulture climatically and producing all grades and qualities of silks, is able at present owing to her depreciated exchange to dump into the Indian market her cheap quality silks at prices which render competition difficult if not impossible and unless something is done to ease the situation by raising the import tariff on raw silks, the very existence of the industry may be threatened. In spite of the unfavourable conditions, however, measures have been taken during the year to consolidate the existing industry at Kollegal and to introduce and develop the industry in suitable parts of the Presidency.

The schemes launched during the year included—

- (1) Starting of two aided grainages in Kollegal taluk.
- (2) Working of a five-basin domestic filature in Kollegal with the aid of a State loan.
- (3) Starting of a steam filature of 40 basins in Kollegal by private enterprise—a loan under the State Aid to Industries Act was applied for subsequently.
- (4) Starting of Sericultural experiments at Kuppam.

Kollegal.—The scope of the Peripatetic Rearing Party stationed in the important silk worm rearing village of Kamakere, has considerably increased. It is now responsible for the distribution of seed cocoons and disease-free seed supplied from Hosur Farm and Vadakangulam. Every effort is made to effect cash sales of these seeds which have to be distributed within the short period of three to four days before the eggs are hatched, but this is by no means an easy matter. The Mysore village seed cocoon vendors distribute seed cocoons on credit and the Kollegal rearers are not familiar with any other form of sale. Whenever the party finds the seeds about to hatch and perish, it is forced to dispose of them on credit. The Party has also to supervise the work of the rearers who purchase disease-free layings, two aided graineurs stationed at Kamakere and Chilkavadi, the domestic reeling plant installed at Bastipuram, the steam filature of 40 basins at Mudigundam and the Sericultural Co-operative Society at Doddindevadi. Further the Party is responsible for the supply of mulberry cuttings and disease-free seed to the district centres at all seasons of the year. The Party tested during the year 189,843 layings as against 234,999 tested during the previous year for the benefit of 150 rearers in seventeen villages of the taluk. The moth-testing work has suffered a little on account of the increased work in other directions reference to which is made above, especially the distribution of Hosur and Vadakangulam seed and the collection work in connexion therewith. All the rearers of the taluk are anxious to rear with disease-free layings in order to minimize losses due to diseases, but it is not possible to test the 70 lakhs of layings of seed necessary for Kollegal taluk alone. The expansion of aided grainage work on the right lines is the only way to meet the increased demand. All the seed cocoons received from Hosur Farm were converted into disease-free layings by the party and distributed. The price of such seed has been reduced from one rupee to 12 annas per 100 layings on account of the general fall in prices of cocoons, silk, silk waste, etc. Rearers using tested seeds have always harvested successful crops and the majority of them have realized the necessity of getting their seeds examined. The Party also taught some of the intelligent rearers the work of moth-testing. The Party hired out

spinning trays to the rearers of Kamakere and surrounding villages. Seventy-five bundles of mulberry cuttings and 2,540 layings of disease-free seed were supplied to various centres including Kuppam, Palmaner, Madanapalle, Parlakimedi, Parvatipuram, Vadakangulam, Hosur, Melrosapuram, Kolli Hills, Agra, etc.

Aided grainages.—The concessions sanctioned by Government in G.O. Ms. No. 375, Development, dated 18th February 1930, were granted to two graineurs, Messrs. Nagarajah and Appaswami who finally selected the two important rearing villages of Kamakere and Chilkuvadi for their work. They tested 73,190 and 43,650 disease-free layings respectively during the year and they expect to do more. They are finding collection work equally difficult though they find no difficulty in the disposal of seed. The rearers who use these seeds are satisfied with the quality. Two more applications for starting grainages have been received, one from a Kollegal village rearer who learnt grainage work at the Mysore Sericulture Institute and the other from Mr. Silva, the proprietor of the Steam Filature.

Silk reeling.—There are two filatures—one steam with 40 basins and one domestic unit of five basins—working in Kollegal taluk. A silk-throwing plant is under construction. The proprietor of the domestic plant has been given a loan of Rs. 750 under the State Aid to Industries Act and the loan application of the steam filature was under consideration at the close of the year. The work of the filatures suffered from the general economic depression and they had to suspend operations for some months.

Sericultural Co-operative Society.—This society at Doddindevadi started two years ago has not done much useful work owing to the lack of co-operative spirit and want of enthusiastic workers.

Silk Farm, Coonoor.—The activities of this farm are now confined to hybridization of worms and cultural improvements of mulberry. The plantation has been fairly free from fungus during the year and whenever traces of the disease were found, nicotine spraying was resorted to. Hybridization work has been started again and with good leaves now available, the work is expected to be successful. The number of successful crops raised during the year was five of Mysore race and one univoltine French. Systematic manuring of the plantation has brought it to a better condition.

Hosur Silk Farm.—This farm is doing very useful work and six successful crops were raised during the year producing 805 lb. of raw cocoons. All the cocoons were sent to Kollegal for disposal. Four hundred and sixty-eight pounds numbering approximately 290,343 of cocoons were converted into 71,571

disease-free layings and 337 lb. were converted into raw silk. The disease-free layings and silk were all sold in Kollegal for Rs. 671-14-2. The moth-tester in charge of the farm tested 18,700 seed cocoons during the year and sent 5,388 disease-free layings to Kollegal for disposal and reserved 1,050 layings for farm use.

District sericulture work.—The following localities have so far been found suitable for the introduction and development of sericulture :—

- (1) Parts of Tinnevely district.
- (2) Kolli hills in Salem district.
- (3) Parts of Chittoor district such as Kuppam, Palmaner and Madanapalle.
- (4) Parlakimedi in Ganjam district.
- (5) Parvatipuram in Vizagapatam district.
- (6) Coimbatore.
- (7) Melrosapuram and Leper Colony in Chingleput district.
- (8) Penukonda in Anantapur district.

Mulberry plantations were started in the following parts of the Tinnevely district :—

	ACRES.
(1) Vandakangulam	5
(2) Avaraikulam	1
(3) Pushpavanam	$\frac{1}{2}$
(4) Ovari	$\frac{3}{4}$
(5) Palamcottah	$1\frac{1}{2}$
(6) Tenkasi	$\frac{1}{2}$

Vadakangulam.—The most important centre is Vadakangulam where the work under the personal care of Rev. Father Ignatius is going on very satisfactorily.

Rearing.—Fifteen successful rearings were conducted during the year. One rearing of French univoltine worm was not a success on account of the hot and dry weather setting in early. Another fifteen rearings were conducted by a private party under Rev. Father Ignatius' supervision which was also a success.

Reeling.—The reeling machine installed is doing good work. Cocoons from Ovari and Palamcottah were reeled here. All the silk, silk waste and pierced cocoons have been disposed of in Kollegal.

Grainage.—33,137 disease-free-layings were supplied during the year to Kollegal and 500 layings to Palamcottah and Hosur. Vadakangulam seed has been quite successful at Kollegal where it

is becoming increasingly known. Three girl students including one sister have learnt microscopic examination well and are able to identify all the four diseases.

Mulberry.—The area under mulberry has increased from $2\frac{1}{2}$ acres to 6 acres and it is likely to extend on account of the very liberal concessions granted by Government in G.O. Ms. No. 472, Development, dated 28th March 1931.

Successful rearings have been conducted at Ovari and Palamcottah. Both the centres have extended their plantations. Tenkasi has not yet started rearing.

Kolli hills.—Many successful rearings have been conducted and the silk reeled in the machine installed here has been disposed of.

Chittoor district.—Except the Mission School at Palmaner where a number of successful rearings were conducted and silk reeled in the machine installed by the departmental demonstrator, no other centre has started rearing. The several centres are—

	ACRES.	
Chamrajpalli	2.00	} Palmaner centre.
Samudrapalli	2.00	
Bommi thoddi	0.61	} Madanapalle.
Rishi valley	0.50	
Vasanadu	2.00	
Anuviganapalli	1.00	
Gonagur	0.50	
Shivaramapuram	1.00	

Parlakimedi.—The plantation has been extended and one rearing was successfully conducted. The demonstrator stationed here has not yet done any useful work.

Parvatipuram.—Mulberry has been planted but no rearing has been conducted up to the close of the year.

Coimbatore.—The plantation was too small to permit of the conduct of any rearing work by the end of the period under review.

Chingleput district.—The following centres have planted mulberry :—

Melrozapuram—4 acres.

Leper settlement— $2\frac{1}{2}$ acres.

U.F.C.M. Girls' Boarding School— $\frac{1}{2}$ acre.

Successful rearings have been conducted in the Leper settlement and Melrozapuram. The departmental demonstrator installed a reeling machine in the settlement for reeling the cocoons on the spot.

There are only five practical sericulturists and one reeling demonstrator working in the districts. The number is inadequate to cope with the existing volume of work, and it will not be possible to extend operations unless their number is increased.

Ericulture experiments.—These experiments were conducted in the Kuppam area by Mahesh Missir and his wife whose services had been secured from Bengal. Four successful rearings were conducted in four months, three at Kuppam and one at Shivarampuram. Further rearings could not be undertaken due to the inadequate supply of castor leaves. The quality of the cocoons raised is said to be superior to those of Assam where the industry is carried on intensively as a cottage industry. The silk yarn spun is whitish in colour, uniform in texture and is well suited for weaving fine materials. In G.O. Ms. No. 704, dated 11th May 1931, Government sanctioned the continuance of these experiments for a further period of one year to enable accurate information to be collected in regard to the market for the cocoons and woven cloth and as to the economics of the industry generally.

INDUSTRIAL ENGINEERING.

The work of the Engineering branch consists mainly of the conduct of boring operations, the maintenance of pumping installations and industrial machinery already at work, the supply, erection and maintenance of pumping plants suitable for irrigation as well as of industrial machinery and the investigation of applications for loans under the Agriculturists' Loans Act, and of certain of the applications under the State Aid to Industries Act.

Staff.—Mr. L. S. Pinto held the appointment of Industrial Engineer during the year except for a period of one month from 16th June to 15th July 1930, when he was on leave; M.R.Ry. Rao Sahib C. S. Ramachandra Ayyar, Research Engineer, held full charge of the office of Industrial Engineer in addition to his own duties from 23rd June to 15th July 1930. The Industrial Engineer was assisted by five Assistant Industrial Engineers one in charge of the Industrial Workshops and one each in charge of the Bezvada, Bellary, Coimbatore and Tanjore divisions, the Industrial Engineer holding direct charge of Madras and Chingleput districts.

The following table shows the distribution of the executive staff :—

Districts comprising the divisions.	Name of subdivision in charge of Supervisor.	Headquarters of subdivision.	Supervisors.	Mechanics.	Boring Maistries, Drillers and Assistant Drillers.	Apprentices.	Surveyors.
Industrial Engineering Workshops.	Madras	Madras	1	..	..	..	..
Drawing Branch	Do.	Do.	1	1	..	..	..

Bezwada Division.

Ganjam and Vizagapatam.	Vizagapatam	Vizagapatam.	1	2	10	1	..
Godavari East and West..	Godavari	Rajahmundry.	1	3	15	1	..
Kistna and Guntur	Bezwada	Bezwada	1	2	14	..	1

Bellary Division.

Nellore and Chittoor ..	Nellore	Nellore	1	2	11	..	..
Bellary and Kurnool ..	Bellary	Bellary	1	2	13	..	..
Cuddapah and Anantapur.	Cuddapah	Cuddapah	1	3	9	..	..

Tanjore Division.

South Arcot	Cuddalore	Cuddalore	1	3	10	..	..
Tanjore	Tanjore	Tanjore	1	4	12	..	..
Madura and Trichinopoly.	Trichinopoly	Trichinopoly	1	4	9	..	..
Ramnad and Tinnevely ..	Tinnevely	Tinnevely	1	2	8	..	..

Coimbatore Division.

North Arcot and Salem ..	Vellore	Vellore	1	4	7	..	..
Coimbatore and the Nilgiris.	Coimbatore	Coimbatore	1	5	18	1	1
South Kanara, Malabar and Anjengo.	Mangalore	Mangalore	1	1	3	..	..

Madras Subdivision.

Madras and Chingleput (under the control of the Industrial Engineer).	Madras	Madras	3	4	38	6	..
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Information and advice.—General information and advice on engineering matters is given free provided no local inspection is involved. In cases where a local inspection is necessary, a fee of Rs. 10 is levied, in return for which advice is given in regard to

the selection of a suitable site for a factory, mill, installation or well and as to the most suitable type of machinery for the purpose. No fees are, however, levied for the investigation of applications for loans for the setting up of pumping plants with the aid of loans under the Agriculturists' Loans Act and for services rendered to other departments of Government, except in the case of Government commercial undertakings. The following table shows the number of applications for information and advice received during the year under review :—

Division.	Pending on 1st April 1930.	Received during the year.	Disposed of during the year.	Pending on 1st April 1931.
Bezwada	6	35	35	6
Bellary	11	49	50	10
Tanjore	12	64	73	3
Coimbatore	11	62	64	9
Madras	9	10	15	4
Total ..	49	220	237	32

Levy of fees for work done by the Engineering section.—The main object of the pumping and boring operations conducted by the department is to render assistance to agriculturists and small scale industrialists with a view to increasing the agricultural wealth of the country. There was a steadily increasing demand for the use of the departmental plants and for other services afforded by the Engineering section throughout the first half of the year under report. In the second half of the year, the abnormal rains in October and November culminating in the violent storm in December filled up most wells and a majority of boring sites were water-logged resulting in a restriction in the activities of the Engineering staff. The question of laying down a definite policy in regard to the class of work to be undertaken by the Engineering section, the order of priority in which such work is to be carried out and the fees to be charged to each class of applicant was engaging the attention of Government at the close of the year. The general reduction of fees for work done by the Engineering section, the option granted to the hirers to transport the machinery themselves and the total remission of fees in the case of unsuccessful borings have all contributed to an increased demand for the facilities afforded by the Engineering section.

New erections.—The erection of machinery and plant is undertaken for a nominal fee of 2 per cent on the capital cost of machinery installed. The number of plants erected during the year was 105, as detailed below :—

Division.	Pending on 1st April 1930.	Received during the year.	Disposed of during the year.	Pending on 1st April 1931.	Remarks.
Bezwada	..	6	6	..	Five pumping plants and one industrial plant.
Bellary	10	21	29	2	Eighteen Pumping plants, six industrial plants, and five combined plants.
Tanjore	9	28	34	3	Ten pumping, twenty-two industrial and two combined plants.
Coimbatore ..	1	29	27	3	Seventeen pumping, nine industrial and one combined plants.
Madras	1	10	9	2	Six pumping and three industrial plants.
Total ..	21	94	105	10	

The capital invested in the above plants including the cost of the buildings amounted to Rs. 3,53,704. It may be of interest to record 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	8½	6½
Bellary	28	½
Tanjore	34	6
Coimbatore ..	70	3
Madras	30	8

The acreage and the probable enhanced income accruing 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	20	3,000
Bellary	169	7,600
Tanjore	156	30,150
Coimbatore ..	290	43,500
Madras	150	15,000

Compounding system.—Under this system, owners of private installations are entitled to have their plants inspected and overhauled three times a year for a fixed fee of Rs. 10 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 686 as against 691 in 1929-30, 597 in 1928-29 and 500 in 1927-28. The following statement shows the number of plants under maintenance in the five divisions :—

Division.	Industrial plants.	Pumping plants.	Combined plants.	Electrical plants.	Total.
Bezwada	49	26	2	..	77
Bellary	56	53	7	..	116
Tanjore	143	60	13	27	243
Coimbatore	54	115	16	..	185
Madras	13	44	8	..	65
Total	315	298	46	27	686

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

Division.	Largest size of plant B.H.P.	Smallest size of plant. B.H.P.	Total approximate horse power compounded.
Bezwada	70	1½	2,071
Bellary	54	1½	1,990½
Tanjore	150	1½	5,156
Coimbatore	62	3	2,997
Madras	56	5	952

Loans for purchase of pumping plants.—Loans under the Agriculturists' Loans Act are granted by Government on favourable terms to ryots for the installation of pumping plants where there is reasonable prospect of increased cultivation and a return on the capital expenditure incurred. During the year under review 69 applications were disposed of, of which 55 were withdrawn or rejected and 14 loans of an aggregate amount of Rs. 43,900 were sanctioned. The amount actually disbursed during the year was Rs. 48,865-15-0. Of the 14 loans sanctioned during the year, five were in the Tanjore division, five in the Coimbatore division, one in the Bezwada division and three in the Madras subdivision.

The number of loans and the amount sanctioned during the previous four years were as follows :—

Year.	Number of loans.	Amount disbursed. Rs.
1926-27	9	47,000
1927-28	23	1,03,300
1928-29	17	64,268
1929-30	10	40,500

The reduction in the rate of interest charged on loans has resulted in the receipt of an increased number of applications and has enabled the agricultural population to derive increased benefit from the installations set up. During the year under review, the Government issued orders that the usual inspection fee need not be charged for investigation of applicants for loans under the Agriculturists' Loans Act even though such investigations involve local inspections of well and site.

Boring.—The department now maintains 21 power drills, including one air compressor drill and 106 hand boring sets. There has been an increasing demand for borings not only from ryots but also from local bodies, municipalities and industrialists.

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 1930.	Applications received during 1930-31.	Applications disposed of during the year.	Applications pending on 1st April 1931.	Total number of feet bored through.	Number of borings put down.	Number of successful borings.	Number of unsuccessful borings.
Bezwada	80	84	128	41	15,937	166	121	45
Bellary	29	91	101	19	6,972	128	91	37
Tanjore	19	61	73	7	10,242	148	126	22
Coimbatore	15	64	77	2	5,133	143	91	52
Madras	16	49	51	11	5,192	106	71	35
Total	159	349	428	80	43,476	691	500	191

The total number of borings put down and the depth bored during the year were 691 and 43,476 feet respectively as against 936 and 49,330 feet respectively in the previous year. The decrease in the number of borings put down is due to the unprecedented rainfall during a portion of the year.

Artesian borings.—As a result of investigations by the department, several powerful artesian borings have been put down in recent years and the number of such borings is steadily on the increase. These borings are characterised by the spontaneous discharge of water above ground level and they have transferred several hundreds of acres which were previously either fallow or dry into fine wet lands. An outstanding feature of this line of work, during the year under review, was the drilling of what is thought to be the most powerful artesian well yet known in India. On 2nd December 1930, at Valayamadevi, Chidambaram taluk, South Arcot district, a borehole in dry level ground belonging to

M.R.Ry. K. Srinivasa Sastri of Chidambaram drilled mostly through thick clay beds interspersed with sandy layers, yielded, at a depth of 410 feet immediately below what appeared to be a bed of peat, a spontaneous and continuous flow of 1,000 gallons per minute, 3 feet above ground level. The owner is now irrigating 80 acres of dry land with it. The department has to its credit not less than 42 artesian borings tapped in the northern and southern parts of the Presidency in the districts of Godavari and South Arcot, and as a result of these borings, the price of the dry lands benefited thereby has risen to the level of wet lands in the district.

Deep borings.—It is a recognized fact that borings render it possible to utilize deep-seated springs occurring below the ordinary depths at which wells can be excavated or sunk. Mention may be made here of a few instances where deep borings were put down during the year under review.

The deepest borings put down in the Bezwada division during the year were one in Rajahmundry to a depth of 399 feet for M.R.Ry. K. Nageswara Rao of Muddapuram at Arulla, and another of 407 feet deep for M.R.Ry. A. Satyanarayana at Narasingapuram Agraharam, Rajahmundry. The deepest borings put down in the Tanjore division during the year are 504 and 420 feet respectively at Vriddhachalam and Kanadukathan.

Three borings were put down at Chromepet, near Madras, for the Chrome Leather Company. The borings were successful and the first borehole which was taken down to a depth of 260 feet yields a continuous supply of 25 gallons per minute at 25 feet below ground level.

Noteworthy sub-artesian borings.—Two borings were put down at Mandlem, Nandikotkur taluk, Kurnool district, and springs were tapped with a supply of 6 and 8 gallons per minute at 24 and 16 feet below ground level respectively. The water from these boreholes is being used for drinking purposes by all the people of this village who are thus relieved from the ravages of the guinea-worm disease prevalent in the village. A very successful trial boring for well sinking was put down for Redda Yellareddi at Ramanapalli, Cuddapah taluk, and a good spring was tapped with a supply of 5 gallons per minute at 8 feet below ground level. Two borings were put down for the President, Union Board, at Uravakonda, Gooty taluk, and three springs were tapped at different levels below ground level, hand pumps being installed over the boreholes. These two borings were for providing drinking-water

for the villagers of the union who have thus been relieved of the incubus of water scarcity and of the ravages of the guinea-worm disease prevalent in the Union.

A number of boreholes for the supply of drinking water have been put down during the year in the taluks of Kurnool and Nandikotkur, where guinea-worm disease is widely prevalent. A boring 48 feet deep put down in the Agricultural Farm at Palur, near Nellikuppam, yields 300 gallons per minute at 14 feet below ground level. In the village of Muthukrishnapuram, near Panruti, three borings were put down for S. R. Chinnaswami Reddiyar in his well which together yield about 300 gallons per minute at 20 feet below ground level. The applicant has installed a 4-inch pumping plant and is utilizing this water to irrigate his lands. A 10-inch ground boring to a depth of 504 feet was put down for the Raja of Chettinad, yielding 19 gallons per minute at a depth of 74 feet below ground level. Another similar boring put down for the Raja to a depth of 244 feet yields 22 gallons per minute at 71 feet from ground level. A ground boring put down for the South Indian Railway Company, at Karaikudi, to a depth of 450 feet yields 40 gallons of good water per minute at 46 feet below ground level. Two well borings put down for the Pioneer Agricultural Syndicate, Valluvambakkam, yield 35 and 10 gallons of water per minute at 19 feet below ground level.

Experimental boring operations at Elur, Salem district.—During the latter part of the year, the Government directed that an experimental borehole should be put down in the village of Elur, Salem district, in a well which was available for the public. Elur is an extremely dry village with deep wells which dry up in summer. A site was selected near a well, recommended by the Rural Reconstruction Committee, and a borehole put down to a depth of 218 feet, which has tapped a fair supply. The borehole will be connected with the existing well and will thus serve to enhance its supply for irrigation of lands under it.

Publication of boring results.—The publication for the year 1928-29 is in the Press and is expected to appear shortly. The price of a copy is specially fixed at the low rate of Rs. 10 with a view to popularising the sale of the publication. Reports for 1929-30 are under compilation and will be published as early as possible.

Survey of subsoil water in the Bellary district.—The orders of Government reviewing the report on the survey were received during the year, and endeavours are being made to induce the Local

Boards and private gentlemen to utilize the boreholes to the best advantage either for drinking-water or for irrigation purposes or for both.

Pumping sets.—The department maintains a number of pumping sets, comprising oil engines and centrifugal pumps. These are of two kinds, one being used for pumping water for irrigation and the other for well sinking. The former are maintained for the purpose of (1) demonstrating to the ryots the advantages of lifting water by mechanical power and (2) watering crops to save them from withering, pending the repair or erection of a pumping installation. The second type of plant is utilized in connexion with the construction and sinking of wells. The number of pumping plants in the possession of the department at the end of the year was 41. The number of applications received for these plants during the year under report was 99. The following statement shows the number of applications registered and disposed of during the year in the various divisions:—

Division.	Number of applications pending on 1st April 1930.	Number of applications registered during the year.	Number disposed of during the year.	Number pending on 1st April 1931.
Bezwada	1	5	6	..
Bellary	2	18	17	3
Tanjore	2	19	20	1
Coimbatore	1	20	21	..
Madras	..	37	37	..
Total ..	6	99	101	4

By the use of these plants, a number of ryots were enabled to deepen their wells and thus improve their water-supply, the assistance rendered by the department being greatly appreciated. One of the departmental sets was hired again by Mr. Dennis Lewis, near Madi, South Kanara district, who was permitted by the Revenue Department to bale out water from the Madi river. He is irrigating 12 acres of sugarcane. The ryots of the locality who have large areas of lands lying fallow, depending mainly on rains, were very much impressed with the usefulness of these pumping plants.

Blasting operations.—The torpedoing sets owned by the department are used for blasting boreholes in rocky strata in the hope of exposing the water sources in the fissures caused by the explosion. Torpedoing is only tried as a last resort when a bore

through rock fails to yield water. The following table shows the number of applications for blasting registered and disposed of during the year in the several divisions:—

Divisions.	Applications pending on 1st April 1930.	Number registered during the year.	Number disposed of during the year.	Number pending on 1st April 1931.
Bezwada	..	1	1	..
Bellary	..	..	..	..
Tanjore	..	4	2	2
Coimbatore	..	..	..	..
Madras	..	..	..	..
Total ..	..	5	3	2

Sugarcane-crushing Mills.—The department is in possession of six sets of power-driven sugarcane-crushing mills which are hired to the public in order to demonstrate the advantages of power cane-crushing mills over bullock-driven mills. There was a good demand for the use of these mills by the sugarcane growers. In fact, the demand exceeded the supply and several applicants were disappointed. The monthly hire for a mill is Rs. 50 and for a combined mill and engine Rs. 100. Three mills with engine were lent for different periods during the year, for use in the Bellary district, to M.R.Ry. A. Ranganadha Mudaliyar Avargal, M.L.C., for work at Chittawadigai, to M.R.Ry. S. Ramappa of Hospet for work at Muthilapuram and to the Hospet Agricultural Co-operative Society for work at Kalliramapuram. The total quantity of jaggery produced in these places is reported to be 14,700 maunds. The mills worked to the entire satisfaction of the applicants and their advantages are being increasingly realized. One mill with engine was lent for about a month to M.R.Ry. K. R. Anantharama Ayyar of Kolumam, Coimbatore district, and another mill was lent to M.R.Ry. K. G. Ramachandra Reddiyar of Kattuvarapalli, North Arcot district. One mill lent to the Zamindar of Chunampet for work at Vannianallur village was attached to his own pumping engine. The Zamindar proposes to go in for a mill of his own.

Sugarcane-crushing demonstration at Munagapaka, Vizagapatam district.—With a view to educating the sugarcane growers in the Northern Circars in regard to the advantages and economy of crushing canes in modern power-driven mills, the Government sanctioned the free demonstration of sugarcane-crushing operations, by means of a departmental mill at Munagapaka, Anakapalli taluk, Vizagapatam district. The mill reached Munagapaka in January 1931 and it was got ready for work about the end of that month. After some preliminary crushing of canes, the ryots began to evince an interest in the work and brought their canes in

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large quantities. The total quantity crushed was 392 tons. The total net expenses of the demonstration amounted to Rs. 396-9-9. The cane growers of the locality were greatly benefited by the experiment and they evinced a keen interest in the working of the departmental mill.

Services rendered to Co-operative Societies.—Assistance was rendered by the department to several co-operative societies on a variety of engineering matters. Under the rules for the levy of fees for work done by the Engineering Branch, co-operative societies are charged half the usual rates. The following are instances of services rendered to co-operative societies:—

(a) A pumping set was lent for irrigating the lands of the villagers of *Chopalla* on a co-operative basis.

(b) *Kondapuram Co-operative Society, Anantapur district.*—The erection of an engine and pump was undertaken and completed during the year. This society has fully realized the advantages and cheapness of lift irrigation after having hired out a departmental pumping set during the previous year.

(c) *Hospet Agricultural Co-operative Society.*—A sugarcane mill with engine was lent to this Society for work at *Kallirampuram*. The quantity of jaggery manufactured was 4,050 maunds.

(d) *Lalgudi Co-operative Society.*—A sugarcane mill was lent to this society for a period of three months during the year under review.

(e) The Industrial and the pumping plants of the following societies were under the supervision of this department under the compounding fee system:—

Co-operative and Industrial Society, *Tindivanam*.

Co-operative and Industrial Society, *Kallakurichi*.

Co-operative Society, *Nangavaram*.

Udipi Co-operative Agricultural and Industrial Society, Kalyanpur.

Co-operative Irrigation Society, *Vilayur*.

Crushing of castor seed in Pinto chekku.—With a view to determine whether the departmental Pinto chekku would be suitable for crushing castor seeds, preliminary trials were conducted at the departmental workshop at *Madras*. These trials indicated that the chekku can be employed with advantage for crushing castor seeds. The sanction of Government for conducting the experiments at a suitable centre, *Uravakonda*, was obtained and the demonstration was carried out successfully, the seed being supplied free of charge by local men. The quality of oil and cake obtained was satisfactory and much appreciated by the oilmongers. It now remains for the oilmongers to adopt the improved methods demonstrated to them.

Testing of small-power pumping plants.—The Government desired that a bulletin on the usefulness of small-power pumping plants for irrigation purposes should be published for the use of the public. Arrangements were therefore made with several engineering firms at *Madras* and systematic tests are now in progress with small pumping outfits offered for sale by these firms. The results of these tests will be published shortly in the form of a bulletin. It is hoped that these tests will afford valuable data from which correct deductions can be drawn as to whether small pumping outfits can satisfactorily replace the indigenous *kavalai* (mhote) or the *picotta*.

The Premier Button Factory.—At the instance of Government, the department took over the management of the Premier Button Factory at *Washermanpet, Madras*, on 1st October 1930, the proprietor of the concern, *M.R.Ry. Rao Sahib C. Dharmalinga Mudaliyar*, who had worked it for some time without success, having sought the assistance of Government in the matter of working the factory on a commercial basis. The factory building which had collapsed was rebuilt and the machinery which was lying neglected and rusty was cleaned, overhauled and put in working condition. Actual button-making operations commenced only in December 1930. About 20 gross of pearl-white buttons made out of *kodappanai* nuts (available in abundance on the West Coast and the *Travancore State*) were displayed at the *Park Fair Industrial Exhibition* held at *Madras* during the Christmas season of 1930 under the auspices of the *South Indian Athletic Association, Madras*, and they attracted considerable attention. It is hoped that the proprietor would be able to find the necessary capital for running the factory on a regular commercial basis.

Patel Company's Biscuit Factory.—*Janab Patel Abdul Latif Sahib, Merchant, Madras*, having approached the department for technical assistance in respect of the erection of his biscuit-making machines and hot-air oven imported from *Germany*, this work was undertaken departmentally early in December 1930. The work which involved the erection and satisfactory running of machinery worth more than Rs. 25,000 was nearing completion at the end of the year under review.

Industrial Engineering Workshop.—In the departmental workshops located in *Washermanpet*, the machinery employed by the pumping, 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 plant manufactured or repaired at the workshop. The workshop

serves also as a training ground for the subordinates of the Engineering section, such as mechanics, drillers, boring maistries and drivers. A few apprentices are employed and they attend the evening classes in the Government School of Technology at Madras in order to supplement their technical training by a theoretical course of study.

The following table gives the total number and value of jobs executed in the workshop for various departments and private persons during the year 1930-31.

Serial number and details of work done under different heads.	Number of jobs executed.	Amount realized.	
		RS.	A. P.
1. Pumping and boring	296	1,12,741	2 0
2. Inter departmental	28	996	9 0
3. Other Government departments..	6	734	5 0
4. Workshop maintenance	28	6,740	11 3
5. Private persons	54	6,234	6 0
Total ..	412	1,27,447	1 8

The accounts of the Workshop for the year have not yet been audited, but are expected to show a net loss of Rs. 12,000 approximately.

Receipts.—The total receipts of the Engineering section of the department for the year under review amounted to Rs. 69,013-11-4, exclusive of fees for services rendered to other departments of Government, as against Rs. 73,371-15-1 in the previous year, showing a decrease in receipts of Rs. 4,358-3-9 attributable to unusually heavy rains and the consequent restricted demand for the departmental services and equipment.

Services rendered to other departments of Government.—During the year under review, services of various kinds were rendered to the Agricultural, Revenue, Public Works, Jail, Forest, Police, Educational, Medical, Fisheries and Labour departments and the value of such services in the various divisions amounted to Rs. 12,509-4-4 as detailed below, as against Rs. 9,787-5-4 during the previous year.

Division.	Value of services rendered.	
	RS.	A. P.
Beswada	1,815	13 4
Bellary	4,889	5 0
Tanjore	3,203	6 0
Coimbatore	2,713	4 0
Madras	887	8 0
Total ..	12,509	4 4

Mr. W. Fyfe continued as Inspector of Industrial Schools during the year. He continued to act as Secretary to the Board of Visitors to the Government Industrial Institute, Madura, as a member of the Board of Examiners of the Government Fisheries Training Institute at Calicut, and as official visitor to 11 Central jails and the Senior Certified School at Chingleput.

2. State technical scholarship.—Only one scholarship tenable for a period of two years in the United Kingdom was awarded during the year to Mr. D. D. Dawson for the study of oceanography with special reference to pisciculture.

The following Madras scholars were undergoing training in the United Kingdom at the end of the year in the subjects specified against their names:—

Name.	Subject of study.
1. P. Govindakrishnayya ...	Electrical Engineering with special reference to hydro-electric development.
2. V. N. Rangaswami ...	Sanitary Engineering with practical training in the installation of up-to-date sanitary appliances.
3. Muhammad Abdul Quadir ...	Textiles with special reference to hosiery.
4. S. A. Salatore	Technology of Oils and Fats with practical training in the crushing of oil-seeds.
5. A. Yoganandaswami ...	Paper manufacture.
6. M. S. Viswanathan ...	Hydro-Electric Engineering.
7. Md. Ubaidullakhan Dur-rani	Do.

No. 1 has been granted a further extension of one more year thus extending the total period of his training to four years. Nos. 4 to 7 have also each been granted an extension of one year.

Scholarships tenable at the Victoria Jubilee Technical Institute, Bombay.—Four fresh scholarships were awarded during the year under review, one for textile manufacture, one for technical and applied chemistry and two for sanitary engineering and plumbing. Five scholars completed their courses of study during the year, one in electrical engineering, two in technical and applied chemistry and two in sanitary engineering and plumbing. The number of scholars under training at the end of the year was 12 as shown below:—

Sanitary Engineering and Plumbing	...	...	6
Technical and Applied Chemistry	...	...	4
Textile Manufacture	...	...	2

A sum of Rs. 3,000 was contributed by Government to the Institute during the year.

Scholarship tenable at the Benares Hindu University.—Two new scholarships were awarded during the year for the study of electrical engineering at the Engineering College attached to the University. The number of students under training at the end of the year was five and their progress is reported to be satisfactory.

Post-graduate scholarships.—Seven new scholarships tenable at the Indian Institute of Science, Bangalore, were awarded during the year under review. Of these, four were admitted in the department of Electrical Technology, two in the General Chemistry department and one in the Bio-Chemistry department. There were 13 scholars under training at the end of the year, of whom seven were in the Department of Electrical Technology, three in the general Chemistry department and three in the Bio-Chemistry department.

Scholarships tenable at the Indian School of Mines, Dhanbad.—One scholarship of the value of Rs. 60 per mensem tenable for a period of four years for study in Mining Engineering and Geology at the Indian School of Mines has been awarded every year since 1928–29 to students who have been born or domiciled in the Madras Presidency and who are financially deserving of State help. The third scholarship under this scheme was awarded during the year under review to a Madras student for the study of Mining Engineering.

Scholarship at the Jamshedpur Technical Institute.—In accordance with the existing arrangement with the Tata Iron and Steel Company, Limited, Jamshedpur, a fresh batch of three students was selected during the year to undergo a combined theoretical and practical course extending over a period of three years in the metallurgy of iron and steel at the Technical Institute attached to their works at Jamshedpur. The first batch of three students who were admitted into the institute in November 1927 having successfully completed their courses of training have now been engaged on contract by the Works on a daily wage of Rs. 7 each. The subsidy of Rs. 6,000 to the company was also continued during the year under review in return for the reservation, in the Technical Institute, of three seats every year for Madras students.

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 Rs. 1–8–0 to Rs. 7–8–0 per mensem were, as usual, awarded with effect from 1st July 1930 to pupils learning trades in various recognized schools in the Presidency.

A bonus of Rs. 38 each was also granted to such of the pupils as had satisfactorily completed the course of study during the year.

GOVERNMENT TRADES SCHOOL, MADRAS.

Staff.—M.R.Ry. N. M. Adyantayya, B.Sc. (Edin.) continued as Principal throughout the year. The school sustained a heavy loss in the deaths of two of its most able lecturers—Messrs. E. Kulasekaran and T. K. Narayana Ayyangar—both of whom had rendered excellent service to the institution. Messrs. A. G. Green, A. Lepper and A. G. Anderson were appointed as visiting lecturers in printing and allied subjects during the year.

Admissions.—The number of new admissions during the year was 263 of which 45 were admitted to the Mechanical Engineering section, 75 to the Electrical Engineering section, 26 to the Printing section and the rest to the various other sections of the school such as Plumbing, Electrical Wiring and Vernacular Drawing classes. The strength of the school on the 31st March 1931 was 580 as against 578 in the previous year of whom 158 are Brahmans, 319 Non-Brahman Hindus, 73 Indian Christians, 17 Muhammadans and 13 Anglo-Indians and Europeans. The average number of classes held was 67 per week as against 60 in the previous year.

Examinations.—Seventy students presented themselves during the year for final examinations in the various branches of whom 54 were successful. Of these 7 qualified in Mechanical Engineering and 5 in Electrical Engineering and were awarded the full technological certificates. These examinations were as usual conducted by outside examiners: Messrs. P. V. Chari, Electrical Engineer to Government; H. Evans of Messrs. Massey & Co.; A. G. Green Superintendent, Government Press; I. Kurian, Assistant Engineer, Madras Corporation; S. W. White, Assistant Engineer, Madras Port Trust and Mr. Mackay of Perambur Railway Works. The Electric Wiring examination for competency was held as usual at the school. Out of the 44 candidates who presented themselves for the examination, 29 passed, 12 being students of the school, and the rest external candidates. The school continued to be a centre for the examination of the City and Guilds of London Institute. Ninety-three candidates from various parts of the Presidency appeared for these examinations of whom 41 passed and were awarded certificates. It is extremely gratifying to be able to record that two students of the school took the first rank with equal marks in Typography, whilst an ex-student stood first in Machine Design among the candidates sitting for these examinations from the whole of the British Empire, all three of these students thus winning the City and Guilds of London Institute medals. This result reflects

great credit on the students and staff and indicates the high efficiency of the training imparted in the school.

Improvements.—The ' Sandwich System ' of instruction, which was introduced a year ago as an experimental measure, having proved very effective, was continued during the year under review. Additional classes in Bookbinding and Machine Work were introduced during the year as part of the Printing Trades Course. For the benefit of the final year Mechanical Engineering students a new Babcock and Wilcock water tube boiler has been installed in the power house of the school with a view to providing more efficient instruction in the maintenance and running of steam engines, turbines and boilers.

Scholarships.—Reference is made in paragraph 134 of the report for last year to the institution of 12 scholarships of the value of Rs. 20 each per mensem tenable for four years to deserving mufassal students subject to certain conditions. In addition to these scholarships, the trustees of the Sri Venkateswara Students' Hostel at Madras were kind enough to award 9 scholarships of the value of Rs. 8 each to deserving poor students of the school.

Diplomas.—Towards the close of the year Government were pleased to rename the school the ' Government School of Technology ' and to order that the holders of diplomas granted to the Mechanical and Electrical Engineering students be designated as L.M.E. and L.E.E. as in the Victoria Jubilee Technical Institute, Bombay.

The Preparatory section.—The Preparatory section attached to the school continued to function satisfactorily. The second batch of 20 boys were examined by Mr. R. K. Watson of the Madras and Southern Mahratta Railway of whom 15 were declared to have passed, and of these, 14 were admitted as apprentices into the railway workshops. The number of new admissions to this section during the year was 40 and the total number on the rolls on the 31st March 1931 was 89. This section which is still on a temporary basis is growing in popularity and the question of its permanent retention is under consideration.

Perambur Railway Branch School.—The Branch School attached to the Madras and Southern Mahratta Railway Workshops at Perambur has had a comparatively lean year owing to various causes. The number of new admissions during the year was 74 as against 83 in the previous year and the strength of the school on the 31st March 1931 was 152 as against 196 in the year 1929-30, the fall being attributable to the general retrenchment in railway administration. During the year under review 43 students presented themselves for the final examinations which were conducted, as usual

by the railway officials, Messrs. R. K. Watson and S. R. Suryanarayana Ayyar. Of these 26 were declared to have passed and the majority of the successful students were absorbed by the railway workshops.

GOVERNMENT INDUSTRIAL INSTITUTE, MADURA.

Staff.—M.R.Ry. Rao Sahib C. S. Ramachandra Ayyar continued as Superintendent till 26th May 1930 when he was relieved by M.R.Ry. A. V. Varadaraja Mudaliyar, Assistant Industrial Engineer, Bellary division. The latter held charge of the institute till 26th January 1931 when he proceeded on sick leave, and M.R.Ry. A. Patnaick, Assistant Superintendent, was in additional charge of the post of Superintendent during the remaining portion of the year. M.R.Ry. V. Rama Rao, permanent Assistant Superintendent, was transferred to Bellary as Superintendent of the Government Industrial School and was relieved by M.R.Ry. A. Patnaick who assumed charge on the 17th July 1930.

Admissions.—Of the 42 students who offered themselves for admission into the institute, 28 were selected for the probationary course. The strength of the various classes at the end of the year under review stood as follows :—

Probationers.	First year.	Second year.	Third year.	Fourth year.	Fifth year.	Short courses in motor-driving.	Total.
28	27	18	22	8	7	8	90

There has been a slight fall in the strength of the school from 98 in the previous year to 90 during the year under review.

Examinations.—The annual and final examinations were, as usual, conducted by a Board of Examiners consisting of Mr. J. H. Dickson, Manager, Pasumalai Trades School, and Mr. J. Carnie, Chief Engineer, Madura Mills. Of the 99 students who presented themselves, 85 were declared to have passed. Seven final year students in the Metal-work section and one in the Carpentry section having successfully completed their five years' apprenticeship were awarded certificates. Four students in the Motor section also completed their full course of training and were awarded departmental certificates.

Reorganization Committee.—In November 1929, Government ordered that an investigation should be made into the high cost of maintenance of the institute and to that end appointed a committee consisting of five members, officials and non-officials, including the Director of Industries, to examine the present lines

of working of the institute and to suggest ways and means of conducting the institute efficiently whilst reducing the cost of its maintenance to a minimum. The committee submitted its report in February 1930 and Government passed orders thereon in August 1930. The members were unanimous in their opinion that the direction in which economy could best be effected lay in increasing the output which could be done only by securing a larger number of customers for the products of the institute. In G.O. No. 3672, Law (General), dated 30th August 1930, Government directed that the Jail department should pass on to the institute such of the orders for furniture as are received from the Southern districts and cannot be undertaken by the Jails themselves. Government have also permitted the Public Works Department to obtain their requirements of iron and wood articles from the institute under certain conditions. Although these orders do not altogether meet the present needs, they should be of considerable assistance to the institute in securing more work from Government departments, thus augmenting its output. In accordance with the instructions of Government, the local boards and municipalities in the Southern districts have been circularized about the facilities existing in the institute for the supply of articles of wood and iron and their patronage solicited.

In spite of the instructions contained in the Government Orders referred to above, the amount of orders received from Government departments during the year under review was disappointingly small. The number of orders booked in the previous year but pending execution at the commencement of the year under review was 43. During the year 609 orders were booked of which 61 were carried over to the current year. The following table showing the distribution of orders from various sources and the value of the output during the past few years may be of interest:—

Year.	Government depart- ments.	Municipali- ties and district boards.	Private firms and individuals.	Railways.	Total.
	Rs.	Rs.	Rs.	Rs.	Rs.
1926-27	3,788	16,466	22,048	..	42,302
1927-28	16,899	11,435	13,993	..	42,327
1928-29	82,255	4,963	9,631	5,688	82,537
1929-30	33,614	3,937	21,769	498	59,818
1930-31	16,214	1,599	9,621	294	27,728

It is worthy of note that though the response from Government departments and local bodies was rather poor, there was a considerable increase in the amount of orders received from private individuals. Noteworthy among the items of work executed

during the year were three large collapsible gates and a spiral staircase costing about Rs. 2,000 supplied to a Public Works Department contractor, and casting and finishing a large bell for the Tirupurankundram temple tower at a cost of Rs. 850. With a view to popularizing the products of the institute periodical lists of articles manufactured are sent out to the various public and private bodies. The preparation of a catalogue of manufactured articles is also under contemplation. Endeavours are still being made to secure a larger measure of support from the public as well as local bodies and other departments of Government and it is hoped that it may be possible hereafter to run the institute somewhat more economically.

Equipment.—During the year the following items of capital expenditure were incurred:—

- (1) Purchase and erection of a 10-feet lathe.
- (2) A hacksaw machine.
- (3) Two second-hand motor-cars for instruction in driving.

Hostel.—The strength of the hostel at the close of the year was 63 as against 50 in the previous year, the increase being due to the reduction in the messing charges. There are now three messes—two vegetarian and one non-vegetarian and all are reported to be functioning satisfactorily.

NEW GOVERNMENT SCHOOLS.

Government Trades School, Mangalore.—This school which was started in July 1929 is conducted very much on the lines of the Perambur Branch of the Madras Trades School. At present it provides part-time instruction in the wood-working and engineering trades including motor-driving. The classes consist of a mechanic's course of five years' duration, a wood-worker's course extending over a period of two years and a motor mechanism and driver's course of a similar duration. Admission is ordinarily restricted to bona fide apprentices and workmen who are engaged in the trade they wish to study. The number of students on the rolls at the close of the year was 79 as against 60 in the previous year, of which 33 were in the mechanics' class, 18 in the wood-year, of which 33 were in the mechanics' class, 18 in the wood-workers' class and 28 in the motor-mechanics' class. The special class which was started in March 1930 to provide a short course of instruction in motor-driving and mechanism for the benefit of owner-drivers and non-professional drivers was very popular. Two batches of 32 students, of whom two were ladies, completed their course during the year. The municipal scavenger drivers for whom a special class was also started last year all completed their training and this class has since been discontinued. The staff was

strengthened by the addition of an assistant lecturer and a workshop instructor. Several additions were made to the equipment including a dynamo to supply electric lighting to the school. The further development of this institution will depend on the provision of a permanent building on Government-owned land.

Government Industrial School, Calicut.—This school which was started in July 1929 has now completed its second year of existence. It provides full-time instruction in mechanical engineering and cabinet-making, the duration of the courses being five years, and also short courses in motor-car driving and maintenance of from six to twelve months' duration. The strength of the school has increased from 55 in the previous year to 97 during the year under review. It is noteworthy that the standard of general education of the majority of students who seek admission is of S.S.L.C. standard, and that the number of applications for admission exceeds 25 for each seat available. The school is growing very popular with the public and it has developed to such an extent within the last two years that the existing accommodation is now quite inadequate for its growing needs. Temporary buildings had to be erected in the existing premises during the year to reduce the congestion but the premises are still overcrowded. Proposals for renting additional accommodation are now under consideration. The workshop was equipped with several items of additional machinery during the year in order to provide efficient practical training to the pupils in the various branches of mechanical engineering. A foundry section was also added during the year in order to give training to the boys in the art and craft of moulding. The annual promotion examinations of the various classes were conducted by a Board of two outside examiners, Messrs. V. C. Dupen and B. T. Squier appointed by Government. Of the 11 students in the motor section, who presented themselves for final examination, six were declared fit and these were awarded certificates. It is satisfactory to record that, although only in the second year of its growth, the school executed orders for furniture and metal-work to the value of about Rs. 6,000 during the year, the major portion being to the orders of the local district board and municipality. In addition to these orders about Rs. 2,000 worth of furniture and apparatus was made for the use of the school itself. The fees contributed by the students of the Motor section amounted to Rs. 636 for the year so that the total receipts for the year amounted to nearly Rs. 9,000. The staff was strengthened during the year by the addition of one Assistant Superintendent, three instructors, one clerk and a peon.

Government Industrial School, Bellary.—This school was also started in July 1929 with classes in wood-working and blacksmith

work to serve the needs of the Ceded districts in which adequate facilities for industrial education did not exist. During the year under review, an additional course of instruction in motor-car driving and mechanism on the model of that in the Calicut school was introduced, two second-hand motor-cars being purchased for instructional purposes and a lecturer in motor-work appointed. The number of new admissions during the year was 27, 15 for the wood-workers' course and 12 in the smithy course, of which 7 withdrew subsequently leaving a balance of twenty. The strength of the school at the close of the year was 42 as against 22 in the previous year. Seven candidates admitted in the Motor section completed their training during the year and these were awarded certificates. During the year under review, the old Arsenal Buildings in the Bellary Fort were acquired by Government and handed over to the department for the location of the Industrial School. The school was moved from the rented building before the close of the year. The repairs and alterations necessary to the building are now about to be carried out by the Public Works Department, and with the larger accommodation available an expansion of the activities of the school may be expected.

Aided schools.—The following new institutions were recognized during the year:—

(1) St. Antony's Industrial School for Girls, St. Thomas Mount.

(2) Don Bosco Industrial School, Vellore.

(3) St. Mary's Industrial School, Kotagiri.

During the year the recognition accorded to the following schools were withdrawn:—

(1) Danish Mission Lace School, Cuddalore.

(2) Alexander's Girls' School, Ellore.

(3) Girls' Industrial School, Nellore.

On the 31st March 1931, in addition to institutions managed by the department direct, the total number of schools recognized by the department was 67. All these institutions except three were in receipt of grants-in-aid, and all of them were inspected by the Inspector of Industrial Schools during the year under review. On the 31st March 1931, there were 5,349 pupils under training in these schools, of whom, 2,669 were Indian Christians, 1,423 Non-Brahman (Hindus), 296 depressed classes, 360 Muhammadans, 408 Brahmans, 160 Europeans and Anglo-Indians, 1 Buddhist, 3 aborigines and 29 others. A sum of Rs. 1,07,187 was distributed in the form of maintenance grant representing an average of Rs. 20 per pupil per annum for the Presidency as against Rs. 18-3-0 in the previous year. A further sum of Rs. 33,808-8-6 was distributed as equipment grant while a sum of Rs. 79,780 was distributed as building grant among eleven institutions. The condition

of the majority of these schools during the year was satisfactory. A few suffered financially through lack of orders owing to the prevailing economic depression, but were able to carry on their activities without any serious falling off in efficiency. One in the north of the Presidency suffered through a fall in its regular income and disagreement amongst the members of its governing body as to how the changed financial condition should be met, but there are indications that the seriousness of the position is now recognized and that steps will be taken in the near future to place that institution on a firmer footing and start it on an extended career of usefulness.

Training of teachers.—The teachers' training section attached to the aided school of cabinet-making at Tindivanam continued to function very satisfactorily during the year and to produce a type of teacher likely to raise the efficiency of the schools in which they are employed. The pupil-teachers' training sections attached to the two aided girls' schools in Madras and Palmaner also had a very successful year's work and the training provided in these institutions is already bearing good fruit in the improvement apparent in the teaching in girls' schools in which the ex-pupil teachers are now employed.

LEATHER TRADES INSTITUTE

M.R.Ry. P. K. Rajamanikkam Nayudu continued as Superintendent of the Institute throughout the year. M.R.Ry. K. Seshachallam Choudary continued as Leather Research Chemist throughout during the period under review.

Visits to tanneries.—The Superintendent visited important tanning centres such as Bezwada, Ellore, Rajahmundry, Kosgi, Salem, Coimbatore and Trichinopoly in order to correct irregularities and to demonstrate to tanners on the spot the advantages of improved methods and to give advice where difficulties in actual tannery processes arose. The Superintendent also paid a considerable number of visits to tanneries in and around Madras at Pallavaram, Madhavaram, Thangal and Ennore. In the course of his visits the Superintendent collected samples of water from the various tanneries and subjected them to analyses in the laboratory of the institute. The results of the analyses are tabulated so that in course of time there will be a definite record of the percentage of the substances contained in waters at the several tanning centres and this will enable the varying results obtained in tanning to be subjected to intensive study. The Superintendent found in the course of his tours that almost all the hide tanners were using wattle and obtaining good results from the application of this tanning agent.

Experiments.—Experiments were conducted during the year on the use of Anogaissus latifolia leaves as a tanning material for skins and as soon as definite results are obtained, these will be demonstrated to the tanners. A number of small-scale experiments were conducted on dry hides and skins with a view to determining the effect of varying deliming agents on the quality of the leather produced. A number of trials were made on salting skins with mixtures of various substances and ordinary salt. The introduction of Tannic Media—a synthetic tanning material in powder form—by Messrs. Haverro Trading Company, and its use by tanners for the purpose of brightening the colour of leather necessitated the initiation of a new line of research work. The material has got a peculiar bleaching effect which assists the skin tanner to produce prime quality leather, but the use of the material requires some experience in order to get the best results and the method of applying it was demonstrated to tanners by the Superintendent. The use of this tanning agent has given rise to a new problem as the simple test evolved by the institute some time ago for the detection of adulterated leather is not applicable to leather in which Tannic Media has been used. Experiments were therefore initiated with a view to ascertaining how adulterants such as magnesium sulphate could be detected even in the presence of this tanning material and these were in progress at the close of the year.

Past students.—The Superintendent reports that most of the past students of the institute are doing very well. Two ex-students started a concern for the manufacture and finishing of chrome and other kinds of leather during the year and they were assisted by the Superintendent with advice in regard to the opening and carrying on of the factory generally.

Leather Research Chemist.—The activities of the Leather Research Chemist during the year are summarized below.

Analyses.—In addition to the conduct of research work the Leather Research Chemist carried out 105 analyses, 46 of which were of tanning materials, 41 of water, 14 of leather including adulteration tests and 4 of miscellaneous products. The waters analysed consisted of (a) those sent by tanners for analyses and report, (b) those that were brought by the Superintendent from the tanning centres visited by him during the course of his tours and (c) those received from tanning centres for periodical analyses. The greater number of the tanning materials were received from sellers and buyers of bark who wished to know the tanning content. Samples of Cassia fistula bark from coppice shoots of different ages were analysed for the Deputy Forest Utilization

Officer with a view to determining the age at which bark from coppice shoots contain the highest percentage of tannin. The Bhopal Produce Trust, Limited, Bhopal, sent a sample of powdered babul bark to be leached and the percentage of tannin extracted determined as there was some difference of opinion between the producers and consumers, the powdered bark was leached by the Press Leach System in the laboratory and the percentage of tannin extracted determined and duly reported.

The leathers received for analyses fell mainly under two heads :—

(a) Samples of russet leather from the Superintendent, Central Jail, Vellore, for examination and report;

(b) samples of exported half tanned leather to be tested for adulteration.

Miscellaneous work.—Among other items of work carried out by the Leather Research Chemist may be mentioned—

(i) *Study of Anogaissus latifolia leaves as a tanning material* :—Two classes of red leaves, two classes of green leaves, twig bark and stem bark received from the Forest Utilization Officer were analysed and the relative tannin content of the six samples determined. It was found that the red leaves contain more tannin than the green leaves and the twig bark slightly more tannin than the stem bark. The leaves were then systematically leached, the leach liquor analysed and the percentage of tannin extracted determined.

(ii) *Retting of coconut husks for the production of coir.*—A reference to these experiments which engaged a considerable amount of time of the Leather Research Chemist has been made elsewhere in this report. In the course of the experiments, questions such as the nature of water essential for successful retting, the relative quality and yield of fibre from husks (both fresh, green and stored) when retted in brackish and in fresh water respectively, and the possibility of shortening the time required for retting were studied.

(iii) *Demonstration of methods of coir retting.*—The methods of coir production from the splitting of the husks to the making of the coir ropes were demonstrated by the coir maistri at Periyakuthukai, Pushpavanam and Sambodai in Topputhurai taluk of the Tanjore district. The use of the spinning wheel was demonstrated to the students of the Liepzig Mission Industrial School, Mayavaram, where about 1,000 husks were soaked according to the instructions given.

(iv) *Experiments in handmade paper.*—These experiments were continued during the year and strawboards and flat-files were made and their costings calculated.

(v) *Retting of sunn-hemp.*—Sunn-hemp was soaked both in salt and fresh water and for varying periods at Topputhurai and samples of the resulting fibre collected.

(vi) *Demonstration of palm jaggery manufacture.*—A demonstration of the method of tapping palmyra trees for sweet toddy and of the preparation of jaggery therefrom was started at Veerannagattipalle in Cuddapah district, a party of toddy drawers being brought from Repalle for the purpose.

INVESTIGATION INTO STAINS ON SKINS AND HIDES.

Mr. A. Guthrie, M.B.E., Special Officer for Stains Investigation, was on leave from 7th April 1930 to 17th September 1930 during the greater part of which period M.R.Ry. P. K. Rajamanikkam Nayudu was in additional charge of the duties of special Officer. Whilst in England Mr. Guthrie visited a number of the more important users of Madras tanned skins and also interviewed the officers of the chief leather trade associations and discussed the problem with them. He also visited the chief leather laboratories and worked for two weeks in the laboratory of the Leather Department of Leeds University.

In drawing up his programme of work, Mr. Guthrie proposed that the problem should be approached by a combination of chemical and bio-chemical methods and he requested that M.R.Ry. Subrahmanya Sastri, his Chemical Assistant, should be deputed to the Indian Institute of Science for a period of three months to undergo a course of training in bio-chemical methods during his absence on leave and in December 1930 Government sanctioned the deputation of the Chemical Assistant to the Indian Institute of Science, for a period of three months for the purpose. Subsequently the Professor of Bio-Chemistry in the Indian Institute of Science in whose department the Chemical Assistant had been working stated that though systematic work on the investigation of stains on leather had been in progress for some time and had led to some useful findings, the success of the investigation would depend largely on the systematic study of such organisms as are definitely established to be responsible for the stain on South Indian leather and he recommended that the term of deputation of the Chemical Assistant be extended for a period of four months. This has been sanctioned by Government since the close of the year. The various halophilic bacteria have been isolated and in addition a number of other organisms separated from local salts and salted skins. The investigation into the effect of these is now in progress but results will necessarily take time to obtain owing to the slow growth of these organisms in saline cultures.

From 9th December 1930 to 10th March 1931, the services of the Special Officer were lent to His Exalted Highness the Nizam's Government for the purpose of conducting a survey of the hide and leather industry of the Hyderabad State and during this period M.R.Ry. P. K. Rajamanikkam Nayudu, Superintendent, Leather Trades Institute, was again in charge of the duties of Special Officer. On his return from leave the Special Officer carried on an investigation in regard to stains on avaram tanned skins believed to be caused by excessive temporary hardness in water and several small-scale factory experiments were conducted using softened water in different processes where it was believed the stains may originate. Although these experiments proved interesting and promising, the stage at which large-scale experiments were warranted had not been reached by the end of the year. Arrangements were then in progress for the supply of softening materials in a form that could be used for larger experiments and as water-softening plants are costly apparatus, the experiments were conducted with makeshift apparatus.

It was decided that the investigation into the problem of stains should not be confined to skins, but should extend to a consideration of the causes of stains on hides also. An investigation was accordingly carried out of a stain which developed on a pack of hides and calf-skins. A leaflet explaining the causes of this stain and suggesting a method of prevention was prepared and distributed shortly before the end of the year.

SCHOOL OF ARTS AND CRAFTS.

Staff.—M.R.Ry. Rao Bahadur N. R. Balakrishna Mudaliyar was in charge of the school till the 15th May 1930 when he proceeded on leave preparatory to retirement. M.R.Ry. D. P. Roy Chowdury was in charge of the school for the remainder of the year except for a period of a month and a half, when he was on leave and Mr. N. K. Dewal, Vice-Principal, was placed in additional charge of the duties of Principal. Mr. N. K. Dewal was appointed as Assistant Superintendent with effect from 7th July 1930. The designations of Superintendent and Assistant Superintendent were changed to Principal and Vice-Principal respectively with effect from 7th July 1930. M.R.Ry. Rao Bahadur N. R. Balakrishna Mudaliyar retired on 17th September 1930 after a long and faithful service of 36 years.

2. Accommodation.—During the year a portion of the school building was demolished by the South Indian Railway Company in connexion with the construction of an overbridge on Whannels Road and corresponding new buildings were constructed.

3. Strength and attendance.—The number of pupils on the rolls on 31st March 1931 was 218 out of whom 15 were females. The average attendance during the year was 159 made up of 155 male pupils and 4 females and the average number on the rolls was 262 which was made up of 242 males and 20 female pupils.

The figures for the three previous years were—

Year.	Average number on rolls.	Average attendance.
1927-28	498	261
1928-29	516	269
1929-30	409	216

The fall in the total number on the rolls is due to the fact that the number of pupils in each class has been restricted and that admissions are now made only once a year.

4. Departments of the school.—The students of the Fine Arts section made good progress during the year, and specimens of their work which were exhibited at the Fine Arts Exhibition, Madras, appear to have been appreciated by the public. In the Modelling department also the students have shown good progress and a student specially sent from Panruti did some original works in plaster of paris. In the Crafts section original designs were prepared and articles made to them. In the Metal-work department the Vice-Principal introduced enamelling with success.

5. Examinations.—The results of the various Government technical examinations during the year are shown below with figures in respect of the two preceding years:—

Year.	Number appeared.	Number passed.	Per cent.
1928-29	178	141	80
1929-30	177	122	69
1930-31	88	44	50

6. Financial statement.—The expenditure for the year amounted to Rs. 54,117-7-4 as against Rs. 59,612-14-10 in the previous year. The accounts of the concern were as usual audited by an auditor from the office of the Accountant-General who audited the school accounts up to 30th November 1930. Subsequently the monthly audit system was changed into an annual audit.

7. Library and museum.—A few books were added to the library and a number of newly manufactured articles were placed in the museum during the year. The recommendations of the Reorganization Committee in regard to the sale of unserviceable articles in the museum were given effect to and Messrs. Galley &

Co. conducted an auction of the articles which realized an amount of Rs. 1,123-15-0. A few more articles yet remain to be disposed of and arrangements are being made to auction them.

Board of visitors.—All the four official visitors visited the school during the year.

9. *Miscellaneous.*—The Carpet-weaving section was transferred to the Textile Institute in November 1930. Retrenchment in the number of skilled workmen and staff was effected to some extent as the Reorganization Committee considered that this was possible without sacrifice of the principle that each student should receive as much individual attention as possible. The question of effecting further retrenchment is under consideration.

PROGRAMME OF WORK FOR 1931-32.

Industrial Engineering section.—Experiments in the preparation of brown crystal sugar provided that a grant can be obtained for the purpose from the Imperial Council of Agricultural Research.

Textile section.—Setting up by private capitalists with the encouragement of the department of small units of power-driven plants linked to handloom weavers.

Sericultural section—Kollegal.—Opening of more aided grain-ages and increasing the number of domestic basins and filatures.

Coonoor farm.—Continuance of hybridization work and rearing of univoltine worms.

Hosur farm.—Production of seed cocoons on a considerable scale.

Palmaner.—Development of the demonstration farm.

District sericultural work.—Vedakangulam to be made a centre for preparing disease-free layings, more centres to be selected for seed production, and mulberry planting to be extended in suitable areas.

Kerala Soap Institute, Calicut.—Conduct of experimental work on the refining, deodorization and hydrogenation of oils and fats.

Research Engineer.—Evolution of improved textile labour-saving appliances.

Investigation of the possibilities of introducing the indigenous method of preparing jaggery as practised in the Chittoor district, or any improved method that may be evolved from it, at other centres where jaggery is produced.

Industrial Education section.—Further development of the Government Industrial Schools at Bellary and Calicut, and of the Trades school at Mangalore.

Government Industrial Institute, Madras.—Experimental manufacture of paints including white lead.

The probable continuance of the financial stringency well into 1932-33 and the consequent non-availability of funds to permit of any large measure of development will necessitate efforts being directed mainly to the consolidation of the existing departmental activities. Nevertheless, there is no reason why schemes should not be worked out and a programme of expansion drawn up so that they may be submitted to Government as soon as financial conditions improve. The experiments on the refining, deodorization and hydrogenation of oils and fats at the Kerala Soap Institute, which have been delayed owing to the late arrival of the plant, should be pressed on with, whilst the evolution of improved methods of preparing jaggery and the manufacture of brown crystal sugar with the aid, if possible, of a grant from the Imperial Council of Agricultural Research should receive prominent attention. When cheap electricity becomes available, as pointed out before, it should be possible greatly to develop in what are to-day purely rural areas, small-scale industries for working up into manufactured or semi-manufactured form the agricultural products of the province so improving the economic condition of the villages, and with the progress of the Pykara scheme, this question obviously merits close attention at the hands of the department. The economics of electric pumping also require to be carefully studied so that whenever the circumstances of a case justify it, the department may advise a ryot to adopt electric in preference to oil-engine pumping in the areas served by the hydro-electric schemes.

RECEIPTS AND EXPENDITURE.

The following statement compares the receipts and expenditure of the department during the years 1929-30 and 1930-31—Details are exhibited in Appendix IV:—

Item.	1929-30.	1930-31.	Decrease.
	RS.	RS.	RS.
• Expenditure	18,60,054	14,21,534	4,38,520
Receipts	1,40,413	1,23,944	16,469
Net cost	17,19,641	12,97,590	4,22,051

Expenditure.—It will be seen from the statement that there was a decrease in expenditure during the period under review as compared with the previous year, but the expenditure in 1929-30 included a special grant of Rs. 2 lakhs to the School for the Blind and an amount of Rs. 3,86,400 written off as irrecoverable of the loan granted to the Carnatic Paper Mills under the State Aid to

Industries Act. The actual expenditure of the department in 1929-30 therefore was only Rs. 12,73,654, and there was thus an increase in expenditure of Rs. 1,47,880 in 1930-31. This was mainly due to the carrying over of the liabilities of the Pumping and Boring section to the Industrial Workshop from 1929-30 to 1930-31; the amount carried over was Rs. 1,14,000 and a supplementary grant was sanctioned by Government. The losses incurred on the departmental commercial concerns, viz., the Kerala Soap Institute, Calicut, the Government Industrial Institute, Madura, and the Government Industrial Institute, Madras (Ink Factory), as well as the employment of the Research Engineer and the Ceramic Assistant, also contributed to the increase in expenditure.

Receipts.—Owing to adverse seasonal conditions, the receipts from the Pumping and Boring section decreased, while the Government Industrial Institute, Madura, and the Kerala Soap Institute, Calicut, worked at a loss.

APPENDIX I
Statistics relating to Industrial Schools for 1930-31.

District.	Name of the institution.	Boys or girls.	Number on rolls on 31st March.		Draw- ing.		Mechanical engi- neering.			Civil engineering.	Draughtsman course.	Carpentry, cabinet- making and general wood work.	Metal work.	Weav- ing.		Needle crafts.			Agriculture and allied trades.	Oil-engine driving.
			1930.	1931.	Freehand out- line.	Technical.	Fitter's work.	Blacksmith's work.	Other bran- ches.					Cotton.	Carpet.	Lace-making.	Embroidery.	Other bran- ches, such as dress-making, sewing, etc.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
	GOVERNMENT INSTITUTIONS.																			
Madura	Government Industrial Institute, Madura.	Boys.	98	90	..	..	..	..	..	..	..	13	69	..	..	..	..	..	..	..
Madras	School of Arts and Crafts, Madras.	Boys and girls.	315	218	40	8	..	..	..	..	..	62	20	..	..	..	..	..	..	..
Do.	Government School of Technology, Madras.	Boys.	863	821	..	129	..	..	221	..	..	..	..	..	..	..	..	..	..	..
Do.	Government Textile Insti- tute, Madras.	Do.	56	60	..	..	..	..	..	..	..	..	..	60	..	..	..	..	..	..
Bellary	Government Industrial School, Bellary.	Do.	22	42	..	..	..	21	..	..	..	21	..	..	..	..	..	..	..	..
Malabar	Government Industrial School, Calicut.	Do.	55	87	..	..	..	..	32	..	..	48	..	..	..	..	..	..	..	..
South Kanara.	Government Trades School, Mangalore.	Do.	75	94	..	..	33	..	..	..	..	18	..	..	..	..	..	..	..	..
	Total ..		1,484	1,412	40	137	33	21	263	..	..	162	89	60	..	..	..	..	..	..

APPENDIX I—cont.
Statistics relating to Industrial Schools for 1930-31—cont.

District.	Name of the institution.	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)
		Rattan work.	Plumbing and minor sanitary science.	Motor-car driving and repair work.	Mat-making.	Basket-making.	Chemistry of leather manufacture.	Electric wiring.	Railway apprentices.	Engraving.	General education.	Scientific instrument making.	Goldsmith's work.	Lacquer work.	Special painting.	Printing and allied trades.	Boot and shoe-making.	Electrical engineering.	Probationer's course.	Preparatory Trades School course.	Sericulture.
Madura	Government Industrial Institute, Madura.	..	..	8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Madras	School of Arts and Crafts, Madras.	..	..	..	..	..	..	..	..	41	..	..	14	..	27	..	..	..	..	..	..
Do.	Government School of Technology, Madras.	..	38	..	..	..	..	70	..	..	..	..	..	..	104	..	..	170	89	..	..
Do.	Government Textile Institute, Madras.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bellary	Government Industrial School, Bellary.	..	..	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Malabar	Government Industrial School, Calicut.	..	..	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
South Kanara.	Government Trades School, Mangalore.	..	..	43	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Total ..	..	38	65	..	..	..	70	..	41	..	..	14	..	27	104	..	170	89	..	..

APPENDIX I—cont.
Statistics relating to Industrial Schools for 1930-31—cont.

District.	Name of the institution.	Boys or girls.	Number on rolls on 31st March 1930.	1931.	Freehand outline.	Technical.	Fitter's work.	Blacksmith's work.	Other branches.	Civil engineering.	Draughtsman course.	Carpentry, cabinet-making and general wood work.	Metal work.	Cotton.	Carpet.	Lace-making.	Embroidery.	Other branches, such as dress-making, sewing, etc.	Agriculture and allied trades.	Oil-engine driving.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
North Arcot ..	Armed Schools (Boys). A.A.M. Industrial School, Katpadi.	Boys.	102	149	..	..	..	14	..	..	..	127	7	..	..	..	..	..	..	..
Do.	The Anjuman Industrial School, Vellore.	Do.	55	55	46	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do.	The Anjuman Industrial School, Melvisharam.	Do	59	57	41	8	6	..	..	..	..	..	..	..	..	..	..	..	..	..
Do.	Anjuman Oosmania Industrial School, Tirupattur.	Do.	27	40	..	..	..	..	..	..	..	40	..	..	..	..	..	..	..	..
Do.	Don Bosco Industrial School, Vellore.	Do.	..	21	..	..	..	..	..	..	..	21	..	..	..	..	..	..	..	..
South Arcot ..	St. Joseph's Industrial School, Tindivanam.	Do.	83	98	..	..	..	10	..	..	..	88	..	..	..	..	..	..	..	..
Do.	Daniel Mission Industrial School, Paruthi.	Do.	108	100	..	..	..	..	..	..	..	66	..	..	..	..	..	..	..	..
Chingleput ..	S.M. Agricultural School, Melvoosapuram.	Do	64	70	..	..	..	..	..	..	..	..	..	..	..	..	..	..	70	..
Do.	A.A.M. Industrial School, Satepet.	Do.	18	7	..	..	..	..	..	..	..	7	..	..	..	..	..	..	..	..
Coinhatore ..	St. Joseph's Industrial School, Coinhatore.	Do.	159	154	..	..	43	..	..	..	..	151	..	..	..	..	..	..	..	..
Do.	L.M. Weaving School, Brode.	Do.	90	32	..	..	..	..	..	..	..	..	..	32	..	..	..	..	..	..
Do.	P.S.G. & Sons Charity Industrial Institute, Peelamedu.	Do.	33	59	..	..	9	25	..	..	..	11	..	..	..	..	..	..	..	12

APPENDIX I—cont.
Statistics relating to Industrial Schools for 1930-31—cont.

District.	Name of the institution.	Rattan work.	Plumbing and minor sanitary science.	Motor-car driving and repair work.	Mat-making.	Basket-making.	Chemistry of leather manufacture.	Electric wiring.	Railway apprentices.	Engraving.	General education.	Scientific instrument making.	Goldsmith's work.	Lacquers work.	Special painting.	Printing and allied trades.	Boot and shoe-making.	Electrical engineering.	Probationer's course.	Preparatory Trades School course.	Sericulture.
North Arcot ..	Aided Schools (Boys)—cont. A.A.M. Industrial School, Katpadi.	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do.	The Anjuman Industrial School, Vellore.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do.	The Anjuman Industrial School, Melvisharam.	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do.	Anjuman Oosmania Industrial School, Tirupattur.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do.	Don Bosco Industrial School, Vellore.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
South Arcot ..	St. Joseph's Industrial School, Tindivanam.	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do.	Danish Mission Industrial School, Panruti.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Chingleput ..	C.S.M. Agricultural School, Melroosapuram.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do.	A.A.M. Industrial School, Saidapet.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Coimbatore ..	St. Joseph's Industrial School, Coimbatore.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do.	L.M. Weaving School, Erode.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do.	P.S.G. & Sons Charity Industrial Institute, Peelamedu.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..

APPENDIX I—cont.
Statistics relating to Industrial Schools for 1930-31—cont.

Statistics relating to Industrial Schools for 1930-31

District.	Name of the institution.	Boys or girls.	Number on rolls on 31st March		Draw- ing.		Mechanical engi- neering.			Civil engineering.	Draughtsman course.	Carpentry, cabinet- making and general wood work.	Metal work.	Weav- ing.		Needle crafts.				Agriculture and allied trades.	Oil-engine driving.
			1930.	1931.	Freehand out- line.	Technical.	Fitter's work.	Blacksmith's work.	Other bran- ches.					Cotton.	Carpet.	Lace-making.	Embroidery.	Other bran- ches, such as dress-making, sewing, etc.			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	
	AIRED SCHOOLS (BOYS)—cont.																				
Ganjam ..	The Raja's Industrial School, Parlakimedi.	Boys.	25	23	..	..	..	..	..	..	..	23	..	..	..	..	..	..	..	..	
Godavari, East.	C.B.M. Industrial School, Cocanada.	Do.	37	32	..	..	..	..	..	..	..	32	..	..	..	..	..	..	42	..	
Guntur ..	U.L.C.M. Lam Rural School, Guntur.	Do.	54	42	..	..	..	..	..	..	..	..	..	34	..	..	..	..	..	..	
Kanara South.	The Commonwealth Trust Engineering Works, Man- galore.	Do.	14	11	..	..	..	..	11	..	..	..	..	..	..	..	..	..	..	..	
Kistna ..	Sri Krishna Parisrama- layam Industrial School, Cowtharam.	Do.	17	20	..	..	..	..	..	..	..	20	..	..	..	..	..	..	..	..	
Do.	St. Joseph's Industrial School, Gunadala.	Do.	60	59	..	..	5	..	..	..	..	54	..	..	..	..	..	..	..	..	
Do.	Andhra Jatheeya Khalasala, Masulipatam.	Boys and girls.	65	69	..	..	..	..	47	..	..	..	..	..	..	..	..	..	..	..	
Kurnool ..	Cole's Vocational Middle School, Kurnool.	Boys.	49	57	..	..	..	..	..	..	..	28	..	48	..	..	..	28	..	24	
Madras ..	C.N.T. Institute, Vepery, Madras.	Do.	328	358	104	..	42	..	88	..	..	25	7	14	..	..	..	..	..	..	
Do.	The Anjuman Industrial School, Madras.	Do.	99	100	..	..	..	..	..	..	..	70	..	..	12	..	..	18	..	..	
Do.	The Orr's Assisted Industries school, Madras.	Do.	27	33	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	

APPENDIX I—cont.
Statistics relating to Industrial Schools for 1930-31—cont.

District.	Name of the institution.	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)
		Rattan work.	Plumbing and minor sanitary science.	Motor-car driving and repair work.	Mat-making.	Basket-making.	Chemistry of leather manufacture.	Electric wiring.	Railway apprentices.	Engraving.	General education.	Scientific instrument making.	Goldsmith's work.	Lacquer work.	Special painting.	Printing and allied trades.	Boot and shoe-making.	Electrical engineering.	Probationer's course.	Preparatory Trades School course.	Sericulture.
Gangam ..	Arund Sarcous (Boys)—cont. The Raja's Industrial School, Parakimedi.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Godavari, East.	C.B.M. Industrial School, Coenada.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Guntur ..	U.L.C.M. Ram Rural School, Guntur.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Kanara, South.	The Commonwealth Trust Engineering Works, Mangalore.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Kistna ..	Sri Krishna Pararama-layam Industrial School, Cowtharam.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do. ..	St. Joseph's Industrial School, Gunadala.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do. ..	Andra Jatheeya Kalsala, Masulipatam.	..	..	..	..	..	..	..	..	..	..	..	..	..	22	..	..	..	..	..	..
Kurnool ..	Cole's Vocational Middle School, Kurnool.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Madras ..	C.N.T. Institute, Vepery, Madras.	..	..	11	..	..	..	43	..	..	..	..	..	..	..	..	..	..	..	..	..
Do. ..	The Anjanam Industrial School, Madras.	..	..	..	..	..	..	..	..	15	..	..	..	..	..	..	..	..	..	..	..
Do. ..	The Or's Assisted Industries school, Madras.	..	..	..	..	..	..	..	..	15	..	18	18	..	..	..	..	..	..	..	..

APPENDIX I—cont.
Statistics relating to Industrial Schools for 1930-31—cont.

Statistics relating to Industrial Courses for 1930																				
District.	Name of the institution.	Boys or girl.	Number on rolls on 31st March		Draw-ing.	Mechanical engi-neering.			Civil engineering.	Draughtsman course.	Carpentry, cabinet-making and general wood work.	Metal work.	Weav-ing.		Needle crafts.			Agriculture and allied trades.	Oil-engine driving.	
			1930.	1931.		Freehand out-line.	Technical.	Fitter's work.					Blacksmith's work.	Other bran-ches.	Cotton.	Carpet.	Lace-making.			Embroidery.	Other bran-ches, such as dress-making, sewing, etc.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
Madras ..	ANDRO SCHOOLS (Boys)—cont. Ramakrishna Mission Stu- dents' Home Industrial School, Mylapore.	Boys.	27	22	..	..	..	..	21	..	..	1	..	..	..	..	..	..	..	..
Do. ..	Sri Ram Motor School, Madras.	Do.	64	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do. ..	The Madras Penitentiary, Madras.	Do.	63	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Madras ..	Pasumalai Trades School, Madras.	Do.	63	79	..	..	..	16	..	..	..	40	..	..	..	..	..	..	..	..
Do. ..	C.S.M. Industrial School, Dindigul.	Do.	47	60	..	..	..	..	..	..	..	50	..	..	..	..	..	..	..	..
Malabar ..	Y.M.C.A. Industrial School, Aracode.	Do.	37	36	..	..	..	..	..	..	..	11	..	11	..	..	..	..	..	..
Nilgiris ..	St. Joseph's Industrial School, Ootacamund.	Do.	..	25	..	..	..	..	..	..	..	25	..	..	..	..	..	..	..	..
Tanjore ..	St. Francis Xavier's Industrial School, Tanjore.	Do.	99	92	..	..	..	..	..	..	..	65	..	27	..	..	..	..	..	..
Do. ..	St. Mary's Industrial School, Kumbakonam.	Do.	70	77	..	..	..	16	..	..	..	61	..	..	..	..	..	..	..	..
Do. ..	The Borsal School, Tanjore.	Do.	251	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do. ..	Municipal Industrial School, Kumbakonam.	Do.	6	19	..	..	..	..	..	..	..	11	..	8	..	..	..	..	..	..
Trinnevelly ..	S.P.G. Art Industrial School, Nazareth.	Do.	107	106	..	..	..	7	12	..	..	86	..	..	..	..	..	..	..	..

APPENDIX I—cont.

Statistics relating to Industrial Schools for 1930-31—cont.

District.	Name of the institution.	(22) Rattan work.	(23) Plumbing and minor sanitary sciences.	(24) Motor-car driving and repair work.	(25) Mat-making.	(26) Basket-making.	(27) Chemistry of leather manufacture.	(28) Electric wiring.	(29) Railway apprentices.	(30) Engraving.	(31) General education.	(32) Scientific instrument making.	(33) Goldsmith's work.	(34) Lacquer work.	(35) Special painting.	(36) Printing and allied trades.	(37) Boot and shoe-making.	(38) Electrical engineering.	(39) Probationer's course.	(40) Preparatory Trades School course.	(41) Sericulture.
Madras	Aided Schools (Boys)—cont.	..	..	..	..	..	..	..	..	15	..	18	18	..	..	..	..	..	..	..	..
Do.	Bamakrishna Mission Students' Home Industrial School, Mylapore.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do.	Sri Ram Motor School, Madras.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do.	The Madras Penitentiary, Madras.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Madras	Pasumalai Trades School, Madras.	..	..	9	..	..	..	..	..	..	..	..	..	..	..	14	..	..	..	..	..
Do.	C.S.M. Industrial School, Dindigul.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Malabar	Y.M.C.A. Industrial School, Aracode.	14	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Nilgiris	St. Joseph's Industrial School, Ootacamund.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tanjore	St. Francis Xavier's Industrial School, Tanjore.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do.	St. Mary's Industrial School, Kumbakonam.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do.	The Borsal School, Tanjore.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do.	Municipal Industrial School, Kumbakonam.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do.	S.P.G. Art Industrial School, Nasereth.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tinnevely	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

APPENDIX I—cont.

Statistics relating to Industrial Schools for 1930-31—cont.

11																				
District.	Name of the institution.	Boys or girls.	Number on rolls on 31st March 1930.	1931.	Draw-ing.	Mechanical engi-neering.	Weav-ing.	Needle crafts.	Other branches such as dress-making, sewing, etc.	Agriculture and allied trades.	Oil-engine driving.									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
					Freehand out-line.	Technical.	Fitter's work.	Blacksmith's work.	Other branches.	Civil engineering.	Draughtsman course.	Carpentry, cabinet-making and wood work.	Metal work.	Cotton.	Carpet.	Lace-making.	Embroidery.	Other branches such as dress-making, sewing, etc.	Agriculture and allied trades.	Oil-engine driving.
Tinnevelly ..	Aided Schools (Boys)—cont. St. Joseph's Industrial School, Adakkalapuram.	Boys and girls. Do.	57	67	..	..	..	..	..	..	..	27	..	40	..	..	..	..	..	..
Do. ..	C.M.S. Industrial School, Palamcottah.	Boys.	64	51	..	..	..	..	..	..	..	3	..	44	..	..	..	..	..	..
Do. ..	St. Ignatius Industrial School, Tuticorin.	Do.	20	28	..	..	..	..	..	..	..	28	..	..	..	..	..	..	..	..
Trichinopoly ..	St. Joseph's Industrial School, Trichinopoly.	Do.	53	59	..	..	19	..	..	..	..	38	2	..	..	..	..	..	..	..
Do. ..	Wesleyan Mission Industrial School, Karur.	Do.	88	87	..	..	..	9	..	..	..	52	..	21	..	..	..	..	..	..
Do. ..	All Saints Industrial School, Puthur.	Do.	41	36	..	..	6	4	..	..	..	36	..	..	..	..	..	..	..	..
Vizagapatnam ..	St. Aloysius' Industrial School, Vizagapatnam.	Do.	30	26	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Total ..	..	2,745	2,514	191	10	130	101	186	..	..	1,267	16	321	..	..	..	46	112	36
South Arcot ..	Aided Schools (Girls). Danish Mission Industrial School, Keelur.	Girls.	40	50	..	..	..	..	..	..	..	..	..	..	..	..	..	50	50	..
Belary ..	St. Joseph's Convent Industrial School, Belary.	Do.	92	81	..	..	..	..	..	..	..	..	..	..	..	..	..	16	81	..
Chingleput ..	C.S.M. Lace School, Chingleput.	Do.	66	64	..	..	..	..	..	..	..	..	..	..	..	..	..	64	..	..
Do. ..	Wesleyan Mission Industrial School, Ikkaadu.	Do.	161	145	..	..	..	..	..	..	..	..	..	25	..	..	..	17	40	56

APPENDIX I—cont.
Statistics relating to Industrial Schools for 1930-31—cont.

District.	Name of the institution.	(22) Kattam work.	(23) Plumbing and minor sanitary science.	(24) Motor-car driving and repair work.	(25) Mat-making.	(26) Basket-making.	(27) Chemistry of leather manufacture.	(28) Electric wiring.	(29) Railway apprentices.	(30) Engraving.	(31) General education.	(32) Scientific instrument making.	(33) Goldsmith's work.	(34) Lacquer work.	(35) Special painting.	(36) Printing and allied trades.	(37) Boot and shoe-making.	(38) Electrical engineering.	(39) Probationer's course.	(40) Preparatory School course.	(41) Periculture.
Tinnevely ..	Aided Schools (Boys)—cont. St. Joseph's Industrial School, Adaitalapuram.	..	..	..	..	..	..	..	..	..	..	18	18	..	22	14	..	2	..	..	..
Do. ..	C.M.S. Industrial School, Palamcottah.	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do. ..	St. Ignatius Industrial School, Tuticorin.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Trichinopoly ..	St. Joseph's Industrial School, Trichinopoly.	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do. ..	Wesleyan Mission Industrial School, Karur.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do. ..	All Saints Industrial School, Pathar.	10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Visagapatnam ..	St. Aloysius' Industrial School, Vizagapatnam.	..	..	25	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Total ..	36	..	49	..	..	..	43	..	15	..	18	18	..	22	14	..	2	..	..	..
South Arcot ..	Aided Schools (Girls).	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do. ..	Danish Mission Industrial School, Keelur.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bellary ..	St. Joseph's Convent Industrial School, Bellary.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Chingleput ..	C.S.M. Lace School, Chingleput.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do. ..	Wesleyan Mission Industrial School, Ikshada.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

APPENDIX I—cont.
Statistics relating to Industrial Schools for 1930-31—cont.

District.	Name of the institution.	Boys or girls.	Number on rolls on 31st March		Draw- ing.		Mechanical engi- neering.			Civil engineering.	Draughtsman course.	Carpentry, cabinet- making and general wood work.	Metal work.	Weav- ing.		Needle crafts.				Agriculture and allied trades.	(21)	
			1930.	1931.	Freehand out- line.	Technical.	Fitter's work.	Blacksmith's work.	Other bran- ches.					Lace-making.	Embroidery.	Other bran- ches such as dress making, sewing, etc.						
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)			
AIDED SCHOOLS (GIRLS)— <i>cont.</i>																						
Chingleput ..	St. Anthony's Industrial School, St. Thomas Mount.	Girls.	..	41	..	..	..	..	..	..	..	..	..	..	..	8	33	33	..	..		
Chittoor ..	A.A.M. Women's Industrial Home, Palmaner.	Do.	89	92	42	..	..	..	..	..	..	..	..	..	..	..	74	59	..	..		
Coimbatore ..	London Mission Girls' Indus- trial School, Erode.	Do.	62	66	..	..	..	..	..	..	..	..	..	16	..	..	..	..	..	..		
Do. ..	The Immaculate Conception Convent Industrial School, Coimbatore.	Do.	61	55	..	..	..	..	..	..	..	..	..	..	..	..	29	55	..	..		
West Godavari.	The Alexander Girls' Indus- trial School, Ellore.	Do.	22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
Guntur ..	A.B.M. Girls' Industrial School, Ongole.	Do.	20	19	..	..	..	..	..	..	..	..	..	..	..	..	7	4	8	..		
Do. ..	St. Joseph's Orphanage Industrial School, Guntur.	Do.	20	21	..	..	..	..	..	..	..	..	..	..	..	..	..	21	..	..		
Madras ..	C.S.M. Girls' Industrial School, Kilpauk.	Do.	48	48	..	..	..	..	..	..	..	..	..	..	..	..	33	15	..	..		
Do. ..	The Madras Sevasadan Indus- trial School, Madras.	Do.	41	35	..	..	..	..	..	..	..	..	..	..	..	..	16	4	..	..		
Do. ..	St. Bridget's Industrial School for Girls, Nungam- bakkam.	Do	30	36	..	..	..	..	..	..	..	..	..	..	..	..	36	36	..	..		
Madura ..	St. Joseph's Convent Indus- trial School, Madura.	Do.	148	149	4	..	..	..	..	..	..	..	..	..	..	..	78	67	..	..		
Malabar ..	The Commonwealth Embroi- dery School, Calicut.	Do.	59	61	..	..	..	..	..	..	..	..	..	..	..	..	61	61	..	..		

APPENDIX I—cont.

Statistics relating to Industrial Schools for 1930-31—cont.

District.	Name of the institution.	(22) Rattan work.	(23) Planning and minor sanitary science.	(24) Motor-car driving and repair work.	(25) Mat-making.	(26) Basket-making.	(27) Chemistry of leather manufacture.	(28) Electric wiring.	(29) Railway apprentices.	(30) Engraving.	(31) General education.	(32) Scientific instrument making.	(33) Goldsmith's work.	(34) Lacquer work.	(35) Special painting.	(36) Printing and allied trades.	(37) Boot and shoe-making.	(38) Electrical engineering.	(39) Probationer's course.	(40) Preparatory School course.	(41) Horticulture.
AIDED SCHOOLS (GIRLS)— cont.																					
Chingleput	St. Anthony's Industrial School, St. Thomas Mount.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Chittoor	A.A.M. Women's Industrial Home, Palmaner.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Coimbatore	London Mission Girls' Industrial School, Erode.	..	..	..	50	50	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do.	The Immaculate Conception Convent Industrial School, Coimbatore.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
West Godavari.	The Alexander Girls' Industrial School, Ellore.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Guntur	A.B.M. Girls' Industrial School, Ongole.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do.	St. Joseph's Orphanage Industrial School, Guntur.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Madras	C.S.M. Girls' Industrial School, Kilpauk.	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do.	The Madras Sevassadan Industrial School, Madras.	14	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do.	St. Bridget's Industrial School for Girls, Nungambakkam.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Madura	St. Joseph's Convent Industrial School, Madura.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Malabar	The Commonwealth Embroidery School, Calicut.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

APPENDIX I—cont.

Statistics relating to Industrial Schools for 1930-31—cont.

District.	Name of the institution	(3) Boys or girls.	Number on rolls on 31st March.		(6) Freed and out-line.	Draw-ing.		(8) Fitter's work.	(9) Blacksmith's work.	Mechanical engineering.		(10) Other branches.	Civil engineering.		(12) Draughtsman course.	(13) Carpentry, cabinet-making and general wood work.	(14) Metal work.	Weav-ing.		Needle crafts.			(20) Agriculture and allied trades.	(21) Oil-engine driving.
			1930.	1931		Technical.												Cotton.	Carpet.	Face-making.	Embroidery.	Other branches such as dress-making, sewing, etc.		
Nellore	AIDED SCHOOLS (GIRLS)— O.E.L.M. Girls' Industrial School, Gudur.	Girls.	29	37	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Nalgiris	Nazareth Convent Girls' Industrial School, Ootacamund.	Do.	35	31	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do	St. Mary's Convent Girls' Industrial School, Kotagiri.	Do.	..	26	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tanjore	Leipzig Mission Women's Industrial Home, Mayavaram.	Do.	51	52	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tinnevely	R.C. Lace School, Vadakangulam.	Do.	90	66	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do	Hindu Girls' Industrial School, Kudangulam.	Do.	43	46	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do.	Holy Cross Convent Industrial School, Tuticorin.	Do.	96	86	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Trichinopoly	Wesleyan Mission School, Karur.	Do.	17	26	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do.	Holy Cross Convent Industrial School, Trichinopoly.	Do.	69	64	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Anjengo	The Sacred Heart Convent Industrial School, Anjengo.	Do.	40	26	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Total ..		1,429	1,423	46	277	147	163	122	439	..	..	..	..	..	..	..	79	..	246	730	776	28	..
	Grand Total ..		6,658	6,349	277	147	163	122	439	..	..	..	..	..	..	..	..	400	..	246	730	892	140	36

APPENDIX I—cont.
Statistics relating to Industrial Schools for 1930-31—cont.

District.	Name of the institution.	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)
		Kattan work.	Plumbing and minor sanitary science.	Motor-car driving and repair work.	Mat-making.	Basket-making.	Chemistry of leather manufacture.	Electric wiring.	Railway apprentices.	Engraving.	General education.	Scientific instrument making.	Goldsmith's work.	Lacquered work.	Special painting.	Printing and allied trades.	Boot and shoe-making.	Electrical engineering.	Probationer's course.	Preparatory Trades School course.	Barbenture.
Nellore	Aided Schools (Girls)—cont. O.E.Z.M. Girls' Industrial School, Gudur.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Nilgiris	Nasareth Convent Girls' Industrial School, Ootacamund.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do.	St. Mary's Convent Girls' Industrial School, Kotagiri.	..	..	..	10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tanjore	Leipzig Mission Women's Industrial Home, Mayavaram.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tinnevely	R.C. Lace School, Vadakungalam.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	12
Do.	Hindu Girls' Industrial School, Kudangulam.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do.	Holy Cross Convent Industrial School, Tuticorin.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Trichinopoly	Wesleyan Mission Lace School, Karur.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do.	Holy Cross Convent Industrial School, Trichinopoly.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Anjengo	The Sacred Heart Convent Industrial School, Anjengo.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Total ..	14	..	..	61	50	..	..	..	..	..	18	32	..	49	118	..	172	..	89	12
	Grand Total ..	50	38	114	61	.50	..	113	..	66	..	..	..	..	..	..	..	..	..	..	12

APPENDIX II.
Statistics relating to Industrial Schools for 1930-31.

Statistics relating to Industrial Schools for 1930-31.

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APPENDIX II—cont.

Statistics relating to Industrial Schools for 1930-31—cont.

District and name of the institution.	Boys or girls.	Number on rolls on 31st March 1931.	Receipts.					Public funds.	Management contribution.	Total receipts (equal expenditure).	
			Miscellaneous receipts including sale-proceeds of manufactured articles.	Fees.	Teaching and special grants.	Building grants.	Equipment grants.				
ES.	A.	P.	ES.	A.	P.	ES.	A.	P.	ES.	A.	P.
AIDED SCHOOLS (Boys)—cont.											
Kistna— Sree Krishna Parimar- layam, Cewtharam.	Boys.	20	..	..	600 0 0	..	..	..	974 0 0	1,574 0 0	
St. Joseph's Industrial School, Gunadala.	Do.	59	8,583 15 0	..	3,000 0 0	7,190 0 0	1,700 0 0	..	13,425 0 0	35,054 11 0	
A. J. Kalasala, Masulipa- tan.	Boys and girls.	69	15,373 15 0	240 4 0	1,000 0 0	..	..	..	1,678 13 4	18,298 0 4	
Kurnool— Coles' Vocational Industrial School, Kurnool.	Boys.	57	..	..	3,000 0 0	..	213 5 0	..	11,102 0 0	13,273 6 6	
Madras— C.N.T. Institute, Vepey, Madras.	Do.	358	10,883 3 4	15,801 6 10	9,000 0 0	..	705 6 0	..	4,988 9 10	41,378 10 0	
Anjuman Industrial School, Madras.	Do.	100	..	..	6,000 0 0	..	123 0 0	..	..	6,123 0 0	
Orr Assisted Industrial School, Madras.	Do.	33	..	..	2,700 0 0	..	..	..	2,700 0 0	5,400 0 0	
R.S.H. Industrial School, Mylapore.	Do.	22	531 5 0	..	1,200 0 0	6,625 0 0	..	..	16,967 0 0	13,736 15 10	
Sri Ram Motor School, Madras.	Do.	..	..	..	..	..	..	..	..	..	
Madras Penitentiary Car- pentry Class.	Do.	..	..	..	..	..	..	..	..	..	

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Madras— Pannamalai Trades School, Pannamalai.	Do.	79	58,048 7 10	..	2,000 0 0	8,000 0 0	1,900 0 0	..	10,052 0 0	80,075 6 1
C.S.M. Industrial School, Dindigul.	Do.	50	8,594 14 6	..	1,000 0 0	..	202 2 6	..	11,023 0 0	19,911 13 0
Malabar— Y.M.C.A. Industrial School, Areakode.	Do.	36	927 10 11	..	1,084 0 0	..	..	..	1,994 12 0	5,213 15 10
Nilgiris— St. Joseph's Industrial School, Ootacamund.	Do.	25	..	..	..	12,000 0 0	4,000 0 0	..	..	16,000 0 0
Tanjore— St. Francis Xavier's Indus- trial School, Tanjore.	Do.	92	17,355 9 9	..	3,420 0 0	..	989 8 0	..	5,606 0 0	27,496 12 0
St. Mary's Industrial School, Kumbakonam.	Do.	77	..	6 0 0	3,000 0 0	..	..	..	47,422 8 7	50,428 8 7
The Borsial School, Tan- jore.	Do.	..	..	..	..	..	..	..	..	..
Municipal School, Kumbakonam.	Do.	19	..	..	540 0 0	..	203 5 0	..	718 0 0	1,487 7 2
Tinnevely— S.P.G. Art Industrial School, Nazareth.	Do.	105	796 0 0	5,426 10 0	4,000 0 0	..	828 0 0	..	13,097 0 0	21,609 8 11
St. Joseph's Industrial School, Adakkapuram.	Do.	67	2,840 15 9	..	1,250 0 0	..	497 0 0	..	3,137 0 0	6,297 8 8
C.M.S. Industrial School, Palanecottah.	Boys and girls.	51	5,956 10 10	..	2,000 0 0	..	48 0 0	..	2,301 0 0	9,822 0 11
St. Ignatius Industrial School, Tuticorin.	Boys.	28	729 0 0	..	600 0 0	..	1,101 12 0	..	3,988 0 0	5,468 15 6
Trichinopoly— St. Joseph's Industrial School, Trichinopoly.	Do.	59	44,739 10 10	..	2,100 0 0	..	713 10 0	..	13,106 0 0	50,592 4 10
Wesleyan Mission Indus- trial School, Karur.	Do.	87	24,717 4 4	..	3,597 0 0	410 0 0	2,432 10 0	..	5,940 0 0	37,513 13 8
All Saints' Industrial School, Puthur.	Do.	36	7,638 1 0	..	2,400 0 0	200 0 0	..	..	2,677 0 0	12,666 10 10
Vizagapatam— St. Aloysius' Industrial School, Vizagapatam.	Do.	25	..	..	1,440 0 0	..	..	..	..	1,440 0 0
Total	..	2,514	4,48,067 4	7,22,862 0 10	86,511 0 0	47,280 0 0	31,603 8 6	..	244,553 9 6	11,76,554 5 10

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APPENDIX II—cont. Statistics relating to Industrial Schools for 1930-31—cont.

District and name of the institution.	Boys or girls.	Number on rolls on 31st March 1931.	Receipts.					Public funds.	Management contribution.	Total receipts (equal expenditure).	
			Miscellaneous receipts including sale-proceeds of manufactured articles.	Fees.	Teaching and special grants.	Building grants.	Equipment grants.				
ARUNACHAL PRADESH (GIRLS).											
South Arcot— D.M. Girls' Industrial School, Keelur.	Girls.	50	Rs. A. P. 568 8 0	Rs. A. P. ..	Rs. A. P. 600 0 0	Rs. A. P. ..	Rs. A. P. ..	..	Rs. A. P. 956 0 0	Rs. A. P. 1,168 8 0	
Bellary— St. Joseph's Convent Industrial School, Bellary.	Do.	81	828 14 0	..	700 0 0	..	..	..	1,138 0 0	2,497 14 0	
Chingleput— O.S.M. Lace School, Chingleput.	Do.	64	1,101 12 0	..	500 0 0	..	24 14 0	..	2,706 9 4	4,333 3 4	
Wesleyan Mission Industrial School, Ikshada.	Boys and girls.	145	..	..	1,884 0 0	6,000 0 0	953 3 0	..	Nil	70,088 13 9	
St. Antony's Industrial School, St. Thomas Mount.	Girls.	41	884 12 0	..	250 0 0	..	..	..	3,202 0 0	4,627 13 7	
Chittoor— A.A.M. Women's Industrial School, Palmaner.	Do.	92	6,545 7 3	300 0 0	1,782 0 0	..	212 0 0	..	9,153 0 0	33,729 7 3	
Coimbatore— L.M. Girls' Industrial School, Erode.	Do.	66	412 12 6	..	500 0 0	..	..	..	292 0 0	2,293 9 3	
Immaculate Conception Industrial School, Coimbatore.	Do.	55	3,071 5 0	..	750 0 0	..	..	..	2,447 0 0	7,063 10 0	
West Godavari— The Alexander Girls' Industrial School, Ellore.	Do.	..	..	..	600 0 0	..	..	..	..	600 0 0	
Guntur— A.B.M. Girls' Industrial School, Ongole.	Do.	19	87 6 0	..	300 0 0	..	..	..	190 0 0	387 6 0	
St. Joseph's Orphanage Industrial School, Guntur.	Do.	21	..	70 8 0	500 0 0	..	33 0 0	..	2,000 0 0	4,623 10 0	

Madras— C.S.M. Girls' Industrial School, Kilpauk.	Do.	48	1,640 8 6	66 8 0	1,060 0 0	..	11 4 0	..	2,310 10 4	5,088 14 10
Madras Seva Sadan.	Do.	35	..	..	2,500 0 0	26,500 0 0	48 15 0	..	4,09,820 12 6	70,031 11 6
St. Bridget's Industrial School, Nungambakam.	Do.	36	..	..	500 0 0	..	100 0 0	..	1,900 0 0	1,436 0 0
Madura— St. Joseph's Convent Industrial School, Madura.	Do.	149	5,945 8 0	..	800 0 0	..	25 1 0	..	2,154 2 3	9,624 11 3
Malabar— Commonwealth Embroidery School, Calicut.	Do.	61	..	..	800 0 0	..	..	..	880 0 0	800 0 0
Nallore— O.E.L.M. Girls' Industrial School, Gundur.	Do.	37	1,877 12 0	..	400 0 0	..	..	..	1,135 0 0	5,618 12 0
Nilgiris— Nazareth Convent Girls' Industrial School, Ootacamund.	Do.	31	1,921 8 6	..	600 0 0	..	280 0 0	..	2,979 0 0	8,528 7 6
St. Mary's Convent Industrial School, Kotagiri.	Do.	26	178 4 0	..	..	..	..	..	435 0 0	1,061 9 7
Tanjore— Lapsig Mission Women's Industrial Home, Mayavaram.	Do.	52	..	..	1,750 0 0	..	249 0 0	..	2,457 5 8	9,097 0 0
Tinnevely— R.C. Lace School, Vadangulam.	Do.	66	600 9 0	..	1,100 0 0	..	..	..	575 12 0	2,276 5 0
Hindu Girls' Industrial School, Kudangulam.	Do.	46	772 8 0	..	400 0 0	..	49 12 0	..	824 0 0	3,031 4 0
Holy Cross Convent Industrial School, Tuticorin.	Do.	86	4,468 14 0	..	1,000 0 0	..	28 0 0	..	2,764 0 0	8,451 15 6
Trichinopoly— Wesleyan Mission Lace School, Karur.	Do.	26	994 1 11	..	300 0 0	..	152 0 0	..	1,600 0 0	3,098 7 9
Holy Cross Convent Industrial School, Trichinopoly.	Do.	64	2,703 8 0	..	700 0 0	..	..	..	9,147 0 0	5,385 11 0
Anjengo— Sacred Heart Convent Industrial School, Anjengo.	Do.	26	73 13 0	..	400 0 0	..	37 15 0	..	851 0 0	1,419 7 3
Total—Girls ..		1,423	34,877 11 8	437 0 0	20,876 0 0	32,500 0 0	2,205 0 0	..	4,61,865 4 1	2,55,363 4 4
Grand total ..		3,937	4,82,745 0 3	23,289 0 10	1,07,187 0 0	*79,780 0 0	33,808 8 6	..	7,06,418 13 7	14,42,917 10 2

* Includes Rs. 4,287 capitation grant.

APPENDIX III.

Statistics relating to recognized Industrial Schools for the year 1930-31.

Serial number and name of the institution.	Number on rolls March 1931.	Subject 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 annual value of work turned out.	Sale-proceeds of school manufactures.	Remarks.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1. A. A. M. Industrial School, Katpadi.	149	(a) Carpentry, cabinet-making and (b) motor mechanics.	(a) 3 (b) 10 ..	(a) Working as piece workers and (b) motor drivers in Chittoor, and North Arcot and Cuddapah districts.	RS. A. P. ..	1,86,010 7 7	
2. Anjuman Industrial School, Vellore.	55	(a) Cabinet-making and (b) freehand outline drawing.	(a) 1 (b) 3 ..	(a) Employed as carpentry instructor.	11,873 13 4	840 4 2	
3. Anjuman Industrial School, Melvisharam.	67	Cabinet-making ..	2 ..	One is employed in the school and the other has started business.	7,000 1 0	6,256 4 3	
4. Anjuman Industrial School, Tirupattur.	40	Cabinet-making and drawing.	....	....	410 0 0	50 0 0	
5. Don Bosco Industrial School, Vellore.	21	Carpentry and cabinet-making.	....	....	1,400 0 0	837 0 0	
6. St. Joseph's Industrial School, Tindivanam.	98	(a) Carpentry, cabinet-making and (b) smithy and fitting.	(a) 14 and (b) 6 ..	Six are employed as teachers and the rest 8 are employed in their villages.	23,237 13 6	21,662 8 6	
7. Danish Mission Industrial School, Panpiti.	160	(a) Cabinet-making, (b) cotton weaving, (c) dyeing and (d) motor-car driving.	(a) 2 ..	Employed as teachers.	10,089 6 2	2,062 8 0	

8. C. S. M. Agricultural School, Melrosapuram, Chingleput.	70	Agriculture and allied trades.	6 ..	....	2,312 8 0	1,777 0	
9. A. A. M. Industrial School, Saidapet.	7	Cabinet-making ..	1 ..	....	5,743 0 0	4,942 8 0	
10. St. Joseph's Industrial School, Coimbatore.	164	Carpentry and fitting.	4 ..	Employed as carpenters in private firms.	92,500 0 0	91,176 9	
11. London Mission Boys Weaving School, Erode.	32	Weaving, aerograph printing and dyeing.	....	....	2,562 7 5	1,310 12 9	
12. P. S. G. & Sons Charity Institute, Peelamedu.	59	Mechanical engineering, carpentry and trades.	....	....	1,95,678 10 4	1,90,198 10 4	
13. Raja's Industrial School, Parakkimedi.	23	Carpentry and cabinet-making.	2 ..	Working as carpenters.	3,551 10 8	1,790 8	
14. C. B. M. Industrial School, Coenada.	32	Cabinet-making ..	....	....	..	4,137 8	
15. U. L. C. M. Lam Rural School, Guntur.	42	Agriculture and allied trades including weaving.	4 ..	Working as agriculturists.	..	347 2 0	
16. The Common Wealth Trust Engineering Works, Mangalore.	11	Mechanical drawing and workshop mathematics.	1 ..	Employed as engraver in the Foundry department.	..	..	
17. Sri Krishna Parissarmalayam, Kavutaram.	20	(a) Carpentry, (b) freehand and mechanical drawing.	(a) 1 ..	Joined in the St. Josephs Training School, Tindivanam.	400 0 0	100 0 0	
18. St. Joseph's Industrial School, Gunadala.	59	Carpentry and cabinet-making.	5 ..	Working as carpenters.	9,000 0 0	7,498 0 0	
19. Andhra Jatheeya Kalasala, Masulipatam.	69	Mechanical engineering, Trades and carpet weaving.	....	....	..	..	
20. Coles Vocational Middle School, Kurnool.	57	Tailoring, weaving, carpentry and gardening.	9 in each section ..	Employed as village teachers.	1,569 10 0	451 15 0	

APPENDIX III—cont.

Statistics relating to recognised Industrial Schools for the year 1930-31—cont.

Serial number and name of institution.	Number of pupils on 31st March 1931	Subject 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 annual value of work turned out.	Sale-proceeds of school manufactures.	Remarks.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
21. C.N.T. Institute, Vepery, Madras.	368	(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 and turning and black-smithy. Carpentry, carpet weaving and tailoring.	(b) 24, (f) 43 (c) 24, (d) 14 and (h) 11.	(b) Two are employed (f) 16 are employed, (c) 18 as bus drivers, (d) 12 are employed and (h) 3 are employed.	2,332 0 0	8,409 0 0	
22. Anjuman Industrial School, Madras.	100	Scientific instrument making	4	One is employed in the Engineering College Workshop. Guindy, and the rest in local firms of the city.	8,996 0 0	9,602 0 0	
23. Orr's Assisted Industrial School, Madras.	33	(a) Mechanical engineering trade and (b) carpentry.	(a) 6, and (b) 1	(a) Six are working as apprentices.	326 0 0	466 0 0	
24. Ramakrishna Mission Students' Home Industrial School, Mylapore.	22	Motor driving and mechanism.	....	....	..	..	
25. Sri Ram Motor School, Madras.	..	..	..	..	..	..	
26. The Madras Penitentiary School, Madras.	..	Cabinet-making	....	....	..	..	
27. Pasumalai Trades School, Pasumalai.	79	(a) Carpentry, (b) printing, (c) black-smithy and (d) motor-car driving.	(a) 5, (b) 3 and (d) 3.	All are employed as workmen.	..	54,748 7 10	
28. C.S.M. Industrial School, Dindigul.	50	Carpentry and cabinet-making.	8	....	10,000 0 0	8,594 14 6	
29. Y.M.C.A. Industrial School, Arcakode.	36	(a) Weaving, (b) rattan-work, (c) carpentry and (d) apary.	(a) 2 and (b) 1	(b) Appointed as a teacher.	783 9 9	531 13 0	
30. St. Joseph's Industrial School, Ooty.	25	Carpentry, bee-keeping and cabinet-making.	....	....	..	..	
31. St. Francis Xavier's Industrial School, Tanjore.	92	Cabinet-making and weaving.	....	....	17,800 0 0	17,355 9 9	
32. St. Mary's Industrial School, Kumbakonam.	77	Cabinet-making, smithy and moulding.	3	All are employed as workmen.	31,360 0 0	34,514 1 4	
33. The Borsal School, Tanjore.	..	Cabinet-making, weaving and tailoring.	....	....	..	..	
34. Municipal Industrial School, Kumbakonam.	14	Weaving, carpentry and cabinet-making.	....	....	263 0 0	44 0 0	
35. S.P.G. Art Industrial School, Nazareth.	105	(a) Carpentry and cabinet-making (b) blacksmithy, (c) tailoring and (d) motor-car driving.	(a) 13 and (c) 1	Three are employed as instructors and nine as workmen.	13,672 2 0	13,571 14 0	
36. St. Joseph's Industrial School, Adikalapuram.	67	Carpentry and weaving.	....	....	1,481 6 6	2,804 15 6	
37. C.M.S. Industrial School, Palamcottah.	57	Weaving and rattan-work.	....	....	..	..	
38. St. Ignatius Industrial School, Tuticorin.	28	Carpentry and cabinet-making.	....	....	900 0 0	750 0 0	

APPENDIX III—cont.

Statistics relating to recognized Industrial Schools for the year 1930-31—cont.

Serial number and name of institution.	Number on rolls 1931	Subject 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 annual value of work turned out.	Sale-proceeds of school manufactures.	Remarks.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
39. St. Joseph Industrial School, Trinopoly.	59	(a) Metal work and trades (b) cabinet-making.	(b) 3 .. ..	....	RS. A. P.	RS. A. P.	
40. Wesleyan Mission Industrial School, Karur.	87	(a) Carpentry, blacksmithy, oil engine and motor-car driving (d) rattan work (e) weaving.	(a) 4 (e) 1 .. ..	....	44,739 10 10	38,804 11 5	
41. All Saints Industrial School, Puthur.	36	Cabinet-making ..	2	One is employed in South Indian Railway workshop. Employed as workmen.	7,300 0 0	6,556 5 0	
42. St. Aloysius Industrial School, Visagapatam.	25	Motor-car driving ..	2	Employed as home workers.	4,785 0 0	4,191 0 0	
43. Danish Mission Industrial School, Keelur.	50	Needle work, embroidery and lace-making.	(a) 7 .. ..	....	1,050 0 0	829 0 0	
44. St. Joseph's Convent Industrial School, Bellary.	81	Lace-making, embroidery and general needle crafts.	....	....	....	....	
45. C.S.M. Lace School, Chingleput.	64	Lace-making ..	....	....	81,705 2 7	61,278 13 11	
46. Wesleyan Mission Industrial School, Ikkadu.	145	Lace-making, embroidery, weaving and general needle work.	....	....	....	....	

7. St. Anthony's Industrial School, St. Mount.	41	Embroidery, needle work and dress-making.	....	....	1,508 0 0	885 0 0	
48. A.A.M. Women's Industrial Home, Palmaner.	92	Lace-making, embroidery, General needle crafts and dress-making.	15	One is a teacher and the rest are home workers.	6,380 0 0	6,929 9 0	
49. London Mission Girls' Industrial School, Erode.	66	Mat-making, basket work and weaving.	3	All employed as piece workers.	500 0 0	355 8 0	
50. Immaculate Conception Convent Industrial School, Coimbatore.	55	Embroidery, general needle crafts and dress-making.	....	....	3,159 1 0	3,071 5 0	
51. A.B.M. Girls' Industrial School, Ongole.	19	Lace-making, embroidery and general needle work.	19 .. ..	....	250 0 0	87 6 0	
52. St. Joseph's Orphanage Industrial School, Guntur.	21	Dress-making and general needle crafts.	5	Three are employed as teachers.	1,887 0 0	1,827 0 0	
53. C.S.M. Girls' Industrial School, Kilpauk.	48	Lace-making, embroidery and general needle work making Do.	6	Employed as teachers.	2,735 0 0	1,641 0 0	
54. Madras Seva Sadan Industrial School, Madras.	35	Do.	....	....	..	1,578 0 0	
55. St. Bridget's Girls' Industrial School, Nungambakam.	36	Lace-making, embroidery and general needle crafts.	18	Two joined in Kilpauk training centre, two went for nurses training and the rest are unemployed.	3,808 14 0	3,748 14 0	
56. St. Joseph's Convent Industrial School, Madras.	149	Embroidery and general needle crafts.	14 .. ..	....	6,924 8 0	5,945 8 0	
57. Commonwealth Embroidery School, Calicut.	61	Embroidery lace-making and needle work	8	All will be employed in the factory.	7,589 0 0	7,800 0 0	
58. O.E.L.M. Girls' Industrial School, Gudur.	37	Lace-making ..	2	Employed as piece-workers.	1,800 0 0	1,900 0 0	
59. Nazareth Convent Girls' Industrial School, Ootacamund.	31	Dress-making, general embroidery needle crafts and dress-making.	....	....	5,811 8 6	1,921 8 5	

APPENDIX III—cont.

Statistics relating to recognized Industrial Schools for the year 1930-31—cont.

Serial number and name of institution.	Number on roll March 31, 1931	Subject 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 annual value of work turned out.	Sale-proceeds of school manufactures.	Remarks.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
60. St. Marys Convent Industrial School, Kotagiri.	26	Embroidery, general needle crafts and dress-making.	....	....	RS. A. P. 178 8 0	RS. A. P. 778 4 0	
61. Leipzig Mission Women's Industrial Home, Mayavaram.	62	Cotton weaving and mat-weaving.	3	Will be employed as teachers.	5,000 0 0	6,000 0 0	
62. B.C. Lace School, Vadakangulam.	66	Lace-making, embroidery and general needle work.	....	....	1,100 0 0	898 0 0	
63. Hindu Girls' Industrial School, Kudangulam.	46	Lace-making ..	16	Employed as piece-worker.	987 12 0	772 8 0	
64. Holy Cross Convent Industrial School, Tuticorin.	86	Lace-making, embroidery and dress-making.	....	....	4,668 14 0	4,668 14 0	
65. Wesleyan Mission School, Karur.	26	Lace-making, embroidery and general needle work.	4	Employed as out-workers.	763 9 3	994 1 11	
66. Holy Cross Convent Industrial School, Trichinopoly.	64	Embroidery and general needle crafts.	3	Do.	3,000 0 0	2,703 8 0	
67. Sacred Heart Convent Industrial School, Anjengo.	26	Lace-making, embroidery and dress-making.	2	Do	101 12 0	58 12 0	

APPENDIX IV.

Statement showing the Receipts and Charges of the Department of Industries for the year 1930-31.

Receipts.	RS. A. P.	Expenditure.	RS. A. P.
1. Weaving branch ..	1,428 7 5	I. Direction ..	1,40 544 5 8
2. Industrial schools ..	16,494 1 11	II. District Engineering ..	4,75,084 8 7
3. School of Arts and Crafts ..	7,940 7 0	III. Industrial Schools—Grants-in-aid ..	2,30,639 13 6
4. Pumping and Boring receipts ..	60,889 9 1	IV. Scholarships ..	31,841 7 9
5. Industrial installation receipts ..	5,172 2 0	V. Industrial Institutes ..	+ 1,12,466 14 4
6. Sericulture receipts ..	663 1 3	VI. Trades Schools ..	1,01,270 10 5
7. Sugarcane crushing plant receipts ..	826 0 0	VII. Leather Trades Institute ..	34,137 1 5
8. Rent of buildings ..	173 4 0	VIII. School of Arts and Crafts ..	54,379 14 4
9. Other receipts ..	4,899 7 11	IX. Textile Institute ..	60,203 13 5
10. Recoveries of overpayments ..	4,434 10 0	X. Weaving parties ..	21,645 3 1
11. Collection of payments for service rendered ..	526 3 0	XI. Sericulture ..	23,064 7 8
Total ..	1,03,397 5 7	XII. Miscellaneous—	10,717 7 10
Profits from Government Commercial undertakings—	26,939 1 7	(i) Printer ink experiments ..	3,180 2 0
Recoveries of indirect charges from Government Commercial undertakings—	* 3,779 5 0	(ii) Coir retting demonstration ..	1,623 5 11
Industrial Engineering Workshops ..	2,604 7 0	(iii) Experiments on oils and fats in Kerala Soap Institute ..	Total .. 12,90,719 3 11
Kerala Soap Institute ..	Grand Total .. 1,36,620 3 2	Loss on Government Commercial undertakings—	RS. A. P.
Deduct Refunds ..	12,675 14 3	Government Industrial Institute,	2,644 13 4
Net receipts ..	1,23,944 4 11	Madura ..	22,613 6 11
Net cost of the department ..	12,97,589 4 3	Ink Factory ..	23,219 12 0
		Loss by exchange ..	48,473 0 3
		Expenditure in England ..	982 1 0
		Total ..	1,04,080 0 0
		Deduct—	14,44,264 5 2
		Recoveries of investments in Government Commercial undertakings ..	22,720 12 0
		Total ..	14,21,533 9 2

* Figures relate to the Audit report for the year ending 1929-30. The figures for 1930-31 will be adjusted after the receipt of the Audit Report.

+ This excludes Rs. 30,000, out of Rs. 60,000 sanctioned for the Government Industrial Institute, Madura, which will be adjusted after the receipt of the Audit Report for the year ending 31st March 1931.

N.B.—The figures under receipts and expenditure are purely provisional as they are subject to modification in the March final and supplemental accounts.

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Government of Madras

DEVELOPMENT DEPARTMENT

G.O. No. 1323, 3rd September 1931

Industries—Administration Report—1930-31—Recorded.

READ—the following paper :—

From the Director of Industries, dated 28th July 1931,
D. Dis. No. 255-E/31.

Order—No. 1323, Development, dated 3rd September 1931.

Recorded.

2. As usual the department participated during the year in a number of agricultural and industrial exhibitions in order to popularize its work. The advisory section of the department represented by the Bureau of Industrial and Commercial information continued to supply information and advice on industrial and commercial subjects in response to enquiries from within and without the Presidency. It is satisfactory to note that the usefulness of the Bureau is being recognized by the public in an increasing measure.

3. The number of applications for aid under the Madras State Aid to Industries Act increased during the year under review from eight to seventeen but the majority of them had to be rejected by the Board of Industries on consideration of their merits or through their inadmissibility for aid under the provisions of the Act.

The question of amending the definition of the term 'cottage industries', referred to in sub-section (1) of section 5 of the Madras State Aid to Industries Act, was considered by the Government and it has been held that there is no need to alter the definition. In order, however, to render aid under the Act more readily attainable by cottage and small scale industrialists, the Government have amended rule 24 (d) of the rules framed under the Act, whereby in the case of any industrial business or enterprise with assets not exceeding five hundred rupees, it will not be necessary, unless the Director of Industries for special reasons otherwise directs, to insure the properties mortgaged to Government against loss or damage by fire. They have also directed the adoption of a simplified form of mortgage bond to suit the requirements of cottage industries. The question of waiving search fees for the production of encumbrance certificates by small scale industrialists is under

the consideration of the Government. At the instance of this Government, the Government of India have exempted from payment of stamp duty, if not of registration charges, mortgage deeds securing the repayment of a loan advanced or to be advanced under the Madras State Aid to Industries Act to a cottage industrialist or the owner of a small concern, the capital outlay of which does not exceed one thousand rupees. The Government hope that these measures will afford considerable relief to cottage workers seeking aid under the provisions of the Madras State Aid to Industries Act.

4. The Cottage Industries Committee appointed in October 1929, in pursuance of a resolution moved in the Legislative Council, for the purpose of examining the Special Officer's report and submitting proposals for an effective organization of such of the industries as deserved encouragement, formulated its recommendations in respect of fifteen major industries and the Committee's report was published in April 1930 for general information. In view, however, of the acute financial stringency that has since arisen, the Government have decided that such of the recommendations of the Committee as involve fresh or additional expenditure should be postponed for the present. They may be further considered when financial conditions improve. Orders will issue shortly on such of the recommendations of the Committee as are merely administrative in character and do not involve additional expenditure.

5. The Kerala Soap Institute at Calicut continued to manufacture soap on a commercial scale and to provide instruction in soap-making to candidates intending to take up soap manufacture for their profession. The working of the Institute for the year under review has resulted in a gross loss of Rs. 16,380-8-0 as against a gross loss of Rs. 22,613-6-11 incurred in the previous year. The loss has been arrived at after charging also interest which amounted to Rs. 19,830-9-0 during the year. The net loss on the commercial side amounts to Rs. 5,451-4-9 against Rs. 14,527-1-5 in the preceding year. The Assistant Director of Commercial Audit is of opinion that the financial success or failure of the Institute depends on its ability to secure military or other substantial orders and increase its turnover.

Experiments were conducted during the year with a view to determining simple methods whereby the extent of rancidity in oils could be estimated approximately in the case of oils refined by a small manufacturer with little or no knowledge of chemistry.

It is satisfactory to note that the scheme for training apprentices inaugurated in 1927 is showing satisfactory results and that a considerable number of enquiries in connexion with the

manufacture of soap, refining of oils and miscellaneous questions affecting the oils and fats industry were dealt with during the year. The question whether the Institute may not restrict manufacture to what is absolutely necessary for the proper and efficient training of apprentices and the conduct of experimental research is still under consideration.

6. The experiments in printers' ink and lamp-black were in progress at the Government Industrial Institute, Madras. The proposal of the Director of Industries for the permanent retention of the Institute and its staff has been deferred on account of financial stringency. The Government have, however, sanctioned the temporary retention of the Institute for a further period of one year from 1st April 1931. They have also sanctioned the Director's proposals for the conduct of experiments on the manufacture of paints including white lead at the Institute.

The Research Engineer, appointed during the year under review, has succeeded in devising an apparatus for the collection of lamp-black, one of the chief ingredients in the manufacture of printers' ink. If the apparatus proves a technical success, it is hoped that the manufacture of lamp-black and printers' ink will prove a successful commercial proposition. The Engineer has also evolved an improved hot air sizing machine. Its practical utility and economic value under actual working conditions have yet to be determined.

7. Most of the recommendations of the Textile Advisory Committee so far as the textile industry is concerned, were similar to those of the Cottage Industries Committee. As observed in paragraph 4 above, proposals which involved additional expenditure had necessarily to be postponed to better times. The Government have, however, taken action in respect of such of the recommendations of the Textile Advisory Committee as are administrative in character and do not involve additional expenditure.

8. The Textile Institute is now provided with permanent buildings of its own and the construction of a room to accommodate the practical weaving section in the premises of the Institute will shortly be completed. There was an increase in the number of students undergoing training in the various courses as compared with the previous year. In pursuance of the recommendation of the Textile Advisory Committee that an inspector should be appointed under the control of the Assistant Director (Textiles) to supervise the working of the weaving schools or weaving sections of aided industrial schools and of the peripatetic weaving parties, the Government have appointed the Senior Lecturer of the Textile Institute as the Superintendent of Weaving Instruction and Supervisor of Peripatetic Weaving Parties to assist the Assistant Director of

Industries (Textiles). The peripatetic weaving parties and the dyeing party continued to demonstrate improved methods and appliances.

9. As recommended by the Textile Advisory Committee, the Government have passed orders transferring the sericultural branch from the control of the Assistant Director of Industries (Textiles) and placing the Sericultural Assistant (whose designation was changed to Sericultural Expert) under the immediate control of the Director of Industries. The usefulness of the work of the peripatetic rearing party stationed in the Kollegal area considerably increased. The silk farms at Coonoor and Hosur continued to do useful work during the year. It is satisfactory to note that the experiments in Eri silk culture conducted in the Kuppam area showed successful results.

10. The District Engineering branch continued to render assistance to agriculturists and small scale industrialists. There was an increased demand from the public for the facilities afforded by the Engineering section. The Director's proposals for the revision of policy hitherto pursued by the branch are under the consideration of the Government. It is gratifying to note that the department has tapped several powerful artesian springs which would result in dry areas being rendered fit for wet cultivation. The Government have passed orders on the final report of the Industrial Engineer on the experimental survey of underground water in the Bellary firkha of the Bellary district. The Director of Industries has been asked to persuade local bodies and private gentlemen to utilize the boreholes put down by the department to the best advantage either for the supply of drinking water or for irrigation purposes or both.

11. Technical and research scholarships tenable in and outside the Presidency and industrial scholarships under the Code of Regulations for Industrial schools were granted as usual during the year under review. Only one scholarship tenable for a period of two years in the United Kingdom was awarded during the year for the study of Oceanography with special reference to pisciculture.

The number of recognized aided schools in addition to institutions directly managed by the department increased from 62 on 31st March 1930 to 67 on 31st March 1931.

Government Trades School.—During the year under review the school was rechristened as the 'School of Technology'. The Government have also ordered that the holders of diplomas granted to the Mechanical and Electrical Engineering students of the school should be designated as L.M.E. and L.E.E. as in the Victoria Jubilee Technical Institute, Bombay. There are distinct signs that the school is growing in popularity.

The new Government schools at Mangalore, Bellary and Calicut started in 1929 continued to develop on sound lines. The Bellary school is now accommodated in permanent buildings acquired from the Military Department. The question of provision of permanent Government buildings for the Mangalore and Calicut schools will be taken up when the permanent retention of the schools is considered.

Government Industrial Institute, Madura.—The orders passed on the recommendations of the Reorganization Committee with a view to increasing the output have not proved very fruitful. A more determined effort should be made to secure a larger measure of patronage and support from the public, as well as local bodies and other departments of Government.

Leather Trades Institute.—The Institute is functioning as a centre for the provision of general advice and practical guidance to tanners, confining its activities to research and to the conduct of analysis of tanning materials and of skins and hides intended for export. The Leather Research Chemist carried out a large number of analyses during the year. The Special Officer is investigating into the problem of stains on hides and skins.

School of Arts and Crafts.—During the year under review the carpet weaving section was transferred to the Textile Institute. The several departments of the school showed satisfactory progress. There was a fall in the average number of pupils on the rolls and the average attendance during the year due to the restricted admission to each class.

12. The Government wish to place on record their appreciation of Mr. Appadurai Pillai's services during another year of useful and conscientious effort.

(By order of the Government, Ministry of Education and Excise)

S. V. RAMAMURTI,
Secretary to Government.

To the Director of Industries.
" Director of Agriculture.
" Registrar of Co-operative Societies.

Copy to the Public Department.
" Government of India, Department of Industries and Labour (C.L.).

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