

Report of the
Department of Industries
Madras

1937.



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REPORT OF THE
DEPARTMENT OF INDUSTRIES
MADRAS

FOR THE
YEAR ENDING 31st MARCH 1937

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OFFICE OF THE DIRECTOR OF INDUSTRIES,

MADRAS, dated the 30th July 1937.

From

L. B. GREEN, Esq., M.B.E.,

Director of Industries,

Madras,

To

THE SECRETARY TO GOVERNMENT,

DEVELOPMENT DEPARTMENT,

Madras.

SIR,

I have the honour to submit the Administration Report of the Department of Industries for the year ended 31st March 1937.

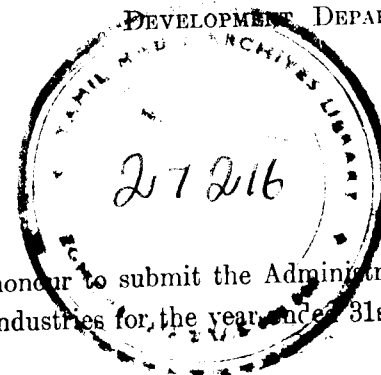
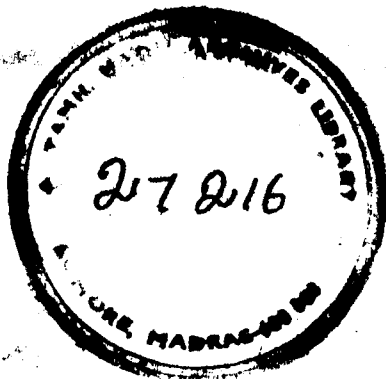
I have the honour to be,

Sir,

Your most obedient servant,

L. B. GREEN,

Director of Industries.



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ADMINISTRATION REPORT OF THE DEPARTMENT OF
INDUSTRIES, MADRAS, FOR THE YEAR ENDED 31st
MARCH 1937.

Direction.—I was in charge of the department throughout the year under review. Mr. W. Fyfe continued to hold the post of Deputy Director of Industries until the 4th November 1936, when he handed over charge to Mr. L. S. Pinto and proceeded on leave for a period of six months and twenty-two days.

2. *Tours.*—I was on tour for 74 days during the year. I gave oral evidence before the Electricity Board Committee in April and attended the Collectors' Conference at Ootacamund in May. I attended the Industries Conference and the meetings of the Imperial Sericultural and Woollen Industry Committees at Lucknow in December.

3. *Exhibitions.*—The department participated during the year in a number of agricultural and industrial exhibitions held in various parts of the Presidency. At most of the exhibitions, a representative range of soaps manufactured at the Kerala Soap Institute, Calicut, was displayed and wherever possible, the working of pumping and boring machinery, of improved textile appliances, and of silk worm rearing and reeling appliances was demonstrated for the benefit of the agriculturists, handloom weavers and the general public. A successful departmental display was staged at the annual Park Fair held at Madras in December. The department participated in the Industrial and Agricultural Exhibition organized by the United Provinces Government held at Lucknow from December to February. A representative range of the handloom fabrics of the Presidency, obtained from handloom weaving centres, weavers' co-operative societies, weaving schools, and exporting firms was exhibited, whilst a display of cottage and small scale textile appliances was also arranged. For the handloom weaving competition held in connexion with the exhibition, the department selected two weavers from Adoni, one for weaving plain cloth dhoties and the other for cotton sarees, as well as a weaver from Peddapuram for weaving mulberry-silk plain cloth. The weaver from Peddapuram was awarded the first prize for mulberry-silk plain cloth weaving. An exhibit of soaps was also arranged by Messrs. Fakir Waljee and Sons, agents of the Kerala Soap Institute at Karachi. A gold medal certificate was awarded to the department for its display and demonstrations and a special certificate of merit to the Government Textile Institute. Altogether 33 awards were secured by exhibitors from the Madras Presidency. Exhibitions and fairs held in other parts of India such as the Mysore Dasara Exhibition, Sri Chitra Exhibition, Trivandrum, Poona Industrial

Exhibition and the Industrial and Agricultural Exhibition at Lucknow, as well as in countries overseas, e.g., the British Industries Fair, the Vienna Autumn Fair, and the Canadian National Exhibition, Toronto, were brought to the notice of firms and individuals in the Presidency. Actual demonstrations of improved methods of production at fairs and exhibitions serve a distinctly useful purpose. For example, the Indian village potter works with very primitive apparatus, but is often possessed of considerable skill and there appears to be scope for the introduction of an improved and more efficient potter's wheel. Government have therefore sanctioned the provision of three improved potters' wheels in accordance with a design kindly supplied by the Bengal Department of Industries, and after these wheels have been manufactured in the Government or aided industrial schools, they will be demonstrated at local industrial exhibitions and fairs.

4. *Committees.*—I continued to serve on a number of committees, including the advisory committees of the Madras and Southern Mahratta Railway Co., Ltd., and the South Indian Railway Co., Ltd., Provincial Research Committee, Provincial Cotton Committee, Provincial Marketing Board, Executive Committee of the Victory Memorial School for the Blind, Poonamallee, Council of the Victoria Technical Institute and Senate of the Andhra University. I served also as a member of the Board of Directors and of the Executive Committee of the Madras Handloom Weavers Provincial Co-operative Society, Ltd., during the year.

5. *Conferences.*—A conference of Ministers in charge of Industries and Directors of Industries, which I attended, was held at Lucknow on the 7th and 8th December 1936. At this conference the following subjects, amongst others, were discussed :—

- (i) progress of the schemes for the development of the handloom weaving industry and the question of allotments for 1937-38.
- (ii) standardization of weights and measures throughout India,
- (iii) publication of fuller trade statistics regarding manufactured and semi-manufactured goods produced in the country and the raw materials consumed in it, and
- (iv) removal of inter-provincial barriers to trade in the pharmaceutical and drug industry in India. I attended also the meetings of the Imperial Sericultural and Woollen Industry Committees which were held at Lucknow on the 9th December 1936, when the schemes for the development of the sericultural and the cottage and small scale woollen industries were reviewed and the question of allotments for 1937-38 considered. Mr. W. Fyfe, Deputy Director of Industries, attended the second meeting of the Advisory Council of Industrial Intelligence and Research which was

held at Calcutta on the 2nd and 3rd July 1936, when a number of subjects were discussed including, amongst others—

- (i) the report of the oils and soap committee,
- (ii) the research programme of the Government Test House, Alipore,
- (iii) survey of glass factories,
- (iv) improvements of glass furnaces,
- (v) survey of glass making materials, and
- (vi) industrial standardization.

6. *Statutory Board of Industries.*—The composition of the Board of Industries was, as noted below, at the commencement of the year 1936-37 :—

- | | | |
|---|-------|---|
| (i) The Director of Industries | .. .. | } Ex officio. |
| (ii) The Secretary to Government, Finance Department. | | |
| (iii) C. Elphinston, Esq., elected by the Madras Chamber of Commerce. | | |
| (iv) M.R.Ry. Chandulal M. Kothari Avargal B.A., LL.B., elected by the Southern India Chamber of Commerce. | | |
| (v) D. Q. Davidson, Esq., elected by the Madras Trades Association. | | |
| (vi) M.R.Ry. Diwan Bahadur A. Appadurai Pillai Avargal, M.A., I.S.O. | | } Elected by the Madras Legislative Council. |
| (vii) M.R.Ry. V. T. Arasu Avargal | | |
| (viii) Muhammad Ismail Sahib Bahadur | | } Nominated by Government under section 3 (2) of the Act. |
| (ix) M.R.Ry. Chelikani Appa Rao Garu | | |
| (x) M.R.Ry. A. Ranganatha Mudaliyar Avargal | | |
| (xi) M.R.Ry. Rao Bahadur C. V. S. Narasimharaju Garu, B.A., B.L. | | |
| (xii) The Registrar of Co-operative Societies | | |

Mr. C. Elphinston resigned his membership of the Board when he proceeded on leave out of India and in his stead, Mr. F. H. Oakley was elected, shortly after the close of the year, as the representative on the Board, of the Madras Chamber of Commerce. M.R.Ry. Chandulal M. Kothari vacated his seat on the Board by efflux of time and, in his place, M.R.Ry. S. R.M. Ct. Pl. Palaniappa Chettiar of Kanadukathan, was elected as a member of the Board by the Southern India Chamber of Commerce. During the year, M.R.Ry. Chelikani Appa Rao Garu and Mohammad Ismail Sahib Bahadur also vacated their seats by efflux of time and in their places, M.R.Ry. Diwan Bahadur G. Narayanaswami Chetti Garu and M.R.Ry. Chandulal M. Kothari were nominated

by Government under sub-section (2) of section 3 of the Act. The Registrar of Co-operative Societies, who also vacated his seat by efflux of time, was re-nominated for a further period of three years.

7. A meeting of the Board of Industries was held on the 18th November 1936, at which the following applications were considered :—

- (i) Application from the Managing Agents, the Andhra Paper Mills Co., Ltd., Rajahmundry, for the grant of certain concessions under section 6 (f) of the State Aid to Industries Act, in respect of the supply of bamboo, firewood, water and waste paper required for the manufacture of pulp and paper.
- (ii) Application from Messrs. K. V. Ratnam and Bros., Rajahmundry, for the guarantee of a cash credit or overdraft of Rs. 1,500 for the development of their fountain pen manufacturing industry.
- (iii) Application from the Proprietor of the Mangalodayam Weaving Establishment, Cannanore, for a loan of Rs. 2,500 under section 6 (a) of the State Aid to Industries Act.

Applications Nos. (i) and (ii) were recommended unanimously by the Board and sanctioned by the Government shortly after the close of the year, the latter in the form of a loan instead of an overdraft as applied for originally. Application No. (iii) was rejected unanimously by the Board, as the industry did not satisfy the provisions of section 5 (i) of the Act. The loan of Rs. 500 applied for by M.R.Ry. Rebala Hanumantha Rao, Nellore, for the purpose of developing the manufacture of dry unit cells and batteries, to which reference was made in the report of the previous year, was disbursed shortly before the end of the period under review.

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

- (i) *The Kallakurichi Co-operative Agricultural and Industrial Society, Limited.*—According to the audit report, the Society sustained a net loss of Rs. 2,899-4-0 during the year ended 30th June 1936. The main factory at Kallakurichi, which had been leased out during the previous year, reverted to the management of the Society during the period under review. The Society not only paid the instalment of the loan which fell due during the year, but also paid off the entire outstanding balance.
- (ii) *The Andal Mills, Gudiyattam.*—As it was reported that there were no funds available in the insolvency, the balance of Rs. 1,713-10-10 outstanding against the insolvent was written off by Government in G.O. No. 710, Development, dated 29th March 1937.

- (iii) *The Salem Dye Works Syndicate, Limited.*—On behalf of the Salem Dye Works Syndicate, Ltd., the South India Dye Works, Ltd., which had been formed with the object of purchasing the machinery and movable properties of the Salem Dye Works Syndicate, Ltd., and transferring them to Mettur, paid during the year the major portion of the loan amount outstanding against the Syndicate, and arrangements are being made by the Collector of Salem to recover the remaining balance of about Rs. 1,500.
- (iv) *The Ram Ram Safety Match Works, Tholampalayam, Coimbatore district.*—The balance of Rs. 209-6-6 outstanding against the concern was written off by Government in G.O. No. 857, Development, dated 27th May 1936, as it was not found possible to recover it.
- (v) *Toy-maker K. Subbarayudu, Kondapalli, Kistna district.*—The fourth and last instalment of the loan was paid by the toy-maker and the loan account closed.
- (vi) *The Metal Industries, Limited, Shoranur.*—The audit report of the concern for the fifteen months ended 30th June 1936 showed that it had been working at a loss. Attempts are, it is stated, being made to eliminate wasteful expenditure and to make the business self-supporting. The instalment of the loan was paid on the due date and the renewal of the insurance was also effected in time.
- (vii) *Messrs. Boddu Paidanna Sons, Vizianagram.*—According to the audit report of the concern for the year ended 31st March 1936, the concern earned a net profit of Rs. 232-15-2. The instalment of the loan due on 1st April 1936 was not paid on the due date, but was paid three months afterwards with penal interest.
- (viii) *M.R.Ry. A. C. Krishnaswami Pillai, Muttupet.*—The coir factory worked for some time last year and the accounts of the concern showed a loss of about Rs. 20 during the year ended 31st March 1937. Payment of the first instalment of the loan due on 1st August 1936, was delayed and the amount was recovered with penal interest.
- (ix) *The Sri Ramakrishna Sugar Mills, Kirlampudi, East Godavari district.*—The first instalment of the loan due on 1st April 1937, was paid on the 31st March 1937, and the insurance of the factory was also renewed. According to the audit report of the factory for the year ended 31st October 1936, a loss of Rs. 33,940-1-4 was sustained after allowing for interest and depreciation charges. The capacity of the factory has since been increased and it is hoped that it will be possible to reduce the cost of production of sugar.

(x) *M.R.Ry. Rebala Hanumantha Rao, Proprietor, Sunbeam Unit Cells and Batteries, Nellore.*—The loan of Rs. 500 was disbursed to the applicant on 22nd March 1937.

9. In last year's report it was stated that in reviewing the results of the working of the State Aid to Industries Act, the Public Accounts Committee had expressed the view that the Act had not proved successful in attaining the objects for which it was enacted and that they had suggested an examination of the possibility of amending the Act or of the rules framed thereunder, or of taking such other action as might be necessary in order to render effective the Government's policy in the sphere of industrial finance. It was further stated that the subject had been brought before the Board of Industries at a meeting held just before the close of the year 1935-36 and that the Board had made certain recommendations for the amendment of the Act with a view to increasing its practical usefulness. In order to give effect to the amendments recommended by the Board of Industries and the Director of Industries to sections 5 (1), 9 and 14-A of the Act, the Madras State Aid to Industries (Amendment) Act, 1936, was introduced by Government and passed at the meeting of the Legislative Council held on the 1st December 1936. It was assented to by His Excellency the Governor-General on the 9th February 1937. Under section 5 (1) of the Act, as it stood formerly, State aid could be given only to three classes of industries, namely, (a) new or nascent industries, (b) industries to be newly introduced into areas where such industries are undeveloped, and (c) cottage industries. Clause 2 (1) of the amended Act provides for the grant of aid to old or established industries also, in suitable cases, if special reasons exist therefor. Section 5 (3) of the existing Act provided that the decision of the Local Government as to whether the conditions of that section were fulfilled should be final and a clause was inserted in the amended Act in order to make it quite clear that the Government's decision could not be called in question in any Court of Law. Under section 9 of the Act, loans could not be granted for an amount exceeding 50 per cent of the net value of the assets of the industrial business or enterprise, but the proviso to this section permitted the grant of loans up to Rs. 40,000 even though they exceeded the 50 per cent limit. In the amended Act the proviso has been omitted, and the limit of the loan which may be granted under the Act, in all cases, fixed at 50 per cent of the value of the assets of the business plus the value of the other property, if any, offered as collateral security. Section 14-A of the Act now exempts industrial businesses or enterprises with a capital outlay not exceeding Rs. 2,000 from certain restrictions imposed by the Act as against the previous limit of Rs. 1,000. Government have also liberalized the definition of 'Cottage Industries'. Prior to this year, the term 'Cottage Industries' occurring in section 5 (1) (c) of the Act was taken to refer only to "Industries carried on exclusively

for the benefit of, and by, workers in their homes" and not to industries carried on for the benefit of middlemen, though the workers happen to work not in factories, but in their own cottages. In practice, this definition was found to be restrictive since it is often not possible completely to dissociate the workers from the middlemen capitalists. The definition of the term has therefore been relaxed so as to permit of the grant of loans to cottage industries carried on by workers in their own homes even though the middlemen stand to benefit, in greater or less degree, by the cottage worker's labour. The new definition of 'Cottage Industries' is "Industries carried on by workers in their own homes as distinct from those carried on in factories". The improved facilities for the grant of financial assistance to cottage industries have been widely advertised by notification in the newspapers and district gazettes as well as by the distribution, throughout the Presidency, of printed leaflets in English and the principal vernaculars. It is hoped that it will now be possible for many cottage industries in the Presidency to avail themselves of the facilities afforded under the Act.

GENERAL ASSISTANCE TO TRADE AND INDUSTRY.

10. The purpose of the section of the headquarters office which is known as the Bureau of Industrial and Commercial Information is to provide information on industrial and commercial questions in connexion with the existing industries and of projected developments of industries in the Madras Presidency, and to answer enquiries and references received from the public and from Government relating to commerce, trade and industries and economic questions generally. The number of enquiries received, and the number of periodical and special reports prepared during the year was considerable. In addition to enquiries on industrial and commercial questions from the public, a number of references were as usual received from the Director-General of Commercial Intelligence and Statistics in regard to overseas trade in general, or to the financial standing and business reputation of firms and individuals who wished to secure overseas trade introductions. The Director-General of Commercial Intelligence and Statistics continued to be supplied with a monthly review of trade conditions in the Madras Presidency, and from the month of November onwards, arrangements were made for this report to be published in the *Fort St. George Gazette* and the local newspapers. The publication in the press of the monthly commercial report has aroused a good deal of interest and the general opinion seems to be that it has met a long-felt want. In connexion with the Ottawa preferences, the Local Government continued to be supplied with quarterly reports in respect of magnesite and cotton manufactures, and half-yearly reports in respect of woollen carpets and rugs, coir yarn and matting and myrobalans. A special periodical report in regard to the senna market was also sent to the Director-General of Commercial Intelligence and Statistics. The Bureau continued to compile statistics relating to industries, including statements of cotton,

jute, paper and woollen mills, and mines and minerals, as also the annual review of the working of the Indian Mines Act. The annual return of large industrial establishments in the Madras Presidency coming under the operations of the Indian Factories Act, 1911, was as usual compiled. Summaries on the subjects of manufactures, mines and quarries, were also prepared for inclusion in the administration report of the Presidency. It was intended to transfer the compilation of these statistical returns to the new Statistical section of my office, to which reference will be found elsewhere in this report, but this has not proved to be practicable as the statistical staff taken over from the Board of Revenue was already more than fully occupied with its existing duties, which incidentally have since increased not inconsiderably, whilst on the other hand the working of Bureau has expanded to a marked extent in recent years and since no clerk is employed exclusively in this section of my office on the compilation of statistical returns, it was not possible to transfer a clerk from the Bureau to the Statistical section. A number of important reports were submitted to Government during the year of which mention may be made of the one in regard to the conclusion of a trade agreement between the Governments of India and the United Kingdom in replacement of that concluded at Ottawa in 1932, and the one in regard to the Indo-Ceylon trade negotiations. In these reports, the course of trade in the more important articles and products between the Madras Presidency and the United Kingdom and between Madras and Ceylon was reviewed in considerable detail.

11. Among the measures taken to assist persons desirous of starting new industries, or of extending and improving their business connexions, may be mentioned (i) supplying information in regard to reliable firms from whom machinery appliances and accessories can be obtained, (ii) indicating possible sources of raw materials, (iii) assisting to find markets for finished products by putting manufacturers into touch with consumers, wholesale dealers or exporters, (iv) affording technical advice in regard to the commercial possibilities of projected schemes, and (v) arranging for analyses to be carried out of raw materials and indicating their commercial value. A considerable number of enquiries were received and answered during the course of the year and the enquiries continued to cover a very wide range of subjects. It is not possible to detail in a few paragraphs the range and variety of work carried on by the Bureau, but the following examples of measures taken to assist firms or individuals may serve to illustrate the ways in which the Bureau is of assistance, in supplying information and advice on industrial and commercial subjects to enquiries :—

- (i) A member of the Legislative Council was supplied with detailed information in regard to the trade in vegetable oils of various kinds in this Presidency.

- (ii) Information in regard to the manufacture of tincture cardamom was supplied to an enquirer.
- (iii) A note on the preservation and packing of ragi was communicated to an enquirer in Malabar.
- (iv) A soap manufacturer in North Arcot district was supplied with detailed information in regard to the manufacture of soap powder and snow.
- (v) A landowner in South Arcot district was supplied with the names of importers of indigo in Egypt, France and Japan, together with information as to the prices ruling in those countries at the time.
- (vi) A note on the manufacture of sugarcandy was communicated to an enquirer in Malabar.
- (vii) Information in regard to the possibilities of developing the coir industry in the East Godavari district, was supplied to an enquirer.
- (viii) An enquirer in Guntur was supplied with information in regard to the possibilities of developing the marble industry.
- (ix) An enquirer was supplied with information in regard to the extraction of oil from chaulmoogra.
- (x) The Director of Contracts, Army Headquarters, Simla, was supplied with a list of oil millers, and dealers in castor oil in the Presidency.
- (xi) A list of manufacturers of calcined bone (bone ash) was sent to the Director-General of Commercial Intelligence and Statistics.
- (xii) A scheme for the establishment of a sugar factory with a crushing capacity of about 200 tons of cane per day was drawn up for an enquirer in the south of the Presidency as a preliminary to the formation of a company for the purpose.

12. *General industrial development.*—If India had had a larger industrial production, the difficulties with which she was faced during the last depression would have been less pronounced. In the meantime there has been a marked tendency for industrial countries to become agriculturally more self-sufficing and it is very necessary that, as a corollary, India should endeavour to become industrially more self-contained. For, unless the country's dependence upon exports of agricultural produce is reduced, and a more balanced internal economy as between manufacturing industries and the primary production of agricultural commodities is achieved before the next depression sets in, the position is likely to be even more difficult than it was a few years ago. The cultivators suffered much more during the last depression than the industrial workers and the key to the problem of raising the

standard of life of the Indian people is to industrialize the country. A good deal of spade work has been done by the department during the last two years in accelerating the industrial development of the Presidency, and the possibility of establishing various large scale industries of economic and fundamental importance has been examined. A brief reference was made in the report of the previous year to the establishment of an important basic industry at Mettur, and this project assumed concrete shape in December of the year under review when the Mettur Chemical and Industrial Corporation, Limited, was formed for the purpose of establishing at Mettur, an alkali industry and of manufacturing caustic soda, liquid chlorine, bleaching powder, hydrogen and other chemicals. In the initial stages, the company will confine itself to the manufacture of five tons of caustic soda and four and a half tons of chlorine per day of 24 hours. One and a half tons of the chlorine will be liquid chlorine, whilst three tons will be converted into bleaching powder. It has not yet been decided how the hydrogen, which will be recovered as a by-product, will be utilized, although a portion of it may be disposed of to manufacturers of vegetable product. The development of an alkali industry at Mettur is of national importance, as at present India is dependent on foreign countries for its supplies of caustic soda required for the soap, and other industries and such sources of supply are liable to be interrupted in the event of international complications arising. For the establishment of an alkali industry, cheap current is essential, the other desideratum being a supply of salt of the required purity at a reasonable cost. In regard to electric current the company have secured from the Government an undertaking to supply electricity for the purpose of the industry up to 1,500 K.W. at Rs. 60 per K.W. of demand per year for a period of ten years, at the end of which the rate will be subject to revision. The Government have also permitted the company to take water from the Cauvery river at a concessional rate. Arrangements are in progress for securing the requisite salt from a factory on the East Coast which will be reopened whilst the lime required for the manufacture of bleaching powder will be derived from the neighbourhood of Sankaridrug about 40 miles from Mettur, where deposits of high quality calcite limestone exist. It is hoped that with the low rate at which Government have agreed to supply electricity, the production cost of caustic soda will compare favourably with that in the industrial countries of Europe and America where the alkali industry has been developed, although strong competition may have to be faced from the imported products. The authorized capital of the Mettur Chemical and Industrial Corporation, Limited, is Rs. 50 lakhs and an issue of Rs. 10 lakhs which was made in March was oversubscribed. Reference was also made in last year's report to the fact that a well-known Madras company had acquired an option over an area of land at Mettur with a view to establishing a cotton spinning, weaving, bleaching and finishing mill. This

option was exercised during the year when the Mettur Industries, Limited, was formed and registered under the Managing Agency of Messrs. W. A. Beardsell & Co., Limited, with an authorized capital of Rs. 20 lakhs, Rs. 16 lakhs of which was issued to the public in November and heavily oversubscribed. The company intends to establish immediately a cotton spinning, weaving and finishing unit to consist initially of 10,000 spindles and 300 looms with provision for extension and will concentrate on the weaving of bleached mulls and bleached dhoties for which there is a large demand in the Presidency. The company proposes also to organize and develop a handloom weaving colony in conjunction with their mills at Mettur and to dye in the mills the grey cloth woven by the handloom weavers under their control. It is understood that it is hoped eventually to employ from 200 to 300 handloom weavers outside the mill proper. The question of utilizing the bamboo available in the vicinity of Mettur as a raw material for the production of cellulose required for the manufacture of staple fibre was pursued further during the year, and two companies of standing evinced an interest in the development of the industry, as a result of which arrangements were made for two separate consignments of bamboo to be sent to Europe for test with a view to ascertaining inter alia the yield of alpha cellulose from bamboo and whether it could be extracted at an economic price. Staple fibre is chemically the same as rayon or artificial silk, but instead of being made in continuous filaments ready for the manufacturing processes, it is cut into short staples suitable for spinning on ordinary cotton or worsted machinery. It can be spun into yarns with the same facility as cotton or wool, and it is cleaner and practically without waste. The view is generally held that staple fibre will replace cotton to an increasing extent in the future, and should the production and use of staple fibre become established in India, it would enable the country to be self-sufficient in regard to its raw materials for the textile industry and would also open up fresh avenues for the extended use of the forests products of the country. The question is therefore of great importance and the results of the tests on the consignments of bamboo sent to Europe will be awaited with interest. No possibility of developing new industries with reference to the resources of the Madras Presidency in raw materials and the demand for finished goods is being left unexplored and the feasibility of establishing certain other industries of economic importance has been discussed with certain interests, whilst since the close of the year, an application has been received from a firm of industrialists and financiers in regard to the establishment of the calcium carbide industry at Mettur. The main essentials for the manufacture of calcium carbide are lime, charcoal or other suitable fuel and cheap electricity. The main product produced from calcium carbide is acetylene which is used for welding and cutting and also for flares. Acetylene can be converted into acetic anhydride, acetic acid and acetone and also certain solvents, whilst by treating carbide with

nitrogen, a valuable fertilizer, cyanamide, is produced. The first point for investigation in regard to this development is whether a sufficient quantity of charcoal can be made available at an economic price. The discovery of ilmenite sand on the Tanjore coast has opened up the possibility of manufacturing titanium oxide which is employed in the steel, paint, and ceramic industries.

13. *Salem iron ores.*—The question of the development of the Salem iron ores continued to receive close attention during the year and it was decided that the first essential was to examine the iron ore deposits in situ and then to determine their quality and study the most suitable method of concentration, if the preliminary results appeared to justify this. An offer of Dr. V. S. Dubey, M.Sc., Ph.D., D.Sc., Professor of Economic Geology at the Benares Hindu University to undertake a field study of the Kanjamalai Hills with a view to determining the quality and quantity of the ore, map the area and carry out the necessary analyses, was accepted by Government in March and an expenditure not exceeding Rs. 1,500 was sanctioned for the travelling allowance and daily allowance of Dr. Dubey, his research assistant and two attendants. The investigation was commenced shortly after the close of the year and the field has been mapped and a large number of samples collected. It will be some months before the results of the analysis are available and the amount of magnetite in the ore can be determined by microscopic examination, and magnetic separation and concentration tests as the electro-magnetic separator, which is to be installed in the Benares Hindu University, is not expected to arrive in India until the end of August. Dr. Dubey has confirmed the opinion of several previous investigators that the quantity of magnetite ore available in the area surveyed may be considered almost inexhaustible. If the results of the investigation are satisfactory, and the metallic content of the ore is found to be sufficiently high to permit of the production of steel at an economic price in the Salem district, it is hoped that it will be possible to induce industrialists to set up a plant for the manufacture of high grade steel and this in turn should render possible the establishment of several subsidiary and small scale industries.

STATISTICAL SECTION.

14. The importance of statistics as a basis for the framing and shaping of policies is becoming generally recognized, and in fact, it is not too much to say that under modern conditions the study of statistics in the widest sense of the word is necessary to the proper conduct of the business of Government, as otherwise, the relation of policy to needs and of measures to policy must be largely a matter of chance. Government require reasonably accurate information about the state of the season and the area and yield of crops in the ordinary course of their administration, whilst in times of famine, the need of such information is vital. The

war proved the importance of accurate data about the yield of crops in connexion with the question of estimating the food supply of the country and the controlling and rationing of raw materials. The importance to the business community in present day trading conditions of the publication of reliable statistical information also needs little emphasis. Accurate crop forecasts enable traders to enter into forward contracts with the growers or dealers as the case may be, at a price fair to both parties. Reliable figures of prices are also necessary for properly gauging the changes in the economic condition of the people. A reference was made in last year's report to the fact that in G.O. No. 529, Development, dated 31st March 1936, Government had decided to concentrate all statistical work in the Department of Industries and to employ the agency of the department for the preparation, co-ordination and dissemination of economic and statistical information of all kinds. Accordingly, the Statistical section of the Board of Revenue, consisting of a Statistical Officer and a staff of one head clerk and five clerks was transferred to this department with effect from the 1st July. The main functions of the Statistical section are (i) the compilation of the statistics of rainfall and of agricultural statistics, including the preparation of crop forecasts, the annual season and crop report, and the annual statistics of area, yield, etc., relating to coffee, tea, and rubber, and (ii) the compilation of the retail and wholesale prices of commodities. Many of the returns and reports issuing from the Statistical section are published in the *Fort St. George Gazette* and in the leading newspapers for the information of the public. Copies of crop forecasts are also sent to firms and others interested.

15. *Crop forecasts.*—Twenty-six reports in all were issued in the course of the year, forecasting the area and yield of paddy, sugarcane, groundnut, gingelly, castor, cotton, pepper, ginger and senna during the growing period. Fifteen intermediate crop reports were also issued on the condition of paddy, sugarcane, groundnut, gingelly, cotton, senna and tobacco. Forecasts represent an attempt at estimating the final statistics of acreage and yield of crops in advance and the time available for the work is limited. The work of forecasting the area of crops is not easy owing partly to the inability, at times, of the reporting agency to send the returns sufficiently early, and partly to the returns relating, in addition to ryotwari villages, to a large number of estate villages in which the accounts are not maintained properly. Estimating the yield of crops during the growing season in advance of the harvest is even more difficult. The figures of area and yield reported by the Tahsildars are, where necessary, modified in my office by the application of suitable correcting factors designed to remedy the incompleteness of the returns of area on the one hand and the tendency to underestimate the yield on the other. Fairly satisfactory results have been achieved. The areas estimated in 1935-36 thus differed from the actuals in the season and crop report

by 0.6 per cent in the case of cotton, by 1.3 per cent in the case of groundnut, by 1.6 per cent in the case of castor, and by five to six per cent in the case of paddy, sugarcane and gingelly. It was decided by Government during the year to institute forecasts in respect of the following crops :—(i) two forecasts in respect of cholam, cumbu, ragi, korra, varagu and samai, the first to be issued in November each year showing the area sown and the condition of the crop and the second in March showing the area and the yield, and (ii) one forecast of area and yield in respect of horsegram, greengram, redgram and blackgram to be issued in April each year. Proposals were also under the consideration of Government at the end of the year for the institution of three forecasts of area and yield in respect of each variety of tobacco to be issued in December, February and April each year, the last forecast giving additional information in regard to the quantity of 'light' and 'dark' varieties of tobacco that may be available for export.

16. *Normal yield.*—The normal yields of crops per acre published in the season and crop report are out of date, having been fixed as early as 1919. Conditions have altered considerably since then, owing largely to improvements in the methods of agriculture which have taken place as a result of propaganda by the Agricultural Department. The Director of Agriculture expressed the view that crop-cutting experiments alone could give reliable figures for determining the normal yields of crops, and in consultation with an Agricultural Statistics Committee constituted by him, he submitted for the consideration of Government two schemes of crop-cutting experiments—one for ascertaining the yield per acre of foodgrains and the other for ascertaining the yield per acre of sugarcane. Government accepted the two schemes, and the necessary instructions for the conduct of crop-cutting experiments on the staple food grains, i.e., paddy, cholam, cumbu and ragi and on sugarcane have been issued. As the number of experiments to be conducted in each district is large, i.e., 250 for food grains and 60 for sugarcane, the work has been distributed among the agricultural demonstrators and revenue inspectors. The results of the experiments are expected to be communicated shortly, and when they are received, they will be examined statistically.

17. *Yield of pepper.*—The yield per acre of pepper which stood at 336 lb. has been recently reduced tentatively to 215 lb. on the basis of figures of export of pepper from the West Coast during 1934–35 and 1935–36. A statistical analysis of the figures furnished by the trade over a series of years has indicated that the estimate of 215 lb. has a probable error of nearly 10 per cent, and that the probable error could be reduced to about four per cent, if the estimate was based on figures extending over a period of ten years. Government have therefore directed that the estimate of normal yield of pepper which has now been fixed tentatively at

215 lb. should be subjected to a quinquennial revision, first in 1942 and again 1947 in the light of trade figures collected during each year of the two quinquennial periods.

18. *Village and taluk accounts.*—Amendments were issued to the manuals of village and taluk accounts during the year so as to provide for the recording separately of the areas under planted and under ratoon canes, and of the areas under each of the following main varieties of tobacco, (i) *nicotiana rustica*, (ii) *nicotiana tabacum*, virginia type, flue-cured or the 'light' variety, i.e., cigarette tobacco, (iii) *nicotiana tabacum*, desi type, sun-cured or the 'dark' variety, i.e., local tobacco.

19. *Organization for the publication of prices intended for the use of growers and traders.*—Under the new scheme for the publication of prices which came into operation on 1st January 1937, both the retail and wholesale prices of commodities at certain selected centres in the Presidency are now published. The reporting agency for wholesale prices is mainly the Imperial Bank of India, while for retail prices, the Revenue department is the sole reporting agency. As the agencies are different in the two cases, the statistics of retail and wholesale prices serve to operate as a check against each other.

20. *Retail prices.*—In the first or second week of each month a statement of the retail prices of important commodities prevailing in the last week of the previous month at certain selected market centres in the Presidency, thirty in all, is published in the *Fort St. George Gazette*. The commodities for which the prices are published have been selected with reference to their relative importance in individual districts. The prices are reported by tahsildars or deputy tahsildars in terms of rupees and decimals of a rupee per imperial maund.

21. *Wholesale prices.*—In order to meet the increasing demand on the part of growers and traders for prompt information as to current prices of commodities, especially those which loom large in the internal and external trade of the Presidency, a scheme of publication of prices was introduced in January under which the prices of the main agricultural and industrial commodities prevailing on Monday each week at important market centres in the Presidency outside Madras are reported the same day by the agents of the Imperial Bank of India at the different centres so as to reach me the next day in time for the publication of the prices in the *Fort St. George Gazette*. The prices ruling in Madras of certain commodities, are reported by Messrs. Parry and Co., Limited, and the Southern India Chamber of Commerce. Prices relate in all to thirty stations in the Presidency and from four of these stations, telegraphic reports of prices are received as those stations are too distant for the reports to be received in time by post. Except for coconut and arecanut, in which cases, the prices are reported per thousand, and for sugar for which the unit is one

cwt., the prices of all commodities are reported in terms of a uniform unit of one imperial maund and to facilitate the conversion of the prices from local units of wholesale transaction to a unit of one imperial maund, tables of conversion have been supplied to the reporting agencies.

22. *Publicity.*—Printed copies of the statement of wholesale prices are sent each Wednesday to all the important English and vernacular papers published in Madras, and it is reproduced regularly in them. The statement of prices is also published in certain journals in the mufassal. It is also affixed to the notice boards in the offices of revenue divisional officers, tahsildars, deputy tahsildars, sub-registrars and agricultural demonstrators. As the value of the statement to ryots and traders in the villages was discounted by the fact that the prices in the statement are quoted in terms of an imperial maund of 82 2/7 lb. a unit not commonly used or understood in the villages, Government have recently accepted my recommendation that copies of the statement in the chief vernaculars of a district giving the prices at each station within the district in terms of local units of wholesale transaction should be affixed to the notice boards in the offices of tahsildars, deputy tahsildars, sub-registrars and agricultural demonstrators, besides being exhibited on the notice boards of the municipal markets on the market day.

23. *General.*—Besides supervising the normal or day to day duties of the Statistical section which comprise the preparation of the several statistical returns and the disposal of the voluminous correspondence which they entail, the Statistical Officer undertook the following special work during the year :—

(i) *Revision of the Decennial Statistical Atlas of the Madras Presidency.*—This work, which was completed during the year, embodies a special paragraph on agricultural practice with statistical tables for each district giving the proportional sowings and harvests of crops each month. The statistics of prices of food grains dating from 1873-74 which were given in imperial seers per rupee in previous editions of the atlas have been converted in terms of rupees per imperial maund in the present edition.

(ii) *Family budgets.*—The Statistical Officer has been in charge of an enquiry into the family budgets of industrial workers in the Madras city and has supervised the work of three investigators employed for the collection of budgets. The enquiry ended on 30th September 1936. Altogether nearly 1800 budgets have been collected. The figures have been tabulated and the necessary averages worked out. A report on the results of the enquiry will shortly be submitted to Government.

(iii) *Work on the estimation of the village consumption of cotton.*—At the instance of the Indian Central Cotton Committee, the Agricultural Department conducted an enquiry into the village consumption of cotton in this Presidency out of a grant made by the Committee. The Statistical Officer was called upon to examine the figures in the reports of the investigators employed for the purpose with a view to arriving at a satisfactory estimate of total village consumption of cotton in the Presidency. A satisfactory estimate of consumption was finally arrived at.

(iv) *Cotton Forecast Improvement Sub-Committee.*—In G.O. Ms. No. 801, Development, dated 20th May 1936, the Statistical Officer was permitted to serve as an official member of the Cotton Forecast Improvement Sub-Committee of the Indian Central Cotton Committee. He attended the meeting of the Sub-Committee held in Bombay in August 1936 and contributed a note on the post-mortem examination of cotton forecasts relating to this Presidency, in which he showed that such discrepancies as were apparent between the forecasts and the actuals were not due to any defects in the method of forecasting, but were attributable to certain defects inherent in the present system of recording figures of consumption of cotton by the mills and presses.

COTTAGE INDUSTRIES.

24. (The experience of Japan has shown conclusively that the development of large scale factory industries does not necessarily mean the extinction of small scale industries, handicraft units and family enterprises, for small units in Japan have not only survived the development of large scale production, but continue to exhibit remarkable strength and vitality. It is the aim of the department to encourage and stimulate the development of small scale industries as well as large scale ones, for the real need of the country to-day is to open up new avenues of employment and this postulates the development of large, medium, small and cottage industries. It was stated in last year's report that the Government of India had provided grants-in-aid for the improvement and development of the handloom weaving industry on co-operative lines, and for the benefit of the sericulture industry, and reference to these activities will be found in the appropriate sections of the report. In their resolution on the report of the Indian Tariff Board on the woollen textile industry, the Government of India announced their decision to make a grant of Rs. 5 lakhs, spread over a period of five years for the benefit of the cottage and small scale woollen industries. They also constituted a Woollen Industries Committee to consider provincial schemes and to recommend allotments to the different

provinces. The Madras scheme, which provided for the grant of assistance to the cumbly weaving and Ellore pile carpet industries, was approved by the Woollen Industry Committee and accepted by the Government of India, with slight modifications, during the year. Over a period these three subventions should enable something to be done to improve the lot of those engaged in the industries concerned, and perhaps to provide additional employment for the workers in them. Much remains to be done, however, in regard to other cottage or small scale industries which appear *prima facie* worthy of encouragement, and which, if successfully developed, would in the aggregate go some way to alleviating unemployment, both in rural and urban areas. The development of cottage and small scale industries has been engaging the attention of the department for some time past and the question whether the promotion of small scale industrial operations, other than weaving and sericulture, could best be achieved through the medium of industrial schools or peripatetic industrial demonstration parties, was examined, and as a result proposals were submitted to Government during the year for the provision of intensive courses in certain small scale industries, namely, leather goods manufacture, casting and metal working, pottery and coir working. These proposals were sanctioned by Government in G.O. No. 2291, Development, dated 15th December 1936. The leather goods manufacture class has been started in the first instance in the Leather Trades Institute, Madras. After the first year's course is completed the question of continuing the class longer in the Leather Trades Institute or moving it to another leather working centre, such as, Trichinopoly, Dindigul, etc., to train students there will be considered. The casting and metal working class has been located for the first year in the School of Technology, Madras, and it is possible that later on, the class will be transferred to, or separate classes formed at, Madura, Dindigul, Kalahasti or other centres. The pottery class will be of one year's duration and in the first instance it will be located in Madras. A young graduate with a knowledge of chemistry has been recruited and sent to Calcutta for six months training in the Calcutta Pottery School. On his return to Madras, he will start a class to provide a year's instruction in the manufacture of articles, such as, jars, domestic pottery, and possibly to a limited extent, artistic pottery-ware, and the instruction will include glazing. This class will at first be largely experimental in character and the admissions limited to eight students. The constitution of the coir working class represents an attempt in Malabar to produce the thinner and more evenly twisted yarns for which better prices and a more uniform demand are forthcoming. The methods of spinning and weaving of coir in Travancore are much in advance of the methods of employed in Malabar, for though the use of the spinning wheel is almost universal in Travancore, the people of Malabar still spin on the thigh and there are other refinements in the Travancore methods of preparing and working up coir which might with

advantage be adopted in Malabar and subsequently in other districts of the Presidency. The working of these classes will be carefully watched, and if the results are satisfactory, proposals for starting further classes will be submitted for the consideration of Government. The success of the Kerala Soap Institute in training students in the processes of soap manufacture and stimulating the creation of small soap factories opens up the question of whether the industrial schools might not do more in the direction of providing instruction in the manufacture of particular articles, so that the students could set up small establishments of their own on the completion of their training. It was no doubt the right policy in the past for the industrial schools to concentrate on turning out general artisans of which there was formerly a dearth, but there is perhaps something to be said now in favour of reorganizing some of the schools so as to provide more specialized courses of training, or even of attaching small demonstration factories to them. The question was under preliminary examination at the end of the year. Shortly before the close of the period under review, steps were taken to collect information in regard to the equipment required for the manufacture of a number of articles on a small scale, e.g., buckets, buttons, crown corks, and metal caps, advertising tape, wire nails, metal chains, press and die casting work, etc. When full information is available in regard to the equipment required for these small scale industries, bulletins will be published embodying the necessary details, and it is hoped that this will lead to the establishment of some of the industries.

25. *Coir industry.* The demonstration of improved methods of coir retting and coir production at Baruva referred to in last year's report was carried out during the period under review. A maistri conversant with West Coast processes of coir retting and coir spinning was employed to demonstrate these methods to the fisher folk and other people at Baruva and the necessary hand operated machines were borrowed from the Textile Institute, Madras. The demonstration, which included (i) soaking of the husks in the Baruva backwaters, (ii) crushing the husks before and during soaking (retting), (iii) willowing the fibre with poles and willowing machine, (iv) spinning with the spinning wheel, (v) producing improved yarn and rope, (vi) dyeing coir fibre and (vii) weaving coir matting, was under the supervision of the Leather Research Chemist who visited Baruva from time to time in order to supervise the work of the maistri. The object of the demonstration was to demonstrate to the people the advantages of adopting improved methods of retting and spinning so as to enable them to produce better quality coir and realize higher prices for their products. The demonstration has been successful in showing that improved qualities of yarn and mats and mattings can be produced in the Baruva area and at the end of the year, steps were being taken to ascertain whether a demand could be developed in Calcutta and Rangoon for the improved coir products which

have been produced and with proper organization could be manufactured in quantity in the Baruva area.

26. *Manufacture of white sugar and improved jaggery from palmyra juice.*—A reference was made in the report of the previous year to the conduct of a demonstration of white sugar manufacture from palmyra juice with the aid of centrifugals at Rettakulam in the Tinnevely district, and to the fact that it had been demonstrated that good marketable white sugar could be prepared from palmyra juice by the open-pan system, and that the molasses obtained in the process could be converted into jaggery by reboiling with fresh juice. A further demonstration of the manufacture of white sugar and improved jaggery from palmyra juice was carried out at Navadur in the West Godavari district during the year under review. The results went to confirm the conclusions arrived at from the Rettakulam experiments that marketable white sugar could be produced from palmyra juice, and that it is possible to prepare from palmyra juice, jaggery of a superior quality which should realize a higher price than the jaggery at present prepared. The results of the experiments carried out at Navadur went to show that under the conditions then obtaining, it would be more profitable to prepare improved jaggery than sugar and that this is likely to remain the case unless a greater yield of sugar is obtained or the price of jaggery declines further. Preliminary steps were taken with a view to the organization of a co-operative society for preparing the improved jaggery, but soon afterwards, the tappers went on strike and the Co-operative Department considered it desirable to defer the registration of the society until conditions became more normal.

27. *Slate industry.*—As a result largely of the demonstrations of the working of the locally constructed machines for the manufacture of school slates, and of the publication of the departmental bulletin on the slate industry, there has been a considerable development of school slate manufacture at Markapur, Madras, Chittoor, Kumbakonam and Calicut. As the demonstrations had served their purpose and the machinery was no longer required, it was disposed of during the year to the Kumararaja of Venkata-giri. A reduction in the freight charges on slate slabs consigned by rail from Markapur to Poona was secured from the Madras and Southern Mahratta Railway Co., Limited, on behalf of a Markapur manufacturer.

28. *Rattan industry.*—The machine for the preparation of rattan cane for the manufacture of furniture on modern lines has been accommodated in the Government School of Technology and demonstrations of its working were given for the benefit of the local rattan workers. As a result of the further demonstrations carried out, it was found that additional cutters were required in order to render the machine suitable for the requirements of the Madras trade. The required cutters were obtained from Germany shortly

before the close of the year, and it is hoped that the usefulness of the machine to the rattan workers in the City will now be considerably enhanced.

29. *Agent in London for the sale of Madras industrial products.*—The third annual grant of Rs. 3,000 sanctioned by Government to the authorities of the Victoria Technical Institute for a period of three years to enable them to arrange for the sale of Madras industrial products in European markets through an agent in London was disbursed in the year under review. Articles to the value of Rs. 1,033-3-0, exclusive of samples, were supplied to the agent against indents during the year ended 30th June 1937, and sale proceeds to the value of Rs. 1,990-7-5 were realized. The council of the Institute decided early in the year that steps should be taken to reduce the prices of articles sent to the agent wherever possible, and that textile articles and a larger variety of samples of the other articles stocked in the Institute should be supplied to him. Accordingly a fresh supply of samples to the value of Rs. 2,034-14-11 was sent to the agent, including a range of sarees, textiles and lace goods from the Women's Work Room. It was found possible to reduce the London selling rates of a number of articles after actual experience had been gained of the cost of shipment and delivery to the agent, and these reductions are now resulting in an increased volume of business. The Institute contributed a sum of £30 for organizing a separate stand for the Victoria Technical Institute at the British Industries Fair, and the orders received at the Fair amounted to Rs. 1,052-8-0 as compared with Rs. 168 in the previous year. The Madras exhibits at the Fair included carved ivory and sandalwood, carved rosewood tables, horn paddy birds and animals and lacquered toys as well as textiles and lace, and the agent reports that the stand attracted a considerable amount of attention. A reference was made in last year's report to a demonstration of the process of dyeing palmyra leaves for baskets in fast colours at Pulicat. Baskets dyed in the fast colours were sent to the agent during the year against his indents and he is satisfied with the improvement effected. In regard to the samples of handwoven textiles, the agent reports that the materials have been much admired and that provided some modification of the prices can be made, there are considerable possibilities of developing a market for them in the United Kingdom. Samples of joss sticks specially adapted to suit the English market have been sent to the agent who expects to be able to obtain substantial orders for them. Samples of the larger sizes of rosewood carved tables that are popular at the Victoria Technical Institute were sent to the agent and some of them were sold.

GENERAL REVIEW OF COMMERCIAL AND INDUSTRIAL CONDITIONS.

30. *World conditions.*—Although the year under review saw a persistant worsening of the international political situation, it was marked by a continuance and even acceleration of the general improvement in economic activity that was noticeable in the previous

year. In fact, it was the best year for many commodity markets since 1929. The most encouraging aspect of the economic recovery was the world-wide rise in prices of primary commodities. The outstanding aspect of the world-wide economic crisis which came to a head in 1931 was the persistent fall in the prices of primary commodities, and the reversal of this process, in a world in which prices are the signal for economic activity, was the most important feature of the year under review. Fostered by improving economic and financial conditions in all parts of the world, the average price level showed a marked improvement and wholesale prices moved upwards in practically every country of importance, although the rise in commodity values was by no means a uniform one. The 'Statist' index of the general price level of wholesale commodities which was 86.4 in March 1936 rose to 106.9 in March 1937. The Calcutta index number of wholesale prices (July 1914=100) which was 91 in March 1936 advanced to 100 in March 1937, representing a rise of 9 per cent. The Karachi index number similarly advanced by the same percentage from 100 to 109. The Bombay index number also advanced from 95 to 110 or by 16 per cent. The rise in commodity values has restored the balance among prices and re-established in greater or less degree, the equitable relationship which the decline in 1929 and thereafter disrupted. The gold value of world trade continued in 1936 the expansion which started slowly in 1935 after five years of rapid contraction; but although the value of world trade in 1936 was 8.4 per cent higher than in the previous year, it still amounted only to 37.7 per cent of its value in 1929. The quantum of world trade, which was 4 per cent higher in 1936 than in the previous year, was just over 85 per cent of its 1929 level. The volume of industrial production in 1936 was 15 per cent greater than in 1935 and 11 per cent greater than in 1929, and as compared with the previous year, all countries for which indices are available, with the exception of Greece, showed an increase in industrial activity during the year under review. But though world industrial activity rose above the 1929 level, it will be seen from the foregoing, that there was still a big lag between world trade recovery and recovery in industrial production. The recovery of industrial production has necessarily brought about an increase of raw material consumption and consequent improvement of statistical positions and price levels, and by the end of 1936, world stocks of primary commodities were only 5 per cent higher than in the middle of 1929. The outstanding international financial development of the year was the devaluation of the major gold bloc currencies in September. The devaluation of the franc and other European currencies had been generally expected and its effects largely discounted, so that the stock to credit and intercourse was mild and brief and the settling down to new values rapid. It was thought that the devaluation while it would have a wholly beneficial effect on business and on commodity prices in the long run, would have been followed immediately by a temporary decline in sterling commodity prices.

This, however, did not happen, and owing to the co-operation of Great Britain, France and the United States of America, the reactions which occurred in the case of former devaluations in the form of countervailing duties, quotas and competitions in currency depreciation were avoided by agreement. The relief from uncertainty and from the fear of future trade restrictions was considerable and as the devaluation coincided with the release of forces making for a general rise in commodity prices, there resulted a psychological atmosphere of optimism which contributed materially to the upward swing of international trade and the advancement in commodity prices during the last few months of the year. There was little amelioration of tariffs, quotas and other restrictions during the period under review, though the various exchange equilization funds performed their functions of preventing violent fluctuations in exchanges. How far the speeding up of the economic machine during the year was attributable to the natural resiliency of trade and to the normal forces of recovery, and how far to the gathering momentum of the rearmament programme in the leading industrial countries must, at this stage, be largely a matter of conjecture. Shortly after the close of the year, a reaction set in, which brought prices back to their proper place on the normal upward cyclical course, and this has been followed by uncertainty as to whether any change in the American monetary policy would involve a reduction in the price of gold, and with it a widespread recession in the price level. So long as the unsettling effect of the gold uncertainties continues, no real restoration of confidence or sustained recovery from the recent set back in commodity prices can be looked for. A further gradual rise in the price level is desirable and the real need is to find currency uses for the world's gold stock and to secure a level of international trade which will enable the stocks to be more adequately distributed. Cause for anxiety does not lie in the increasing production of gold so much as in its unequal distribution.

31. *Economic conditions in Madras.*—The Bank rate remained unchanged at 3 per cent throughout the period under review, it having been reduced to that figure in November 1935. The improvement in economic activity was reflected in the value of the cheques passing through the Madras Clearing House which increased from Rs. 69,83,09,506 in the year ended 31st March 1936 to Rs. 91,93,87,477 in the year under review. The improvement in commercial conditions was also reflected in the earnings of the railways. The total receipts of the Madras and Southern Mahratta Railway Company Limited increased from Rs. 731.03 lakhs in the year 1935-36 to Rs. 747.37 lakhs in 1936-37, the improvement being attributable largely to an increase in receipts under groundnuts. The total earnings of the South Indian Railway Company Limited also improved from Rs. 523.23 lakhs in the year 1935-36 to Rs. 537.62 lakhs in 1936-37 owing mainly to the larger movement of groundnuts, sugar, paddy and rice. The total value of the

trade of the Madras Presidency increased by Rs. 672.09 lakhs or by 8.86 per cent to Rs. 8,257.57 lakhs. The foreign trade increased in value from Rs. 4,337.37 lakhs to Rs. 5,215.15 lakhs, but the coasting trade declined from Rs. 3,248.11 lakhs to Rs. 3,042.41 lakhs. In the case of private merchandise, imports from foreign countries declined further from Rs. 1,571.11 lakhs to Rs. 1,526.58 lakhs or by 2.83 per cent. Imports of machinery and mill work, oils, vehicles, instruments, apparatus and appliances, dyeing and tanning substances, rubber, spices, drugs and medicines, artificial silk, silk raw and manufactured, tea chests, and stationery, registered increases, whilst metals and ores, cotton manufactures, cotton twist and yarn, grain, pulse and flour, provisions and oilman-stores, paper and pasteboard, chemicals, manures, hardware, liquors, tobacco, glass and glassware, building and engineering materials, soaps and sugar showed decreases. Exports of private merchandise (excluding re-exports) increased from Rs. 2,680.26 lakhs to Rs. 3,613.76 lakhs or by 34.83 per cent. Oil seeds, leather, cotton raw, cotton manufactures, fruits and vegetables, grain, pulse and flour, tobacco, raw and manufactured, oil-cakes, hides and skins—raw, and spices increased, whilst exports of tea, coffee, metals and ores, coir-raw and manufactured, rubber, fish, fibre and oils declined. It will be noticed that although exports from the Madras Presidency of Indian merchandise to foreign countries increased considerably reflecting the rising trend of commodity prices and the general re-stocking movement on the part of merchants, and manufacturers which was in evidence during the year, imports far from following in their wake actually declined, which was contrary to the experience of most of the primary producing countries where the expansion in exports and rise in prices of primary commodities has generally been followed by an increase in imports. Although the steady increase in Madras exports was a gratifying feature of the economic situation as it affected this Presidency, some of the commodities in which Madras is interested failed to respond to any marked extent to the rise in the international price level, and a few actually declined in terms of average values. A glance at the table of prices of commodities which faces this page will show that the average of the monthly average values of a number of the more important primary products was higher during the year under review. The averages of the monthly average values of groundnuts, tanned cow-hides, tanned goat skins, tanned sheep skins, copra, coconut oil, coir yarn, castor oil and castor seed, were higher during the year under review than in the previous year; but cotton, jute, paddy and rice, pepper, myrobalans and sugar exhibited lower average values. Values of cotton, groundnuts, tanned cow-hides, tanned goat skins, tanned sheep skins, paddy and rice, copra, coconut oil, coir yarn, pepper, castor seed, castor oil, and myrobalans were higher in March 1937 than in the corresponding month of the previous year, and amongst the listed commodities only jute, tobacco and sugar were standing at lower levels.

Average monthly wholesale prices of some of the principal Madras commodities during the year 1936-37.

Commodities.	April.	May.	June.	July.	August.	September.	October.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.
Cotton (Cambodia), per candy of 520 lb.	159 2 6	157 13 5	158 12 0	162 8 0	162 8 0	162 8 0	162 8 0
Cotton (Karunganni), per candy of 520 lb.	145 0 9	148 3 4	148 14 0	151 8 0	152 8 0	152 8 0	152 8 0
Groundnuts (Nandyal) per candy of 531 lb.	31 3 11	30 11 7	33 0 3	35 10 2	37 5 0	35 15 6	30 14 11
Groundnuts (Coimbatore), per candy of 531 lb.	..	..	..	..	36 14 0	34 3 0	30 9 7
Pepper, per cwt.	21 12 0	20 11 2	19 15 0	18 13 7	18 9 0	18 7 0	19 3 2
Paddy, per bag of 164 lb.	4 5 0	4 7 4	4 6 3	4 6 10	4 5 9	4 6 0	4 5 10
Rice, do.	6 2 0	6 7 7	6 5 9	6 3 7	6 1 6	6 2 0	6 2 0
Coir yarn, per candy of 672 lb.	55 0 0	55 0 0	55 0 0	55 0 0	55 0 0	55 0 0	55 0 0
Copra per candy of 655 lb.	68 8 0	66 14 5	65 6 0	68 12 10	69 0 0	71 8 0	73 0 0
Coconut oil, per candy of 655 lb.	99 8 0	97 0 10	95 12 0	97 0 10	99 8 0	101 14 0	103 5 7
Jute, per candy of 506 lb.	40 0 0	39 12 10	37 14 0	34 8 0	33 0 0	32 8 0	32 8 0
Tobacco, per maund of 28 lb.	5 1 0	5 0 0	1 15 3	2 2 0	2 4 8	2 12 6	..
Myrobalans, per bag of 164 lb.	68 0 0	66 14 0	68 0 0	68 14 0	70 12 8	69 14 0	69 14 0
Castor oil, per candy of 500 lb.	9 12 0	9 10 0	9 13 3	10 1 6	10 6 8	10 1 6	10 0 0
Castor seed, per bag of 164 lb.	13 4 0	13 4 0	13 4 0	13 4 0	13 4 0	13 4 0	13 2 1
Java Sugar, per cwt.	12 12 0	12 12 0	12 12 0	12 12 0	11 9 1	11 10 4	11 7 9
Nellikuppam Sugar, per cwt.	12 5 0	12 3 6	12 1 4	12 0 5	11 11 9	11 10 5	11 7 9
Chanpatia Sugar, per cwt.	..	..	..	..	..	..	..
Tanned Cow Hides—	..	..	..	..	..	..	..
Bangalore 8-8½ lbs., per lb.	0 10 0	0 9 4	0 9 9	0 9 10	0 10 0	0 10 1	0 9 10
Up-Countries 8-8½ lbs., per lb.	0 9 8	0 9 0	0 9 4	0 9 5	0 9 9	0 9 10	0 9 6
Coasts 7-7½ lbs., per lb.	0 10 8	0 9 10	0 10 1	0 10 1	0 10 5	0 10 5	0 10 6
Tanned Goat Skins—	..	..	..	..	..	..	..
Good per lb.	1 14 11	1 15 8	1 15 3	1 14 5	1 13 4	1 12 9	1 14 1
Fair, ..	1 12 6	1 13 5	1 13 0	1 11 8	1 10 11	1 10 6	1 12 2
Common per lb.	1 10 11	1 11 6	1 11 0	1 10 1	1 9 7	1 9 6	1 11 1
Tanned Sheep Skins—	..	..	..	..	..	..	..
Good per lb.	2 0 2	2 1 2	2 1 6	2 2 2	2 3 5	2 4 3	2 5 7
Fair, ..	1 13 0	1 13 0	1 13 6	1 15 0	2 1 0	2 1 5	2 3 2
Common per lb.	1 3 11	1 5 4	1 5 10	1 6 2	1 6 3	1 6 3	1 6 6
Commodities.	Novem-ber.	Decem-ber.	January.	February.	March.	Average of the monthly prices for 1936-36.	Average of the monthly prices for 1936-37.
	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.
Cotton (Cambodia), per candy of 520 lb.	162 8 0	162 8 0	173 2 0	175 0 0	185 12 0	178 0 2	165 6 2
Cotton (Karunganni), per candy of 520 lb.	152 8 0	157 8 0	157 8 0	157 8 0	175 0 0	164 14 2	154 4 2
Groundnuts (Nandyal) per candy of 531 lb.	31 5 6	34 1 9	34 10 6	31 6 0	34 2 9	32 2 1	33 6 0
Groundnuts (Coimbatore), per candy of 531 lb.	30 0 0	31 0 0	..	..	..	30 5 3	32 8 6
Pepper, per wt.	19 7 0	22 14 0	22 12 0	21 0 0	21 0 0	23 14 0	20 6 0
Paddy, per bag of 164 lb.	4 7 0	4 2 0	3 15 8	4 0 2	4 5 3	4 8 4	4 4 10
Rice, do.	6 2 0	6 2 0	6 0 6	6 0 0	6 2 0	6 5 6	6 2 7
Coir yarn, per candy of 672 lb.	55 0 0	58 12 0	69 6 0	70 10 0	70 0 0	57 13 8	59 1 0
Copra per candy of 655 lb.	80 12 0	90 4 0	99 12 0	89 12 0	86 4 0	58 12 7	77 5 1
Coconut oil, per candy of 655 lb.	110 15 0	120 6 0	130 0 0	119 14 0	116 10 0	87 11 4	107 10 6
Jute, per candy of 506 lb.	32 8 0	37 4 0	37 0 0	36 8 0	37 12 0	37 3 3	35 14 11
Tobacco, per maund of 28 lb.	4 8 0	4 8 0	4 8 3	4 9 9	4 15 6	6 2 9	4 11 3
Myrobalans, per bag of 164 lb.	73 2 0	76 2 0	75 10 0	70 10 0	72 7 4	69 1 3	70 13 8
Castor oil, per candy of 500 lb.	10 6 9	10 14 0	10 11 0	10 4 6	10 11 0	9 14 6	10 3 8
Castor seed, per bag of 164 lb.	13 2 0	13 0 3	13 0 0	12 14 4	13 0 0	13 8 6	13 2 3
Java Sugar, per cwt.	11 10 0	..	10 13 10	10 6 6	10 8 5	13 2 11	11 5 10
Nellikuppam sugar, per cwt.	11 5 5	11 3 4	10 12 10	9 12 5	9 14 5	13 0 11	11 6 1
Chanpatia sugar, per cwt.	..	..	..	..	..	..	..
Tanned cow hides—	..	..	..	..	..	..	..
Bangalore 8-8½ lbs., per lb.	0 9 7	0 9 6	0 9 11	0 10 5	0 10 5	0 8 3	0 9 11
Up-countries 8-8½ lbs., per lb.	0 9 2	0 9 2	0 9 7	0 10 1	0 10 1	0 8 0	0 9 7
Coasts 7-7½ lbs., per lb.	0 10 0	0 9 11	0 10 3	0 10 11	0 11 0	0 8 5	0 10 4
Tanned goat skins—	..	..	..	..	..	..	..
Good, per lb.	1 14 8	1 14 5	1 14 3	1 15 0	1 15 10	1 9 0	1 14 7
Fair, ..	1 12 11	1 12 11	1 13 0	1 13 5	1 14 3	1 6 11	1 12 7
Common per lb.	1 11 8	1 11 10	1 11 10	1 12 6	1 12 10	1 4 9	1 11 2
Tanned sheep skins—	..	..	..	..	..	..	..
Good, per lb.	2 7 1	2 7 1	2 6 11	2 7 0	2 8 8	1 9 11	2 4 7
Fair, per lb.	2 5 2	2 5 0	2 4 8	2 4 10	2 6 1	1 7 9	2 1 10
Common, per lb.	1 6 7	1 6 6	1 6 7	1 6 7	1 7 0	1 1 6	1 6 2

32. *Inter-Empire and foreign trade.*—The trade with the British Empire during the year represented 53.92 per cent of the total foreign trade of the Presidency, compared with 60.15 per cent, 59.22 per cent and 57.66 per cent in 1933-34, 1934-35, and 1935-36 respectively. Imports increased by Rs. 46.41 lakhs to Rs. 835.08 lakhs or by 6 per cent, while exports advanced by Rs. 273.35 lakhs to Rs. 1,942.40 lakhs or by 16.38 per cent. Imports from the United Kingdom declined by Rs. 6.17 lakhs to Rs. 660.92 lakhs, but exports to that country advanced by Rs. 193.00 lakhs to Rs. 1,452.59 lakhs. The percentage of the trade with the United Kingdom to the total foreign trade of the Presidency declined from 45.20 to 41.03. In regard to imports from the United Kingdom, increases were noticeable chiefly in the case of machinery and millwork, pneumatic motor covers, cycles, and electrical insulators other than rubber, whilst decreases were registered under cotton piecegoods, sulphate of ammonia, brass mixed or yellow metal, cotton twist and yarn and iron and steel. Under exports, there were increases in the case of tanned cow-hides, goat skins, ground-nuts, raw cotton, tanned sheep skins and castor seeds, whilst decreases were registered under tea, coffee, raw rubber and raw goat skins. The trade with countries outside the British Empire advanced from 42.34 per cent to 46.08 per cent of the foreign trade of the Presidency. Imports declined by Rs. 90.94 lakhs to Rs. 691.50 lakhs or by 11.62 per cent, but exports increased by Rs. 659.73 lakhs to Rs. 1,681.96 lakhs or by 64.54 per cent. Imports from European countries declined from Rs. 310.66 lakhs to Rs. 285.19 lakhs, but exports to these countries advanced from Rs. 750.42 lakhs to Rs. 1,147.38 lakhs, the increase of Rs. 396.96 lakhs being chiefly shared by Italy (Rs. 134.01), Belgium (Rs. 124.79), France (Rs. 71.78), Netherlands (Rs. 20.60), Germany (Rs. 15.49), and other countries (Rs. 30.29). The percentage of the total trade with European countries to the total foreign trade of the Presidency rose from 24.89 to 27.81. As regards Asiatic countries, imports declined from Rs. 355.67 lakhs, to Rs. 285.44 lakhs despite an increase in imports from Japan from Rs. 137.73 lakhs to Rs. 157.80 lakhs and from China from Rs. 15.59 lakhs to Rs. 18.82 lakhs. Exports to Asiatic countries advanced appreciably from Rs. 110.07 lakhs to Rs. 257.81 lakhs or by 134.22 per cent, Japan increasing her takings from Rs. 97.80 lakhs to Rs. 235.32 lakhs, while China's takings rose from Rs. 1.87 lakhs to Rs. 7.14 lakhs. In spite of this increase in the exports to Asiatic countries, the percentage of the trade with such countries to the total foreign trade declined from 10.92 to 10.55. Imports from and exports to America showed very little variation, the values thereof remaining more or less stationary, but the percentage of the trade with America declined from 5.62 to 4.67.

33. *New industrial undertakings.*—Two hundred and thirty-six companies were registered during the year, 235 with, and one without, share capital. The authorized capital of the companies registered amounted to Rs. 686.10 lakhs and the paid-up capital to

Rs. 8.83 lakhs, as against Rs. 495.95 lakhs and Rs. 4.03 lakhs respectively in the year 1935-36. Of the new registrations with capital, 116 were trading and industrial concerns, 47 banking, loan and insurance companies, 29 hotels, theatres and cinema enterprises, 16 tea and other planting companies, 12 mills and presses, 10 transit and transport companies, two sugar factories, and three others. The companies floated with the largest authorized capital were, the Mettur Chemical and Industrial Corporation, Limited, and the Indian Overseas Bank, Limited (Rs. 50 lakhs each), Oriental Investment Trust, Limited, Central India Investment Trust, Limited, and Carnatic Investment Trust, Limited (Rs. 25 lakhs each); Mettur Industries, Limited, and Pioneer Bank, Limited, Udumalpet (Rs. 20 lakhs each); Central Studios, Limited (Rs. 16 lakhs), Andhra Cement Company, Limited (15 lakhs), Hindustan Investment and Financial Trust, Limited, Prudential Investment Trust, Limited, South India Corporation, Limited, Nattukkottai Bank, Limited, Travancore National Bank Subsidiary Company, Limited, Amrutanjani, Limited, Southern India Sugar Company, Limited, Asher Textiles, Limited, Tamil Nadu Central Bank, Limited, Brunton & Co. (Engineers), Limited, East Ramnad Electric Supply Company, Limited, Srimati Sugar Mills Limited, Orrs Columbia and Talkies, Limited, and Indo-Burma Trading Corporation, Limited, (Rs. 10 lakhs each), and the Umai yambikai Mills, Limited, (Rs. 9 lakhs).

34. *Mining operations.*—The following prospecting licences and mining leases were granted during the calendar year 1936 :—

	ACS.
Twenty-six prospecting licences for prospecting for barytes over an area of	604.24
Twelve prospecting licences for prospecting for mica over an area of	410.10
Three prospecting licences for prospecting for asbestos over an area of	249.56
Two prospecting licences for prospecting for steatite over an area of	69.16
Two prospecting licences for prospecting for red oxide of iron over an area of	317.00
Two prospecting licences for prospecting for galena over an area of	643.50
Two prospecting licences for prospecting for lead, silver, copper, zinc and antimony over an area of	446.97
One prospecting licence for prospecting for chromite, asbestos and diamonds over an area of	25.98
One prospecting licence for prospecting for manganese and pyrolusite over an area of	450.00
One prospecting licence for prospecting for asbestos, galena, red ochre, soap stone and china clay over an area of	193.77
One prospecting licence for prospecting for copper ore over an area of	63.44



	ACS.
One prospecting licence for prospecting for diamonds over an area of	73.85
One prospecting licence for prospecting for silver, lead and zinc over an area of ..	21.00
One prospecting licence for prospecting for lead over an area of	141.00
One prospecting licence for prospecting for iron ore and manganese over an area of ..	77.60
Three mining leases for working barytes over an area of	288.07
Two mining leases for working mica over an area of	71.16
One mining lease for working garnet sand over an area of	3.17
One mining lease for working corundum over an area of	61.87

Mining was carried on in the districts of Anantapur, Bellary, Cud-dapah, Chingleput, Chittoor, Kurnool, Nellore, the Nilgiris, Salem, Trichinopoly and Vizagapatam.

35. *Manganese*.—The mining of manganese was carried on in the Bellary and Vizagapatam districts, the former reporting a production of 1,000 tons, and the latter of 13,958 tons. The total production in 1936 was about 1,200 tons less than in 1935. Exports of manganese ore decreased from 428,356 tons valued at Rs. 77.35 lakhs in 1935-36 to 324,960 tons valued at Rs. 64.23 lakhs during the year under review. Of this quantity, Japan took 94,663 tons valued at Rs. 16.07 lakhs, France 58,179 tons valued at Rs. 11.77 lakhs, United Kingdom 53,895 tons valued at Rs. 11.32 lakhs, Belgium 48,091 tons valued at Rs. 10.38 lakhs and the United States of America 29,300 tons valued at Rs. 6.15 lakhs.

36. *Magnesite*.—The output of magnesite increased by 126 tons to 12,966 tons. Exports of magnesite advanced from 78,805 cwts. valued at Rs. 4.20 lakhs to 98,914 cwts. valued at Rs. 4.91 lakhs. Of the quantity exported, the United Kingdom took 71,762 cwts. valued at Rs. 3.52 lakhs and the United States of America 20,860 cwts. valued at Rs. 0.92 lakh. The exports consisted almost entirely of calcined magnesite. The world consumption of magnesite is increasing owing to the development of the manufacture of magnesium metal and also to the growing requirements of magnesium compounds for chemical purposes, and if the existing preference on Indian magnesite entering the United Kingdom could be increased, the Salem magnesite industry might be expected to undergo a considerable expansion in which case additional employment would be found for a number of people in the Salem district.

37. *Mica*.—The production of mica increased from 438 tons to 579 tons, whilst the output of waste mica rose from 342 tons to 802 tons. Exports of mica advanced from 15,096 cwts. valued at Rs. 10.48 lakhs to 16,479 cwts. valued at Rs. 11.23 lakhs, the United Kingdom taking 14,340 cwts. valued at Rs. 10.72 lakhs.

38. *Other minerals*.—The production of barytes declined from 3,347 tons to 2,375 tons, and of steatite from 246 tons to 74 tons, whilst that of phosphatic nodules rose from 102 to 128 tons and of gypsum from 528 tons to 1,506 tons.

39. *Cotton*.—The area under cotton in the Presidency in 1936-37 has been estimated at 2,578,400 acres as against 2,645,500 acres for the corresponding period of the previous year, representing a decrease of 4.3 per cent as compared with the finally recorded area of 2,693,145 acres in 1935-36. The yield has been estimated at 535,200 bales of 400 lb. lint against 537,190 bales in the previous year, representing a decrease of 0.4 per cent. Exports of raw cotton advanced from 13,800 tons valued at Rs. 97.07 lakhs to 44,816 tons valued at Rs. 296.55 lakhs, representing an increase of 224.8 per cent in quantity and of 205.5 per cent in value. Of the quantity of cotton exported from the Presidency, Japan took 25,222 tons valued at Rs. 165.30 lakhs, Belgium 6,999 tons valued at Rs. 43.51 lakhs, the United Kingdom 5,491 tons valued at Rs. 35.78 lakhs, Germany 2,243 tons valued at Rs. 19.37 lakhs, and France 1,567 tons valued at Rs. 9.12 lakhs. Cotton lagged behind in the general improvement of commodity prices, and during the greater part of the year remained fairly steady. In December, however, cotton commenced to respond to the general rise in commodity values, and continued to advance steadily in price up to the close of the year.

40. *Cotton mills*.—There were 47 cotton mills at work in the Madras Presidency with 1,134,222 spindles and 5,866 looms. The mill production of yarn during the year amounted to 129.89 million lb. compared with 113.61 million lb. in the previous year. The mill production of cotton piecegoods increased in yardage from 75.88 to 76.89 million yards and in weight from 20.41 to 20.85 million lb. The production of higher count yarns, viz., 40s and above increased from 20.15 to 26.93 million lb. Exports of cotton piecegoods from the Presidency advanced during the year from 22.16 million yards valued at Rs. 83.51 lakhs to 30.09 million yards valued at Rs. 112.54 lakhs. The textile industry during the greater part of the year passed through a quiet period, the depression in the cloth market in the last quarter of the previous year continuing throughout the first quarter of the period under review, and prices remaining at a low level with slack demand. There was a slight improvement in the second quarter and during the latter half of the year owing to reduced imports of Japanese goods, prices for cloth advanced and many of the mills were booked well ahead at considerably improved rates. The year was a fair one for the spinning mills. The first nine months of the year were rather featureless with periods of demand followed by slack spells and mounting stocks and narrow fluctuations in prices, but there was a marked change during the last three months which was one of rising prices in all commodities, including cotton. The spinning mills increased their yarn

rates in consonance with the rise in cotton values, and dealers in all markets started to book ahead in anticipation of further advances in yarn rates, clearances were good, and at the end of the period under review, yarn prices were standing at their highest level of the year.

41. *Hosiery*.—There were seven organized factories coming under the Indian Factories Act working. The production during the year declined from 1,215,021 to 1,117,527 lb. The factories experienced a fair year's trading, the products of the West Coast establishments meeting with an increased demand.

42. *Madras handkerchiefs and lungis*.—Exports of Madras handkerchiefs increased in value from Rs. 29.66 lakhs to Rs. 44.76 lakhs. During the first nine months of the year, prices remained more or less stable and steady business was done for all markets. From January prices rose and were considerably higher at the end of the period under review than at any time during the year. Exports of lungis and sarees also increased in value from Rs. 48.14 lakhs to Rs. 61.26 lakhs. Prices remained fairly steady during the first nine months and advanced during the last three months of the year.

43. *Jute mills*.—There were four jute mills in existence, i.e., at Nellimarla, Chitivalsa, Ellore and Guntur, although not all of them appear to have worked during the year. The number of looms and spindles in the mills was 971 and 22,640 respectively as against 966 and 22,384 in the previous year. At the commencement of the year, demand from local consuming centres showed a tendency to fall away, and it was evident that stocks held in the markets were above normal. Later in the year, demand gradually increased and by the end of the period under review stocks of gunnies had been substantially reduced, both in the consuming centres and at the mills. In the latter part of the year, extensive strikes in the mills at Calcutta took place and as a result prices for finished goods advanced rapidly.

44. *Tanning industry—General*.—Exports of tanned hides advanced from 13,592 tons valued at Rs. 221.46 lakhs to 17,318 tons valued at Rs. 307.13 lakhs, and of tanned skins from 5,904 tons valued at Rs. 275.09 lakhs to 6,996 tons valued at Rs. 336.07 lakhs. The total quantity of tanned hides and skins exported thus increased by 4,818 tons or by about 25 per cent, and the value by Rs. 146.65 lakhs or by about 30 per cent. Almost the entire quantity of tanned hides and tanned goat skins, and by far the greater portion of the tanned sheep skins exported, went as usual to the United Kingdom, shipments to that country comprising, cow hides 14,437 tons valued at Rs. 249.02 lakhs, buff hides 975 tons valued at Rs. 16.26 lakhs, buff calf skins 534 tons valued at Rs. 11.31 lakhs, cow calf skins 963 tons valued at Rs. 22.70 lakhs, tanned goat skins 3,352 tons

valued at Rs. 164.84 lakhs, tanned sheep skins 2,750 tons valued at Rs. 133.78 lakhs, and other skins 66 tons valued at Rs. 3.19 lakhs. The year under review was a satisfactory one for tanners and exporters of tanned hides and skins, as a result of improved purchasing power in the United Kingdom, and as regards the former, of a weak raw hide market owing to smaller purchases by Continental countries. A feature of the tanned leather trade during the year was the strong demand for the inferior qualities of hides.

45. *Tanned cow hides*.—The market was steady at the commencement of the period under review when the price of prime Bangalores 8/8½ lb. was 13½ d. There was a sharp drop in price in May due to artificial causes and heavy bear selling, but the market firmed up as soon as bear operators stepped in to cover their commitments. The market rose to 14½ d. in August and declined slowly to about 13¾ d. in November. Steady conditions ruled throughout November and December, and in January prices advanced to about 14½ d. whilst in February a further advance of a penny was seen. It would appear that owing to new methods of finishing, United Kingdom buyers can now dispose of much larger quantities of East India kips than was ever anticipated a few years back.

46. *Tanned goat skins*.—The year under review was marked by a steady demand at rising prices in spite of the adverse conditions prevailing on the Continent. There was little change in prices in March, April and May, and the market was rather irregular in the two following months, prime tannages in goat being slightly dearer with fair and good middle class descriptions available at 2 d. per lb. cheaper. There was a reaction in August owing to the further restriction in German credits, but trade expanded again in September and October when there was a general recovery in prices which in response to good all round demand advanced in some cases up to 4 d. per lb. over August prices. There was a good demand throughout the remainder of the year and in January, February and March prices showed a distinct upward tendency and arrivals were soon cleared.

47. *Tanned sheep skins*.—There was a steady demand for tanned sheep skins throughout the year although prices tended to fluctuate rather more than those of goat skins. The market was steady in March, April and May and there was little change in prices, although the better class Madras tannages were slightly cheaper. In June and July both prime and middle class descriptions were dearer on average. In August, prices weakened, but there was a keen demand in September and October when a general recovery in prices was witnessed, especially in the case of such skins as are suitable for the clothing and gloving trades, and in some instances substantial increases were recorded. Subsequently there was a

reaction from the high levels established in September and October, but in February and March, prices again showed a distinct upward tendency and all stocks were readily absorbed.

48. *Tanned cow calf skins.*—The market for these skins ruled firm throughout the year. Prime cow calf, average $1\frac{1}{2}/1\frac{3}{4}$ lb. selection $20 \times 40 \times 40$, which were quoted at 24 d. to $24\frac{1}{2}$ d. in March 1936, advanced in April to 26 d. and during May, June and July were steady round about 27 d. There was a slight rise in price to about 29 d. in October, and prices remained steady at this level until the end of February. In March there was a further increase of about $1\frac{1}{2}$ d. There was a steady demand throughout the year for tanned buffalo calf skins, the general trend of prices following that of cow calf.

49. *Tanned buffalo hides.*—There was a steady trade in this class of leather throughout the year at practically unchanged prices, the price of 12/13 lb. prime buffs varying from $8\frac{1}{2}$ to 9 d. from March until November. Subsequently prices advanced fractionally until about the middle of February when America entered the market and forced prices up to about 10 d. per lb. in March.

50. *General.*—A small but steady trade has been developed in pickled hides with the United Kingdom and there is an indication that a trade may be built up in pickled skins also. Exports of finished leather, especially to the United Kingdom and the countries of the British Empire, continued to expand and the prices paid were on the whole remunerative to tanners.

51. *Sugar.*—The area planted with sugarcane up to 25th December 1936 has been estimated at 121,530 acres, as compared with 118,520 acres estimated for the corresponding period of the previous year, representing an increase of 2.5 per cent. The final area of the previous year was 121,066 acres and the estimate for that year fell short of the final area by 2.1 per cent. The yield has been estimated at 338,790 tons of jaggery as against 328,770 tons of jaggery estimated in January 1936, an increase of three per cent. The final estimate for 1935-36 was 348,760 tons. Imports of sugar from overseas declined from 39,314 tons valued at Rs. 33.49 lakhs to 773 tons valued at Rs. 0.87 lakh. Coastwise imports of sugar amounted to 19,428 tons valued at Rs. 42.06 lakhs. The quantity of sugarcane crushed in the Presidency during the year increased as all the local factories were working for the whole or part of the season. The production of the cane and palmyra factories in the Presidency in 1936-37 may be estimated at approximately 33,000 tons against an estimated consumption of a little over 100,000 tons. The estimated production of sugar in South India, including the Indian States, is about half the estimated consumption. It will be seen, therefore, that there is still considerable scope for the development of the sugar industry in the Madras Presidency provided that a reasonable level of prices can be maintained. Sugar selling prices were adversely affected during the

year by competition from North India and prices dropped very considerably. On 1st April 1936 selling prices of sugar in Madras were from Rs. 245 to Rs. 258-12-0 per ton, whilst on the 31st March 1937, the corresponding figures were from Rs. 196-4-0 to Rs. 210 per ton. The drop in prices was due to over-production of sugar in North India which resulted in keen competition on the part of factories to sell their production at almost any sacrifice. The rate of excise duty was increased on the 28th February 1937, from Rs. 26-4-0 to Rs. 40 per ton, but selling prices have not increased to this extent and the consumer is, therefore, bearing little or no part of the additional duty. The position of the palmyra sugar industry in relation to the excise duty again came under review and formed the subject of a report to Government during the year. It seems only too evident that the palmyra sugar industry could not bear the burden of an excise duty and in the interests of the rural employment which the palmyra tapping industry provides, it is very necessary that the palmyra sugar industry should continue to be exempted from excise duty if widespread distress amongst the tapper communities is to be avoided, especially in view of the marked fall in sugar prices which in itself is rendering increasingly difficult the position of this struggling industry.

52. There were 13 cane and palmyra sugar factories at work in the Presidency during the year. The progress of the new factories which have been set up during the last few years was very disappointing, and except in the case of the Bobbili factory, the recovery of sugar was very low. The factory of the Vuyyuru Co-operative Industrial and Credit Society, Limited, Vuyyuru, which has a crushing capacity of 850 tons of sugarcane per day, worked only for 79 days. The restricted period of crushing was due to the shortage of cane, the factory crushing only 30,923 tons of cane from which 2,401 tons of sugar were obtained, representing a recovery of 7.7 per cent. The low recovery was attributable partly to the damage sustained by the cane in a cyclone and the result of the season's working was a loss. The factory of the India Sugars and Refineries, Limited, Hospet, worked for 87 days and crushed 40,679 tons of cane from which 3,519 tons of sugar were produced, the percentage of sugar recovery on cane being 8.651. The factory worked at a loss. The most successful of the new factories was again the Sree Rama Sugar Mills, Limited, Bobbili, which worked for 126 days and crushed 19,038 tons of cane from which 2,062 tons of sugar were obtained, the percentage of sugar recovery on cane being 10.82. Information as to the financial results of the year's work is not available. The Coimbatore Lakshmi Sugar Mills, Limited, Podanur, worked for 93 days and crushed 3,706 tons of cane from which 295 tons of sugar were manufactured, giving a yield of 7.91 per cent of sugar on cane. The factory worked at a loss. The Sree Ramakrishna Sugar Mills, Limited, Kirlampudi, crushed 9,842 tons of cane from which 758

tons of sugar were secured, the percentage of extraction being 7.7. The factory did not cover its interest and depreciation charges. The factory of the Etikoppaka Co-operative Industrial and Credit Society, Limited, Etikoppaka, crushed 5,610 tons of cane from which 452 tons of sugar were obtained, the yield of sugar on cane working out to 8.05 per cent. The factory worked at a loss. Detailed information is not available in regard to the working of the Vizagapatam Sugars and Refinery, Limited, Thummapala, although it worked at a loss. The new factory of the Madras Sugars, Limited, crushed 2,834 tons of cane from which 182 tons of sugar were obtained, giving a recovery of sugar of only 6.42 per cent. The factory of the Kalyanpur Sugar Mills, Limited, also commenced crushing during the year under review and worked for 87 days during which it crushed about 2,678 tons of cane from which 162 tons of sugar were obtained, the percentage of sugar recovery on cane being 6.058. The factory worked at a loss. Two new sugar companies were formed during the year, the Southern India Sugar Company, Limited, for the purpose of setting up a 150/250 ton sugar factory in the Karur area, and the Srimati Sugar Mills, Limited, Lalgudi, for the establishment of a 250 ton sugar factory in the Lalgudi area of the Trichinopoly district which appears to be admirably suited for sugar cane cultivation. The department was closely associated with the investigation of the Lalgudi project. Owing to the fall in sugar prices, however, it is now very difficult to raise capital for new sugar factories and the development of the two factories mentioned has been delayed on this account. Several questions were taken up with the Madras and Southern Mahratta Railway Company, Limited, on behalf of the Vuyyuru Co-operative Industrial and Credit Society, Limited. A reduction of freight rates on the transport of sugar cane to Bezvada from certain places was secured. In view of the fact that it is necessary to crush sugarcane as soon as possible after it is cut, as otherwise crushing becomes uneconomic, the railway authorities were requested to issue special instructions for trucks loaded with sugarcane to be despatched by the next available goods train, and they agreed to arrange for special quick transit to Bezvada. The attention of the railway authorities was also drawn to the fact that it was very necessary for loading facilities to be provided throughout the day and night at Bezvada during the months of January, February and part of March, and they undertook to do what was possible.

53. *Oil-seeds—Groundnuts.*—The area and yield of groundnut have been estimated at 3,426,500 acres and 1,652,200 tons of unshelled nuts as against 2,480,500 acres and 1,201,860 tons in the previous year, an increase of 38 and 37.5 per cent respectively. Exports of groundnuts to foreign countries advanced from 332,230 tons valued at Rs. 538.89 lakhs to 638,577 tons valued at Rs. 1,060.52 lakhs. Of the quantity exported, France took 123,303 tons valued at Rs. 205.38 lakhs, the Netherlands 89,791 tons valued

at Rs. 148.67 lakhs, Egypt (for orders) 62,048 tons valued at Rs. 106.35 lakhs, the United Kingdom 65,308 tons valued at Rs. 103.86 lakhs, and Germany 53,384 tons valued at Rs. 97.27 lakhs. The improvement in the demand from foreign countries and in the price level of groundnuts during the year was attributable, in addition to the general improvement in economic activity, to a shortage of olive oil supplies from Spain due to the civil war, the limitation of whale catching by the Norwegian Government, and the reduced production of lard and cotton oil in the United States of America resulting from the failure of the maize crop and the restricted cotton crop of the last two years. The opening price during the period under review was £12-13-9 per ton f.o.b. and though the price dropped to £11-13-9 per ton in the month of May, it recovered by the end of June and closed at about £13-5-0. The market for groundnuts during the ensuing months was firm and prices were forced up to £14-10-0 per ton f.o.b. this representing the highest level attained since the year 1932. Dealers then seized the opportunity to dispose of most of their stocks in view of the excellent prospects for the new crop. European countries appeared to have covered their requirements and withdrew temporarily from the market with the result that prices sagged to £12-5-0 per ton at one period. The lack of demand continued until November and prices declined to £11-12-6 per ton f.o.b. Subsequently the optimism prevailing in commodity markets generally resulted in heavy buying and shipments of groundnuts and rates steadily increased to £13-7-6 during the month of December. A reaction set in at the beginning of 1937 following the weakness of copra and other commodities and prices fell away to £11-15-0, only to recover again at the end of March and close steady at about £13-7-6 per ton f.o.b. At the close of the year under review it was estimated that 85 per cent of the total crop had been sold to exporters, and in view of the more remunerative rates obtained by ryots and dealers practically throughout the year, it was expected that an increased area would be sown with groundnuts for the next season.

54. *Castor.*—The area sown with castor up to the 25th November 1936 has been estimated at 240,100 acres against 247,700 acres estimated for the corresponding period of the previous year, representing a decrease of 3.1 per cent. The yield has been estimated at 23,600 tons as against 24,300 tons estimated for the corresponding period of the preceding year. Exports of castor seed by sea to foreign countries advanced from 18,385 tons valued at Rs. 27.09 lakhs to 23,525 tons valued at Rs. 33.77 lakhs. The United Kingdom took 17,119 tons valued at Rs. 24.27 lakhs, and France 2,367 tons valued at Rs. 3.39 lakhs. Prices of castor seed improved during the year.

55. *Oil milling.*—Prices of coconut oil and copra advanced steadily during the year under the influence of improved world markets, and for the first time in many years, the price of coconut

oil rose above Rs. 100 per candy. Imports of copra into the Madras Presidency advanced from 7,044 tons valued at Rs. 11.57 lakhs to 14,855 tons valued at Rs. 27.49 lakhs. Of this quantity, Ceylon accounted for as much as 13,085 tons valued at Rs. 24.68 lakhs. Imports of coconut oil increased from 567,198 gallons valued at Rs. 6.97 lakhs to 695,367 gallons valued at Rs. 8.74 lakhs, Ceylon supplying 502,780 gallons valued at Rs. 6.35 lakhs and the Strait Settlements the balance. Exports of groundnut cake increased from 38,745 tons valued at Rs. 24.28 lakhs to 61,550 tons valued at Rs. 42.59 lakhs, the United Kingdom taking about 50 per cent of the quantity exported. Reference was made in the last year's report to the fact that a large oil mill for pressing groundnut had been started in Madras by a company with world-wide connexions. It was the intention of the company to run the mill for 24 hours continuously, but they have been permitted to operate the mill only for 17 hours per day, with the result that operations are said to be unprofitable. Nevertheless, an export trade in groundnut oil from Madras has been developed with Rangoon, Kuala Lumpur, and Singapore. The average prices obtainable for groundnut oil in Madras during the year fluctuated between Rs. 68 and Rs. 73 per 500 lb. ex-mill, commencing at Rs. 68 in April 1936 and closing at Rs. 72 in March 1937. The average price for groundnut cake varied from Rs. 52 per ton to Rs. 75 per ton ex-mill; opening at Rs. 58 in April 1936, and closing at Rs. 65 in March 1937. On the whole, the oil milling industry appears to have experienced a fair year. A number of enquiries were received during the year from owners of power driven presses for information as to how the colour and flavour of the oils produced in their iron mills could be improved so as to render them equal in quality to the best grades produced in the wooden chekkus. There is a tendency amongst oil millers to clear the oil of impurities by passing it through a filter press, and enquiries were received for suitable filter presses and filter cloth. The survey of country ghannies or village chekkus was continued during the year and although details for the East and West Godavari and Vizagapatam districts are still incomplete, the information so far collected goes to show that there are 26,479 oil presses of this kind in the Presidency with an estimated capacity of 221,846 tons of different varieties of oil seeds.

56. *Soap industry.*—Imports of all classes of soap into the Madras Presidency decreased further from 540 tons valued at Rs. 7.19 lakhs to 427 tons valued at Rs. 5.25 lakhs. The value of imports of household and laundry soaps declined from Rs. 0.19 lakh to Rs. 0.13 lakh and of toilet soaps from Rs. 6.86 lakhs to Rs. 5.01 lakhs. The cottage soap makers were affected adversely by the steady increase in the price of coconut and other oils. Enquiries for crude glycerine from Europe were received by Indian soap makers during the year and as a result some soap factories are contemplating the erection of a plant for the recovery of glycerine from the soap lyes which are now more or less wasted.

57. *Cashewnuts.*—Exports of cashewnut kernels advanced from 7,673 tons valued at Rs. 96.76 lakhs to 8,799 tons valued at Rs. 99.72 lakhs. Of the quantity exported, the United States of America took 7,434 tons valued at Rs. 86.98 lakhs and the United Kingdom 582 tons valued at Rs. 6.10 lakhs. Prices fluctuated during the year between 78 s. and 90 s. per cwt. c.i.f. New York for standard wholes, and 58 s. and 72 s. for large pieces. A feature of the year's business was the good demand for broken kernels and during a considerable part of the year prices of broken kernels tended upwards, whilst prices of whole kernels moved downwards. The industry was disturbed to some extent by the prospect of considerable changes in tariffs affecting the industry, it having been reported that there was a possibility of the United States of America import duty on cashew kernels being considerably increased from the present duty of two cents per lb. The pecan producing interests of the Southern States of the United States claim that the increasing imports of cashew kernels into the United States are adversely affecting their industry, but on the other hand, the nut distributing interests in that country, contend that cashew kernels do not compete with the pecan nut and maintain that the mixing of the comparatively cheap cashew kernels with the more expensive pecan nut is in the interests of pecan producers. It remains to be seen what will be the outcome of these conflicting opinions in the United States of America.

58. *Coir.*—The total exports of coir yarn and manufactures declined from 681,288 cwt. valued at Rs. 87.01 lakhs to 545,611 cwt. valued at Rs. 70.07 lakhs. Coir yarn accounted for 474,509 cwt. valued at Rs. 46.05 lakhs, mats and mattings for 49,501 cwt. valued at Rs. 15.71 lakhs and other sorts for 21,601 cwt. valued at Rs. 8.31 lakhs. Exports of coir yarn declined by about 125,000 cwt. in quantity and by Rs. 14 lakhs in value, of mats and mattings by 6,000 cwt. in quantity and by Rs. 2 lakhs in value and of other sorts by nearly 5,000 cwt. in quantity and by Rs. 1 lakh in value. Indian and Burmese purchases of coir yarn were abnormally heavy during the year. Bepore yarn declined from Rs. 39 per candy in April to Rs. 36 in June-July, after which it rose to Rs. 42-8-0 in September-October. Subsequently, there were minor fluctuations and the price went up to Rs. 45 in March 1937. Quilandy yarn fell from Rs. 42-8-0 in April to Rs. 40-8-0/41-8-0 in June to August. Subsequently it rose sharply to Rs. 46-8-0 in October-November and after a slight recession became stabilized at Rs. 50 in January-March. Prices of fine unsoaked Calicut yarn fell from Rs. 29 in April to Rs. 21-8-0 in June. There was a subsequent recovery in July to Rs. 24/25 which lasted up to the end of December-January when there was a sharp rise to Rs. 30, but March ended with a weaker market at Rs. 29. Prices of the varieties of coir yarn exported from Cochin advanced during the year to the highest level recorded since 1929, the average increase being in the vicinity of 25 per cent.

59. *Manures*.—Imports of manures (excluding oil cake) decreased slightly in value from Rs. 37.27 lakhs to Rs. 36.25 lakhs. The steady improvement in fertilizer sales to ryots experienced during the last few years continued and throughout Southern India, cultivators are, in increasing numbers, applying fertilizers to irrigated crops, such as, paddy, ragi, sugarcane, tobacco, chillies, etc. There was a marked improvement in the demand for fertilizers from paddy cultivators, and also some increase in the consumption of fertilizers for the Nilgiris potato crop. Although tea prices improved a little, sales of fertilizers to tea plantations underwent little change owing to the continuance of crop and export restrictions. The improvement in the price of rubber stimulated the demand for fertilizers for this crop. On the other hand, coffee planters experienced the worst year in two decades and low price and bad seasonal conditions combined to reduce still further the consumption of fertilizers for this crop. The total quantity of fish guano prepared on the Malabar Coast may be estimated at about 2,000 tons, and though there were some exports to Ceylon, the major portion was consumed locally.

60. *Chemicals*.—Imports under the head "Chemicals and chemical preparations" declined from Rs. 42.15 lakhs to Rs. 38.89 lakhs. Imports of dyeing and tanning substances advanced in value from Rs. 44.35 lakhs to Rs. 51.23 lakhs, of which barks for tanning (wattle bark), accounted for Rs. 19.15 lakhs. The consumption of heavy chemicals by most industries showed steady progress. The consumption of dyes continued to increase, although it is difficult to gauge the improvement on account of the speculative buying which was experienced during the later part of the year. There was a slight improvement in demand for locally manufactured chemicals, but although competition from the Continent of Europe was less active, imports from Japan had a very adverse effect on prices in the local market.

61. *Match industry*.—The production within the Presidency and arrivals from outside, chiefly from Burma, fell by 6,000 cases of 50 gross each as compared with the previous year, representing a decrease in supply of nine per cent, of which six per cent may be attributed to a reduction in the arrivals from Burma and three per cent to a reduction in production within the Presidency. Prices recovered somewhat towards the end of the year, not owing to a shortage of supply as this, in spite of the reduction of nine per cent, was still in excess of the demand, but as a result of the increased prices charged for chemicals. Manufacturers therefore were not in a position to benefit by the higher rates as the increased rates only covered the higher manufacturing costs.

62. *Pepper*.—Exports of pepper to foreign countries declined further from 24,939 cwt. valued at Rs. 7.07 lakhs to 23,326 cwt. valued at Rs. 5.64 lakhs. The 1936-37 Tellicherry crop was estimated at 5,125 tons with a carry over in December of 3,250 tons. The

normal production of Tellicherry pepper in one season is estimated at 10,000 tons, so that the crop was a short one. Prices fluctuated during the year advancing in May and subsequently falling away from August to November. In the middle of November there was a sharp rise to Rs. 22 per cwt. and after a further sharp advance in January to Rs. 26, the price reacted again to Rs. 20-8-0/Rs. 22 in March. Malabar pepper has suffered in the world's markets from the very heavy crops of Lampong pepper which have been produced during recent years, and which have also affected the price of pepper in India.

63. *Tea*.—Exports of tea declined from 50.37 million lb. valued at Rs. 441.62 lakhs in 1935-36 to 45.96 million lb. valued at Rs. 406.54 lakhs in the year under review. The United Kingdom took 42.88 million lb. valued at Rs. 383.77 lakhs and Ceylon 2.58 million lb. valued at Rs. 17.79 lakhs. The year under review was the fourth year of the five years' scheme for the regulation of exports which terminates on the 31st March 1938, though negotiations for a continuance of the scheme for a further period of five years are in progress. Stocks of tea in the United Kingdom continued to decline and the statistical position of the industry underwent a considerable improvement. The year saw a further increase in the average price of South Indian teas in the London market, the price on the 31st March 1937 being 1 s. 3.81 d. per lb. as compared with 1 s. 2 d. per lb. on the same date in the previous year. The voluntary agreement for the restriction of production was agreed to by the necessary majority of the industry and the present scheme continues until 31st March 1938.

64. *Coffee*.—Exports of coffee declined from 213,654 cwt., valued at Rs. 101.23 lakhs to 205,842 cwt. valued at Rs. 82.02 lakhs. Of the quantity exported, France took 86,745 cwt. valued at Rs. 30.91 lakhs, Norway, 33,962 cwt. valued at Rs. 12.76 lakhs, the United Kingdom 29,977 cwt. valued at Rs. 15.89 lakhs, and Belgium, 19,997 cwt. valued at Rs. 8.09 lakhs. For the 1936-37 crop, the price of plantation assortment opened at Rs. 30 per cwt., and rose steadily by the end of March to Rs. 42 per cwt. ex-bags, Mangalore. Prices were largely controlled by local demand and at the high levels reached, there were no buyers for export. The 1936-37 Native coffee market opened at Rs. 140 per candy and rose steadily until the end of March up to Rs. 190 per candy ex-bags, Mangalore. The price of coffee from the Southern districts, i.e., Nilgiris, Shevaroy, Anamalais, Nelliampathies, Palnis and Kannan Devan Hills, advanced during the year from Rs. 35 to Rs. 45 per cwt. cured. The crop was a very small one. As a result of losses on the 1935-36 crop, estate expenditure has in many cases been reduced considerably and there has been a tendency to abandon the less productive areas. In the case of good estates, cultivation has been maintained and there does not appear to have been any very considerable falling off in spraying and manuring.

65. *Rubber*.—Exports of rubber raw declined from 17.96 million lb. valued at Rs. 56.68 lakhs in 1935-36 to 14.65 million lb. valued at Rs. 52.58 lakhs in the year under review. Of the quantity exported, the United Kingdom took 4.57 million lb., valued at Rs. 15.57 lakhs, Ceylon 3.90 million lb., valued at Rs. 16.13 lakhs, United States of America 2.17 million lb., valued at Rs. 7.78 lakhs and Czecho Slovakia 1.57 million lb., valued at Rs. 5.17 lakhs. The calendar year 1936 was the third year of the international rubber regulation scheme. The average permissible exportable percentage for the year was 62½ per cent or a total exportable allowance for India of 7,812 tons, plus the carry forward of 476 tons making a total exportable allowance of 8,288 tons. World absorption of crude rubber during the year attained a record figure of 1,011,395 tons. Absorption of rubber in India for 1936 amounted to 5,715 tons as against 3,188 tons in 1935. Consequent upon the sustained demand for rubber and the steady decline in world stocks, the average price in London for the year 1936 advanced from 6 d. per lb. in the previous year to 7½ d. per lb. The average sale price obtained during the year was high enough to enable producers to earn a good profit.

66. *Miscellaneous*.—Exports of sandalwood oil increased from 3,273 gallons valued at Rs. 2.83 lakhs to 6,410 gallons valued at Rs. 5.02 lakhs. Exports of lemon grass oil decreased from 98,877 gallons valued at Rs. 12.60 lakhs to 87,213 gallons valued at Rs. 7.18 lakhs. Owing to a large crop of lemon grass and spasmodic demand, prices followed an erratic course, and at the end of the year the market was stagnant with literally no buyers. Prices of ginger advanced considerably, rising to 80 s. per cwt. after having fallen at the beginning of the season to 35 sh. The total quantity of fish oil prepared on the Malabar Coast may be estimated at 500 tons, and the price of fish oil during the season varied from Rs. 100 to Rs. 140 per ton. The Malabar tile industry underwent some improvement during the year and there was a slight revival in demand from abroad, though this has not been reflected in the financial results of the factories as prices remained very low. The industry in South Kanara remained in a depressed condition owing to over-production and price cutting on the part of factories. There was a slight improvement in the timber trade on the West Coast. A heavy demand was experienced from France for rosewood, and high prices were realized for logs of large girth. There was a good demand for Malabar teak for special size sleepers for the railways. The demand for edge tools and cutlery manufactured on the West Coast is reported to have shown an improvement during the year, although the lack of suitable steel in India and the high cost of imported steel is an obstacle in the way of the development of the industry. The slate manufacturing industry continued to develop. The major portion of the wooden frames required for the industry is supplied from Calicut, but a company in Hyderabad has now commenced the manufacture of slate frames

for supply to the Markapur slate manufacturers, and as it is nearer to Markapur, it has an advantage. The slates manufactured at Markapur and other places are finding an increasing sale in the Presidency owing to their cheapness and the quality of the slates has considerably improved. Reference was made in last year's report to the fact that the Indian Steel Rolling Mills, Limited, Negapatam, had commenced the rolling of steel sections in January 1936. After a successful trial period of about four months, the mills commenced to produce steel sections on a commercial scale in June, and by the end of the calendar year, had attained their anticipated output. The company, after creating a marketing organization in the Madras Presidency, extended their selling operations to Bombay and Karachi. The company increased its capital during the year and proposes to install an additional rod mill cooling bed and rotary shear in order to manufacture a wider range of sections. Included in the development programme of the mill is the settling up of a smelting furnace which, in addition to rendering the rolling mill self-sufficient, would utilize much of the steel scrap which is now exported to foreign countries. Although there was some improvement in the prices of aluminium hollowware during the year owing to more co-operation between manufacturers, the average selling rate for aluminium manufactures was still too low to enable manufacturers to work profitably. The turnover improved owing to an increase in the cost of brass goods, although there was a temporary set-back before the end of the year owing to an increase in the price of aluminium sheets and circles which automatically raised the price of the finished goods. Provided, however, that the cost of brass goods is raised in proportion to the recent increase in the price of brass sheets and circles, a definite improvement in the consumption of aluminium goods should be seen, and the industry appears to be on a sounder basis than for several years past. Imports of cement declined from 21,020 tons in 1935-36 to 19,935 tons during the year under review. The general condition of the cement industry during the year was satisfactory, demand and prices being maintained. The industry is however said to have been affected by the recent increases in railway freight and the rise in the price of coal.

KERALA SOAP INSTITUTE, CALICUT.

67. *Staff*.—M.R.Ry. A. K. Menon, B.A., continued as Superintendent of the Institute throughout the year. Mr. Menon attended the second meeting of the Oils and Soap Committee of the Industrial Research Bureau at Simla in June 1936.

68. *Production and accounts*.—The competition from private factories—both large and small—continued to be severe, whilst small factories, such as the Kerala Soap Institute, continued to be handicapped by the gift coupon system introduced by some of the larger manufacturers to which reference was made in the report of the previous year. In common with other soap manufacturers,

the Institute had to face notable rises in the prices of its raw materials which increased not inconsiderably the cost of production. Nevertheless, it is gratifying to be able to record that the total output of the Institute increased from 163 tons in the previous year to 196 tons in the year under review. There was also, despite the difficult conditions referred to, a satisfactory improvement in the sales which showed a further increase in value from Rs. 1,66,530 to Rs. 1,89,822. The result of the year's working, subject to audit, was a net profit of Rs. 22,113 as compared with Rs. 15,214 in the previous year.

69. *Agencies.*—The volume of business introduced by the agents and stockists during the period under review showed an increase over that of the previous year in spite of the severe competition encountered in all lines. The turnover of the Madras agent increased and he introduced the largest volume of business, whilst the turnover of the West Coast, Bezwada, Madura, Colombo, Bombay and Alleppey agents also increased. On the other hand, the turnover of the Karachi, Hyderabad and Kumbakonam agents showed a falling off. The largest proportionate increase in turnover was shown by M.R.Ry. S. Ch. Mallapparaju, the agent at Bezwada, who continued to evince a great deal of personal interest in the development of sales. During the year, new agents were appointed for the Anantapur, Bellary and Salem districts, the Cochin State and Burma. The jurisdiction of the Central Provinces agent was extended so as to include Berar. The sales of Kerala Family soap which was introduced two years ago, showed a further improvement and it has replaced some of the competing brands. A new soap known as "Deepa" was introduced during the year and is used largely in hospitals for cleaning floors, wood and utensils. A cheap laundry flake was made for the Government General Hospital, Madras. A fair business was done in a special medicated soap, the manufacture of which had been taken up in the previous year.

70. *Visits to important markets.*—During the year the Superintendent was on tour for 110 days and visited Madras, Tirupati, Chittoor, Madanapalle, Mangalore, Kasaragod, Udipi, Cannanore, Tellicherry, Trichur, Ernakulam, Cochin, Alleppey, Quilon, Trivandrum, Nagercoil, Kotarakara, Alwaye, Bangalore, Mysore, Gudalore, Malappuram, Nilambur, Bezwada, Coonoor, Cuddapah, Jammalamadugu, Adoni, Bellary, Hospet, Arkonam, Tinnevely, Madura, Kodaikanal, Trichinopoly, Tanjore, Kumbakonam, Godavari, Cocanada, Vizagapatam, Bombay and Simla. In the course of his tours, the Superintendent besides investigating the local market conditions in regard to soap and interviewing the several agents and stockists with a view to stimulating sales, inspected a number of private soap factories and advised the owners how to improve their methods and products.

71. *Training of apprentices.*—Fourteen students were under training in the Institute during the year, eleven in the ordinary course, two in the short course, and one in the advanced course. The Institute maintains touch with many of its ex-students who are often permitted to visit and work in the Institute for short periods in order to bring their knowledge up to date or to resolve the practical difficulties which they have met with in the course of their factory work. Of the students who passed out of the Institute at the beginning of the year on the completion of their training, seven are known to be engaged in the soap industry.

72. *Laboratory.*—In order to maintain the uniformly high standard of the Institute's products, a careful examination of the various raw materials and of the finished products in different stages of manufacture is necessary, and during the year 560 analyses were carried out in the laboratory, of which 420 were of raw materials, such as, oils, rosin, tallow, essential oils, etc., and soaps in different stages of manufacture, and 140 were of soaps and allied products received from agents and stockists, ex-students and members of the public or collected by the Superintendent of the Institute in the course of his tours. Certificates of analyses were issued in respect of four products on payment of the prescribed fees. The students continued to receive training in the laboratory in the practical testing of oils and soaps for 12 hours a week.

73. *New experimental work.*—(i) *Experiments on cosmetics.*—In G.O. Ms. No. 1548, Development, dated 9th September 1936, Government approved my proposals for the preparation on a laboratory scale of toilet creams, brilliantines and other toilet articles, and sanctioned a non-recurring expenditure of Rs. 500 for the purpose. The experiments were initiated in October and by the close of the year, 62 representative samples of vanishing creams, cold creams, brilliantines, hair oils, tooth creams and powders had been examined. With the data acquired by the analytical study of these specimens, and as a result of the experimental work carried out, suitable recipes were evolved, and a few batches of vanishing creams, hair oils and brilliantines were prepared and retained for observation. The experiments will be continued and further cosmetic products prepared on an experimental scale.

(ii) *Experimental manufacture of insecticides, fungicides and sprayers.*—The Institute had been manufacturing only fish oil, and rosin preparations for use as insecticides, but a number of other insecticides and fungicides containing chemical compounds are used extensively in India by cultivators, horticulturists and orchardists for destroying the various insects attacking the vegetable kingdom. Preparations of a purely vegetable nature, derived from plants and roots, also possess considerable insecticidal properties and could advantageously be introduced for destroying various pests. There is also scope for the evolution of suitable special insecticides to meet local needs, such as, those of the arecanut, coconut and other plants. In short, it appeared desirable that the Institute

should undertake a systematic study of the whole problem with a view to bringing out new cheap and efficient insecticides for the agriculturists of the Presidency. Proposals were therefore submitted to Government for the conduct of experiments at the Institute in the manufacture of insecticides, fungicides and sprayers, and these were sanctioned by Government in G.O. Ms. No. 2256, Development, dated 11th December 1936. The necessary plant and apparatus comprising disintegrators, digesters, mixers, evaporators and percolators were purchased before the end of the year and the experimental work will shortly be started.

(iii) *Essential oils*.—In view of the resources of the Presidency in essential oil bearing materials, and the desirability of exploiting them to the fullest advantage, proposals were submitted to Government for the conduct of experiments in the manufacture of essential oils at the Institute, and these were sanctioned in G.O. Ms. No. 2258, Development, dated 11th December 1936. The object of the scheme of experimental work is to develop an essential oil industry and incidentally to provide at a reasonable cost, some of the essential oils required by the soap manufacturers of the Presidency. The prospects of developing the essential oil industry on the West Coast appear to be promising owing to its favourable situation in regard to the supply of raw materials. A new building was constructed during the year for carrying on this new experimental work, and as soon as the necessary apparatus and stills, which have been ordered, are received, the distillation of some of the locally available essential oil yielding materials, such as, vetivert, ajowan, patchouli, zeodary, cinamon and cloves will be taken up.

74. *Miscellaneous research and experimental work*.—The following is a brief summary of the research and experimental work carried out in the Institute during the year :—

(a) Four tons of coconut oil and one ton each of groundnut and gingelly oils were treated in the oil refining plant, whilst the optimum conditions for the separation of soap stock and for the bleaching and deodorizing of gingelly oil were studied on a factory scale. Small scale experiments on the refining and deodorizing of castor oil were undertaken in the laboratory. The electric filling and vacuum sealing plants were installed about the end of the year, and it is expected that by the use of these machines, the slight defects noticed in the refined oils packed in tins and stored for long periods will be overcome. The refined oils continued to be supplied to hospitals and to some private institutions.

(b) *Linalæ seed*.—A study of this seed was conducted during the year. The outer husk of the seed yields on steam distillation an essential oil about 14 per cent of the weight of the husk. The inner seed is of a greyish black colour and

1,000 seeds weigh about 37 grams. The seeds have an outer black coat which forms 64 per cent of its weight, and the kernel has an oil content of 50 per cent. The yield of oil calculated on the weight of the seed is 18 per cent. The oil which resembles cotton seed oil in its physical and chemical properties, is of a light yellow colour and bland odour. The cultivation and production of this seed is likely to become of economic importance in view of the useful essential oil obtained from the husk and the fixed oil from the kernel.

(c) *Ghee*.—Ghee prepared and stored according to the country methods turns rancid fairly rapidly. Experiments were conducted on the preparation of ghee, under varying conditions of heating of milk, souring of curd, separation of butter and temperature of clarification in order to determine the optimum conditions necessary for producing good yield and good aroma, for improving the keeping qualities, and the best means of preserving ghee in tins and other containers, without losing its flavour and other good qualities. A firm of ghee merchants at Jammalamadugu were informed of the progress of these experiments and instructed how to improve their products.

(d) The preparation of substances, such as, sterols, saponins and herbal extracts used in the preparation of hair oils and cosmetics was also studied, the important ones being (i) the seeds of acacia concinna and lansomia alba, (ii) the stems and leaves of hydrocotylasiatica, henna and bringaraj, and (iii) cholesterol, ergosterol, yeast, etc.

(e) The experiments initiated with a view to devising a small scale mechanical roaster for roasting the cashewnuts prior to shelling were completed. The object of these experiments was to evolve a roaster which would produce kernels of good quality and enable most of the shell oil to be recovered whilst at the same time abating the fume nuisance. A leaflet embodying the results of the experiments has been drawn up and will shortly be published for the information of the public.

(f) *Ginger*.—The scraped unbleached ginger of Jamaica is superior to the Indian ginger and in view of the inferiority of the West Coast product from the botanic standpoint, it was suggested that the question of introducing improved methods of ginger cultivation in one of the Government Agricultural farms on the West Coast be taken up and that this should precede the conduct of further experiments in regard to curing. Accordingly, arrangements were made by the Agricultural Department for ginger varieties, such as, Jamaica and Trinidad, to be grown at the Taliparamba

and Pattambi Agricultural Research Stations, and experiments in regard to the curing of these varieties were sanctioned and initiated at the Institute shortly before the close of the year. If the results of the curing tests indicate that improvement in the methods of cultivation is necessary, attention will be given to this question by the Agricultural Department.

75. *General.*—The Institute participated in 13 exhibitions, as well as in the Health and Baby Week celebrations at 48 centres and secured a number of awards for the excellence of its products. A large number of enquiries in regard to the manufacture of soap, equipment of soap factories and the various problems connected with the oil and allied industries were received and answered during the year, of which considerations of space will admit only of reference to a few. Advice was given as to how to utilize profitably the milling residues and to improve the quality and yield of oil in country chekkus and small scale oil mills. An enquirer was supplied with a formula for medicated soap. Information in regard to the distillation of lemon grass oil, a suitable method of extracting the essence of jasmine, extraction of oil from chaulmoogra, nahor and linseed, manufacture of til oil, and the extraction of oil from castor seed by the cold process was supplied to various inquirers. An estimate for a soap factory was supplied during the year to a person in Bezwada, whilst advice was given in regard to the starting of a candle factory. The Institute was honoured during the year by a visit from His Excellency the Governor and Lady Marjorie Erskine. The Institute was visited by an even larger number of people than usual, including several special parties of teachers and students from educational institutions.

TEXTILE SECTION.

76. *Staff.*—Mr. D. M. Amalsad continued as Assistant Director of Industries (Textiles) and Principal of the Government Textile Institute, Madras. In G.O. No. 2108, Development, dated 23rd November 1936, the designation of Mr. Amalsad was changed to Principal, Government Textile Institute. Mr. Amalsad continued to serve during the year as a member of the Board of Directors and of the Executive Committee of the Madras Handloom Weavers' Provincial Co-operative Society, Limited.

77. *Grant-in-aid by the Government of India for the development of the handloom weaving industry.*—The administration and control of the grants-in-aid to the handloom industry provided by the Government of India, and of the Madras Handloom Weavers' Provincial Co-operative Society in relation to it, continued to vest in the Registrar of Co-operative Societies, but as the department is still closely associated with the work of the Provincial Society, this section of the report would hardly be complete without a reference to the work of the society during the year. An amount of Rs. 68,800 was provided by the Government of India as subsidy

to the Provincial Society for the year 1936-37 and this amount together with the unspent balance of the subsidy for the previous years, namely, Rs. 67,544 was available for expenditure during the year. A sum of Rs. 48,312 was drawn by the society from Government and Rs. 40,139 was expended. An amount of Rs. 30,000 from the subsidy was sanctioned by the Government as an advance to the society for purposes of working capital and this will have to be returned before March 1940. At the end of the year, there were on the rolls of the Provincial Society 57 weavers' primary co-operative societies, 58 individual members and eight firms and the paid-up share capital amounted to Rs. 18,200. During the year, 42 primary societies were given subsidies to meet their establishment charges and for financing the purchase of appliances, and the total amount of the subsidies so provided was Rs. 15,414. Guarantees to the extent of Rs. 50,000 were given by the Provincial Society to the primary weavers' societies and yarn to the value of Rs. 33,000 was supplied to them by the mills. The problem of the handloom weaving industry is not so much one of overproduction as it is the need for better distribution and increased consumption and with a view to popularizing and finding an outlet for the cloth produced by the primary weavers' societies an emporium in Madras and sales depots at Calicut, Madura, Bellary and Bezwada were opened during the year. Goods to the value of Rs. 23,000 were supplied to these depots by the primary production societies on consignment basis and the sale proceeds realized amounted to Rs. 13,000. A range of hand-woven cloths produced by the weavers' societies was displayed at several exhibitions. In addition to disposing of their cloths through the emporium and sales depots, the primary societies also marketed them through the salesmen appointed from the subsidy given to the societies and through the supervisors of production societies. The total sales effected by the primary societies during the year amounted to more than Rs. 1 lakh. Steps were taken during the year to introduce new designs for hand-woven cloths, whilst with a view to reducing the manufacturing costs of handloom weavers, five societies were asked to set up small units of power-driven machinery for preparing and distributing ready-made warps for the looms. The machines were not, however, installed before the end of the period under review. Arrangements were in progress at the close of the year to obtain a power-driven finishing and calendaring plant as it is hoped that better finishing will stimulate the demand for hand-woven fabrics.

78. *Government Textile Institute.*—The Institute continued to provide the usual courses of instruction, namely, the supervisor course, the artisan course, and the cotton power spinning course for the benefit of mill apprentices, in addition to special courses in certain subjects, such as, knitting. The pupil teacher's course, which was sanctioned by Government during the previous year, was introduced during the period under review and three

passed supervisor pupils were admitted for training. On the 31st March 1937, there were 106 students undergoing training in the Institute, 52 in the supervisor course, 26 in the artisan course, 2 in a special course (knitting) and 2 in the pupil-teacher course, whilst 24 mill apprentices underwent training in the power spinning course. The candidates admitted into the Institute came from 22 different districts in the Presidency. It has been arranged with Messrs. Binny and Co. (Madras), Limited, that from this year onwards, the textile apprentices for the Buckingham and Carnatic Mills will be selected from candidates who have passed the supervisor course of the Textile Institute. In view of the present-day requirements and in order to provide for specialization in the different power processes and to avoid overcrowding of subjects, proposals were submitted to Government during the year for the revision of the supervisor course and these were approved in G.O. No. 721, Development, dated 29th March 1937 and will be brought into effect from the school year, 1937-38. Under the reorganization, the supervisor course will be split into two, and consist of (i) supervising course (weaving), extending a period of two years and providing instruction in power, cotton and wool spinning power preparatory processes, power loom weaving and silk throwing and (ii) supervisor course (dyeing), extending over a period of one year and providing training in power dyeing and printing, bleaching and finishing.

79. *Aided textile schools.*—The aided schools devoted to textiles continued to be under the supervision of the Principal, Government Textile Institute. Of the textile schools, 27 are needle craft schools, 22 of these being separate needle craft schools, three schools combining needle craft and weaving and two schools combining needle craft and carpentry. The other 14 are weaving schools, of which three are intended solely for girls. Most of the schools are now working to a proper syllabus and qualified instructors are engaged as far as possible, whilst in the majority of cases the equipment prescribed in the syllabus approved by the department has been provided. An amount of Rs. 19,375 was sanctioned as maintenance grant to the textile schools, and a sum of Rs. 1,428 was distributed as capitation grant. Equipment grants were given to the extent of Rs. 1,157-14-0.

80. *Technical assistance.*—Technical assistance continued to be rendered to the basket-makers of Pulicat, and the dyeing of fast shades with modern synthetic dyes was demonstrated to them. As stated in last year's report, a small amount was provided by the authorities of the Victoria Technical Institute for the engagement of a woman dyer to learn the process and to teach it to the women workers of Pulicat, and for the purchase, and stocking with the village munsif, Pulicat, of the dye stuffs for sale to the local basket-makers at cost price. M. Mohammad Sahib of Muthialpet, Madras, and a party from Christianagaram, Tinnevely district, who are the agents for the supply of palmyra leaf baskets to the Victoria

Technical Institute, Madras, were also afforded practical training at the Institute in dyeing fast shades on palmyra leaves with synthetic dyes. Some sisters from the Immaculate Conception Convent Industrial School, Coimbatore, were given practical training in weaving at the Institute for about three weeks to enable them to exercise effective supervision over the textile section of their school. The son of a silk master-weaver of Tanjore was given a course of practical instruction in stencil cutting and ærograph printing on silk cloth. Information in regard to the process of glazing yarn for gold thread manufacture was supplied to a commercial firm. The assistance of the weaving foreman of the Textile Institute was availed of by a number of industrial schools in Madras, e.g., Children's Aid Society, Kilpauk, Vidhyodayam School, Nungambakkam, St. Anne's Industrial School, Rayapuram, and C.S.M. Girls' School, Georgetown, for the erection or setting right of looms.

81. *Assistance to jails.*—As in previous years, visits to the textile manufacturing sections of the jails and the provision of technical advice in regard to their working formed part of the work of the Textile branch and the Central Jails at Coimbatore, Bellary and Cannanore were visited by the Principal during the year. The Principal continued to serve on the Cotton Purchase Committee for the Central Jail, Coimbatore, and assisted in the selection and purchase of cotton for the jail. On the advice of the Principal, a new slasher sizing machine was installed at the Central Jail, Coimbatore, and the old machine was transferred to the Textile Institute where it will be utilized for instructional and demonstrational purposes. As the Red Shaw Lister wool carding machine installed at the Central Jail, Bellary, could not be worked with South Indian wool, assistance was rendered in securing special parts, fitting them up, and starting the plant.

82. *Short reeling of cotton yarn.*—The question of the short reeling of cotton yarn supplied by some of the Indian mills to the handloom weavers has been engaging the attention of the department for some years past. It was the practice a few years ago for some of the mills to apply false trade descriptions to bundles of cotton yarn sold to the handloom weavers, the hank or skein being short reeled and yarn of a coarser count substituted than that marked on the bundle, although the correct weight of 10 lb. to the bundle was maintained. A press communiqué was issued in 1934 drawing attention to the penalties attending the perpetration of such practice as laid down in sections 6 and 7 of the Merchandise Marks' Act of 1889. The practice of substituting a coarser count than that marked on the bundle appears to have ceased, but it was brought to notice during the year that cotton yarn manufactured in India is sometimes made up in a form rather different from the standard bundles of five to ten pounds owing apparently to an imperfect appreciation of the provisions of the Merchandise

Marks Manual. Some of the mills appear to have taken the margin of five per cent shortage allowed to mean that any hank can be reeled up to 798 yards, but this is not what is contemplated. The requirement is that the *average* length of the entire number of hanks in a bundle should be 840 yards, and that the average count of the whole of the yarn should not be greater or less than the described count. A margin of five per cent deviation in *individual* hanks is allowed, but the average length of hank in the bundle should be only 840 yards. It is not therefore open to a mill to so adjust its reeling machines so to short reel *all* the hanks within the margin of five per cent. The extreme cases of short reeling under the Act which have recently been in vogue are represented by bundles of yarn labelled as 26s/40s, 28s/42s and other odd counts. As in the new method of make-up of yarn bundles, weavers might be deceived by the sale to them of yarn in knots, Government issued a second press communiqué in regard to the matter in November. Copies of the communiqué were sent to spinning mills and the principal yarn merchants in the Presidency.

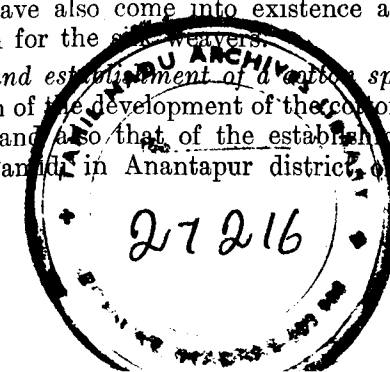
83. *Relief to the weavers in the cyclone affected area in the Guntur district.*—As the result of a severe cyclone, the loom equipment of the weavers at Chirala and neighbouring places in the Guntur district suffered considerable damage and the Principal, Government Textile Institute, was deputed to enquire into the nature and extent of the damage sustained by the weavers and to submit proposals for the establishment of three relief depots in the area for supplying and repairing looms and accessories so as to enable the weavers to make a fresh start. The Collector of Guntur then arranged for the supply of new looms and for the repair of partly damaged looms and accessories. As the Revenue Divisional Officer, who was in charge of the cyclone relief operations, was transferred, the Textile Inspector was deputed to take charge of the relief work pertaining to the weavers for a time, and in this connexion he visited Iperupalem, Jandrapet, and Vetapalam and drew up a list of weavers to whom slays should be supplied and of those whose slays and accessories needed to be repaired.

84. *Experiments in gold thread manufacture.*—In G.O. Ms. No. 514, Development, dated 28th March 1936, Government approved my proposals for conducting at the Government Textile Institute, experiments in the manufacture of gold thread and an expenditure of Rs. 1,950 was sanctioned for the purpose. The processes of wire flattening, twisting the flattened wire on silk thread, and gilding the product were experimented upon during the year and demonstrated with silver wire obtained from Surat. The wire flattening and twisting machines were obtained from Surat, whilst the gilding machine was constructed at the Textile Institute. It was found that the flattening machine as received from the suppliers was able to produce lametta of medium quality, i.e., of about 1,500 to 1,750 yards per ounce, but was not suited to the production of lametta of fine quality measuring 2,000 yards

per ounce which is in demand by the weavers. Certain adaptations to the machine had therefore to be carried out and as a result of the modifications effected, it was possible to improve the fineness of the lametta and to turn out a wire approximating in quality to 2,000 yards per ounce. The twisting machine received from Surat had also to be adapted with a view to regulating the twisting of the lametta on silk. The gilding machine constructed in the Institute, which embodies some important features of the Surat and of the standard French types of machine, was provided with an electric heater for heating the gilding solution, an arrangement for regulating the immersion of silver thread in the gold bath during gilding, and a device for altering the speed of silver thread passing through the bath. The machine was also fitted with a graduated glass can to contain gold solution for replenishing the bath. Shortly before the close of the year Government sanctioned the employment of a skilled supervisor from Surat, but it was not found possible to induce any one to come down to Madras. The services of a workman from a defunct gold thread concern in the Presidency was, however, secured and he has been able to produce on the machines installed at the Institute, silver thread of higher quality, i.e., of 2,300 yards per ounce.

85. *Linked organization.*—It has long been realized that standardization of the quality of cloths produced on handlooms and the much needed reduction in the cost of production would be greatly facilitated by linking the weavers with organizations which would enable the preparatory processes to be carried out more speedily and economically by power driven machinery. It may be urged that just as the spinning mill forms a link in the organization of the handloom weaving industry so also should warp preparation organizations be set up wherever the hand-conducted preparatory process is found to be uneconomical. Two power driven winding, warping, and sizing plants were set up during the year in Madura. In one case, grey yarn of counts 20s, 40s and 60s are sized and the length of the warp ranges from 500 to 2,000 yards. It has been found that handloom weavers (working in factories and for master weavers) using machine sized warps are able to produce 16 yards of 54" width of 20s yarn per day of nine hours' working as against a production of 10 yards with street-sized warps. Further, it has been found that a weaver is able to produce 10 yards of cloth 54" width of 40s counts as against a production of six yards of 40s counts with street-sized warps. The progress of these two warp preparation concerns will be watched with interest. It may be mentioned that two silk throwing concerns, one at Peddapuram and the other at Kollegal, have also come into existence and are performing a similar function for the silk weavers.

86. *Cotton mill industry and establishment of a cotton spinning mill at Pamidi.*—The question of the development of the cotton spinning and weaving industry, and also that of the establishment of a cotton spinning mill at Pamidi in Anantapur district, of some



other centre in the Ceded districts, were considered by a sub-committee of the Provincial Economic Council during the year. The sub-committee considered it desirable that the spinning of, and weaving with, finer counts of yarn should be encouraged, but doubted whether this would be possible unless the present import duties were increased to an extent which would reduce the volume of Japanese and Chinese imports. The object of the proposal to establish a cotton spinning mill at Pamidi was two-fold: (i) to provide additional employment for the people of an area often visited by famine, and (ii) to provide a load for the Government thermal station which is under investigation. It was also considered that it would redound to the benefit of the considerable number of handloom weavers in the Ceded districts if they could be supplied with their requirements of yarn from a local mill. The Sub-Committee wished the question to be further examined and a financial statement for a cotton spinning mill in the Ceded districts with 24,000 spindles working two shifts and spinning average 20s, the production of which would be about 50 bales of 400 lb. each per day, was drawn up, and submitted to Government shortly after the close of the year.

87. *Grant-in-aid by the Government of India for the development of the small scale woollen industries of the Presidency.*—A reference has been made elsewhere in this report to the decision of the Government of India to provide a grant for the benefit of the cottage and small scale woollen industries. It was proposed that the assistance to the woollen industries in this Presidency should take the form of (i) organization of a number of Co-operative Societies in the cumbly weaving areas and the establishment of a sales depot for marketing their products, (ii) organization of a central Co-operative Society of weavers engaged in the pile carpet industry at Ellore, (a) for the dyeing of wool in a small central dyehouse, and (b) for the marketing of finished products, and (iii) employment of a designer to assist in the development of both sections of the woollen industry. The Woollen Industry Committee, which examined the department proposals, did not recommend any provision from the Government of India grant for expenditure on a central dyehouse, but agreed to provide working capital to all the Co-operative Societies proposed to be organized. The Government of India accepted the proposals as modified by the Woollen Industry Committee shortly before the close of the year and sanctioned a grant of Rs. 21,714. The Local Government sanctioned from provincial funds the expenditure likely to be incurred on the working of the dyehouse in 1937-38. Steps have been taken since the close of the year to organize the Co-operative Societies provided for under the subvention scheme.

SERICULTURE.

88. Mr. K. T. Achaya continued as Sericultural Expert throughout the year. The headquarters of the Sericultural Expert was changed from Madras to Kollegal with effect from 23rd May 1936

in order to enable effective supervision to be exercised over the production, testing and distribution of disease-free seed under the Government of India subvention scheme. The Sericultural Expert toured for 147 days during the year and visited all the important sericulture centres in the Presidency.

89. *Government of India grant.*—The period under review was the first full year that the scheme for the production and distribution of disease-free 'cellular' seed, and for the conduct of research on silk worm diseases, sanctioned by the Government of India, was in operation. The full staff of three farm managers, one clerk, nine moth testers, seven operatives on moth testing work, two mulberry cultivators, and one pathology assistant for research, were appointed during the year. The work performed under the scheme by the peripatetic rearing party and at the various farms will be discussed in separate paragraphs. Each of the moth testers was apportioned certain rearing villages with his headquarters in a central village and expected to test two lakhs of layings. The six existing and experienced moth testers, whose pay is met from provincial revenues, completed their quota, but the nine new moth testers who were new to village life and conditions have not so far been able to cope with the large amount of testing work, and between them they tested 1,354,868 layings. With the experience gained during the year under review, it is anticipated that the full quota of 30 lakhs of layings will be completed in 1937-38. It is gratifying to note that some of the rearing villages such as Chilaukvadi, Kajjihund, Kempapalayam, and Surapuram, are using only disease-free layings and as a result they are harvesting their crops satisfactorily. It is hoped that adequate testing work and persistent efforts on the part of the moth testers of the peripatetic rearing party will gradually persuade all the rearers of the Kollegal taluk to resort only to disease-free layings in the not distant future. The amount provided for 1936-37 under the Government of India subvention scheme was Rs. 14,700, out of which Rs. 13,137 was expended by the end of the year.

90. *Aided grainages and aided silk farms.*—One aided grainage was started in the important rearing village of Chilaukvadi in November 1935, after giving the graineur a full course of training under one of the departmental moth testers. This graineur, who has been provided with a microscope and accessories, tested one and a half lakhs of layings during the year. A second grainage was started in October of the year under review in the village of Honderbalu and the graineur has so far tested 80,000 layings. A third grainage was started at the end of the year in the rearing village of Kamakarai. The aided silk farm at Vadakangulam, Tinnevely district, was recognized when the subvention scheme was inaugurated in November 1935, but owing to transport difficulties, no supply of disease-free layings has been made so far, though the farm has been rearing good seed cocoons and utilizing them for reeling. Unfortunately the transport of seed by post to Kollegal takes a

long time and the seed gets damaged in the ill-ventilated postal bags, whilst to send it by rail, is expensive and does not pay the graineur. There are a few areas in the Kollegal taluk suitable for the production of seed cocoons, but the local rearers prefer imported Mysore seed cocoons to those produced locally. It will take time to overcome this prejudice, but the Government silk farm at Thadaguni in Kollegal taluk is tackling the problem with some degree of success and there is little doubt that, with more experience of local seed cocoons, the rearers will realize that their preference for Mysore seed cocoons is not well founded, and it will then be possible to recognize the farms of two or three good rearers in the Kollegal area and convert them into aided farms under the Government of India subvention scheme.

91. *Research on diseases of silk worms.*—The important items of research work which are being taken up under the Government of India subvention scheme comprise, the conduct of experimental rearings on the incidence of contamination, effect of ventilation, environment and other relative factors in relation to pebrine disease in the mulberry silk worms. A small plot of land adjoining the office of the Sericultural Expert at Kollegal was selected for planting the mulberry, and in addition to bush mulberry in about half an acre, 150 tree saplings from Kashmir, supplied by the Forest department, were planted in the office compound soon after the rains and the leaves from this garden were utilized for the rearing of worms from December 1936. In all the experiments pertaining to the incidence of contamination that have been undertaken, worms were reared on a small scale and the experiments repeated in order to check the preliminary results. In the first experiment launched during the year, small rearings were undertaken in order to ascertain whether it is possible to eliminate pebrine disease in the same race completely by strict selection and applying the cellular method of seed examination. The percentage of pebrine which was 20 to start with in the pure Japanese variety in the first generation gradually diminished after each generation by rearing only perfectly disease-free layings, and after the seventh generation, the lot contained a nil percentage of pebrine showing that it may be possible to eliminate the disease in a pebrinised lot by rigid selection and careful rearing after the completion of a few generations. The aim of the second experiment was to ward off the effect of contamination when pebrinised larvae are reared side by side, with perfectly healthy ones in the same well-ventilated room. The experiment showed that healthy layings are affected by disease when reared side by side with the pebrinised worms, the appearance of the disease becoming manifest after the third moult. In a third experiment which was conducted in November and December, the aim was to determine whether pebrine-free lots become infected by contamination when they are reared in a highly infected room and, if so, to what extent. The experiment showed that a healthy lot is infected when reared in a contaminated room. It had been noticed from hybridization experiments that

though the female moths used for crossing were perfectly disease-free before crossing with the foreign male, they were affected with pebrine after crossing, showing that the transmission of the disease could have been only through the male moths. Cross-bred pebrinised layings were selected and experiments were started in order to ascertain whether the disease so transmitted contaminates the ova inside the mother moth thereby causing the progeny to be diseased. Conclusive results had not been obtained by the end of the year and further experiments are in progress. It has been found that the dust produced by the fluttering of moths contains pebrine spores in diseased lots, and experiments carried out during the year go to show that (i) in a pebrinised lot the dust of the moth contains pebrine spores, (ii) spores can adhere to the egg shells when the eggs are exposed to the latter, and (iii) there is a possibility of such spores contaminating the caterpillars while hatching if the layings are unwashed with formaline. An experimental rearing was started after a practical investigation in the Government Silk Farm at Thadaguni in regard to the failure of a crop owing to the smearing of cow-dung containing developed pebrine spores passed by a cow which had been fed with silk worm litter obtained from a pebrinised batch of worms reared by a rearer in Thadaguni. It is a common practice in Kollegal to smear rearing rooms and trays with dung of cattle in order to make the trays last longer and also to some extent to serve as a disinfectant. It seems possible that a healthy lot can become contaminated by rearing in such cow-dung smeared trays since the spores of *Nosema* were found to be present in the dung of cattle fed with pebrinised litter. The experiment was in progress at the close of the year. In addition to carrying out a number of experimental rearings, the pathology assistant has gathered a good deal of information in regard to pebrine disease during the course of his study of the pebrinised larvae.

92. *Peripatetic rearing party.*—The party, which consisted of one rearer, 14 moth testers and a silk reeling demonstrator, of which nine moth testers were provided under the Government of India subvention scheme, was divided up amongst 15 important rearing villages of Kollegal taluk. The party tested 2,474,445 layings during the year as against 1,102,049 layings in the previous year. The layings tested by the departmental moth testers were in increasing demand in the sericultural villages although these layings have to compete with the Mysore seed cocoons bought from Mysore villages by local seed vendors which are sold on credit. As the demand for tested layings increased, the amount of Rs. 1,500 allotted for the purchase of seed cocoons was fully utilized. The amount realized by the sale of disease-free layings out of the purchased lot was Rs. 1,776-0-6, the operations thus yielding a profit of Rs. 276-0-6. During the year 75,000 cross breed layings were supplied as against 12,586 layings in the previous year. Most of these layings were crosses between white Chinese male moths and Mysore female moths, and since it has not been possible to secure

any more fresh hybrid seed, either from Japan or China, the Chinese breed has been kept going for the preparation of cross breed layings. A supply of ten ounces of univoltine seed was obtained from the Sericultural department of Kashmir and Jammu and reared at Coonoor and Kollegal in February and March. On account of drought conditions and unusually hot and sultry weather during the two months in Kollegal taluk, the rearing in Kollegal was a complete failure, whereas at Coonoor it was a success.

93. *Coonoor silk farm*.—The plantation was free from fungus during the year and the growth of mulberry was excellent. Four separate manurial and cultural experiments were taken up during the year and interesting results were obtained from them. The budded and grafted trees are yielding a satisfactory supply of leaves, each leaf from the tree weighing as much as six leaves of the bush variety. Year by year more budded and grafted trees will be added to the plantation. The twelve plants obtained from Calcutta have shown excellent growth after pruning and some 200 to 300 cuttings have been taken out of these and planted successfully. As stated already, a portion of the foreign univoltine seed received from Kashmir was successfully reared in this farm and 10,000 cocoons were sent to Kollegal for cross breeding. The Chinese variety of worms has also done well and the cocoons have been used for crossing purposes in Kollegal. Twenty-five layings of hybrid seed received in Kollegal from the Coonoor farm have yielded successful results.

94. *Palmaner silk farm*.—The five acres of land taken on lease was brought under mulberry cultivation in May, June and July and the leaves were ready for picking in November. In the meantime purchased leaves were used for rearing worms. Twenty-three batches of worms were reared during the year with 1,753 disease-free layings which yielded 563 lb. 7 oz. of cocoons, or 286,218 in number, the weight of litter being 7,957 lb. Thirty-three thousand nine hundred and seventy disease-free layings were supplied and distributed to Kollegal rearers and the remainder was converted into silk. The disease-free layings have given good results.

95. *Hosur silk farm*.—The 13 acres of land yielded 67,861 lb. of leaves or 5,220 lb. of leaves per acre as against 2,860 lb. of mulberry produced in the Thadaguni silk farm, Kollegal taluk. The plantation was irrigated from tank water whenever necessary, and the rains were also favourable. In order to carry on intensive rearing and at regular intervals, the plantation was divided into plots of two and a half acres and pruned according to requirements. Twelve persons and institutions in different parts of the Presidency were supplied with mulberry cuttings from this farm. Thirty-two rearings were conducted during the year with 11,125 pure Mysore layings, and a few ounces of Chinese hybrid layings, yielding in all 2,967 lb. of cocoons. The total quantity of leaves used for rearing was 67,861 lb. Owing to an unfortunate outbreak of

pebrine disease only 81,938 disease-free layings were produced during the year, and these were distributed to the Kollegal rearers with satisfactory results. The pebrinised cocoons were converted into silk.

96. *Thadaguni silk farm*.—Until September, there were only 5.32 acres under mulberry. Subsequently four more acres were leased. A number of manurial experiments were carried out with sunnhemp, compose, horsegram, green manure and farm-yard manure. The farm supplied mulberry cuttings to a number of ryots for planting mulberry in new areas. Sixteen rearings were conducted with 4,808 disease-free layings, yielding 1,790 lb. of cocoons, the highest yield being 56½ lb. for 100 cross breed layings and 47½ lb. for 100 Mysore disease-free layings. The number of disease-free layings supplied from this farm was 105,404. This number would have been considerably more, but for an unfortunate outbreak of pebrine during October and November. This farm demonstrates to the adjoining rearers the advantage of rational methods of rearing and it has an advantage over the other farms, in that, leaves can be purchased for rearings when leaves from the farm garden are not available.

97. *District sericulture work*.—The five demonstrators of sericulture were stationed at (i) Vadakangulam, (ii) Kudligi, (iii) Pudupettai, (iv) Bajpe and (v) Kovur, and demonstrated the rearing of mulberry. There appears to be a good prospect of developing sericulture around Pudupettai, Berikai and Palmaner, and another village where mulberry has grown well and the rearing of worms has been successfully conducted is Salaivanamthottam near Vadakangulam. In the South Kanara district, mulberry has been successfully planted at Bajpe, Yekkar, Arkula and Gunpur, one successful rearing with 25 layings having been conducted at Bajpe village. Many places where mulberry was planted in the Kovur area did not yield very promising results, but the Agricultural demonstrator, Kovur, who planted two cents of mulberry in his compound has been more successful with his plantation as well as in the rearing of worms.

98. *Silk reeling*.—The reeling of an improved quality of silk has been successfully demonstrated by the silk reeling demonstrator on the improved type of Japanese foot reeling machine with four reels. Apart from steam filatures, this combination of reeling and re-reeling machine is the most suitable for cottage reelers. The Rev. Buchanan of Kamakarai village continued to work his four machines and he is quite satisfied with the outturn and quality of silk and the prices realized for it. As the cottage reelers have already invested some capital in installing the old type of machine, they are reluctant to invest more capital on the improved foot reeling machine though they realize that by the use of the latter they could reel better quality silk.

99. *Silk worm guts*.—A number of tests were carried out by the pathology assistant with a view to ascertaining (i) the length of time required for soaking the worms in the solution, and the percentage of acid and other ingredients required to obtain a sufficiently long gut, and (ii) the most suitable bleaching and hardening agents to give a good finish to the guts. It has been found that out of good Mysore or cross breed worms, about 50 per cent of the guts measure 14" and that from the best hybrid worms an average of 15" is obtained. With the active assistance and guidance of the department the work on gut has been developed to some extent by a member of the planting community who has sent a consignment of one lakh of guts to England. If a favourable report is received upon this consignment, the way will be opened up for the development of a new industry either departmentally or by private enterprise.

100. *Seasonal conditions*.—The conditions in the Kollegal taluk were again unsatisfactory for the flush of mulberry leaves as the rainfall was only 23.46 inches as against 25.52 inches in the previous year and a normal rainfall of 40 inches. Even this scanty rainfall was very unevenly distributed and the mulberry crop was adversely affected. In the western portion of the taluk, where sericulture is carried on intensively, the rainfall was less than 15 inches. A number of ryots who were desirous of raising new mulberry plantations had to give up the attempt for want of timely rains. There was a welcome rise in the price of silk from January onwards, the price of first, second and third quality silks being Rs. 145, Rs. 120 and Rs. 100 per 1,000 tolas respectively against Rs. 110, Rs. 90 and Rs. 75 in April 1936. The advance in the price was due to the rise in the price of Japanese raw silk which has practically taken the place of Chinese silk in South Indian markets. The price of cocoons at the end of the year was from Rs. 10 to Rs. 11 per maund and if this price is maintained, the area under mulberry cultivation should increase during 1937-38 provided the rainfall is good and timely.

101. *Ericulture*.—In the absence of an outlet for eri cocoons, little development in ericulture has been possible. Assistance was rendered to the Rev. Popley who desired to introduce eri worm rearing and eri cocoon spinning in the London Mission Community Training School at Erode. One of the Hosur farm hands was deputed to undertake the practical rearing of worms with eri eggs supplied from Coonoor Silk Farm and this was successfully accomplished. One of the boys from the Mission was also given instruction in spinning by the sericultural demonstrator stationed at Pudukottai. The Coonoor farm successfully raised several crops of eri worms from the leaves of the castor tree which grows well in the Nilgiris. This farm supplied eri cocoons to the Gokulam Harijan Colony at Madras and eggs to several district centres. When the Mysore silk waste spinning plant is set up, arrangements will be made for trials to be carried out with eri cocoons, and should

these prove successful, the Coonoor farm will be an ideal centre for producing the necessary seed for district centres as it has been found that only healthy moths emerge from the cocoons on this farm owing to the cold. The consignment of eri spun silk obtained from Messrs. Lister & Co., Limited, Bradford, to which reference was made in last year's report, was woven into cloth on power looms and disposed of at a satisfactory price.

ENGINEERING SECTION.

102. *General*.—The work of the Engineering section consists mainly of the conduct of boring and pumping operations, the systematic inspection and maintenance, under the compounding fee system, of pumping installations and industrial machinery already at work, the purchase, erection and maintenance of pumping plants suitable for irrigation, as well as of industrial machinery, and the investigation of applications for loans under the Land Improvements Loans Act.

103. *Staff*.—Mr. L. S. Pinto held the appointment of Industrial Engineer up to the 2nd September when he proceeded on leave and resumed charge on the 1st October 1936. From the 24th November until the end of the year he acted as Deputy Director of Industries and during this period, M.R.Ry. Rao Sahib C. S. Ramachandra Ayyar acted as Industrial Engineer in his stead. The Industrial Engineer was assisted by four Assistant Industrial Engineers, one in charge of the Industrial Engineering Workshop, Madras, and one each in charge of the Bezwada, Tanjore and Coimbatore divisions, the Industrial Engineer holding direct charge of the Madras subdivision, comprising the districts of Madras and Chingleput.

104. *Boring*.—The main work of the Engineering section is boring for water. The department maintained 14 Armstrong power drills, one air compressor drill and 106 hand-boring sets. 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 1936.	Applications received during 1936-37.	Applications disposed of during the year.	Applications pending on 1st April 1937.	Total number of feet bored.	Number of borings put down.	Number of successful borings.
					FEET.		
Bezwada	88	300	300	88	31,959	444	361
Coimbatore	56	109	130	35	11,735	279	202
Tanjore	28	97	94	31	15,808	181	147
Madras	6	70	72	4	6,867	130	65
Total	178	576	596	158	66,369	1,034	775

It will be seen that the total number of borings put down and the depth bored during the year were 1,034 and 66,369 feet respectively, as against 995 and 60,737 feet respectively, in the previous year. The increase was due mainly to the more efficient control of the working of the sets. The demand for borings for drinking water supply is increasing and the district boards of West and East Tanjore and the panchayat boards of Nidamangalam, Poovanur, Koradacheri, Malattur, amongst other authorities, have interested themselves in putting down borings for drinking water supply in various villages. The amount expended by the public on the boring operations conducted during the year is estimated at Rs. 1,92,420. Of the 775 successful borings put down, those for agricultural purposes numbered 543. Assuming that the average yield per borehole is 50 gallons per minute, the total quantity of underground water made available for irrigation purposes from these boreholes works out to 27,150 gallons per minute, and assuming further that only a third of the supply tapped will be utilized, the borings put down during the year for agricultural purposes may be expected to maintain 2,413 acres of land under irrigation. The deepest of the borings completed during the year by a hand-boring set was 415 feet, and by a power drill was 725 feet.

105. *Artesian borings.*—At the close of the previous year, the department had to its credit 97 artesian boreholes. During the year under review, 29 artesian springs were tapped. Of these, 24 were in the East and West Godavari districts, discharging fresh water at rates varying from 4 to 300 gallons per minute at ground level, the height of discharge ranging from ground level to 4 feet above ground level, four were in the Tanjore division, discharging fresh water at rates varying from $\frac{3}{4}$ to 1,000 gallons per minute, the height of discharge ranging from $\frac{1}{2}$ foot to $9\frac{1}{2}$ feet above ground level, and one at the Union Mission Tuberculosis Sanatorium, Madanapalle. Special mention may be made of the following artesian springs: The spring tapped at Dwarapudi, East Godavari district, for the Panchayat Board discharges fresh water at 300 gallons per minute at ground level and 250 gallons per minute at 4 feet above ground level, providing drinking water supply for about 4,000 inhabitants of the village. The President of the Panchayat Board proposes to invest a further Rs. 5,000 for providing a water supply to the whole village by erecting over-head tanks and laying down pipe connexions. An artesian current of 1,000 gallons capacity was tapped by a 6" boring put down for the Aziznagar Settlement, South Arcot district, to a depth of 172 feet below ground level, the height of discharge being $7\frac{1}{2}$ feet above ground level. Another artesian current of 800 gallons capacity was tapped in a 6" boring put down, for Mr. Kesava Pillai of Kavanur, Vridhachalam taluk, South Arcot district, to a depth of 407 feet below ground level, the height of discharge being $9\frac{1}{2}$ feet above ground level.

106. *Sub-artesian borings.*—A ground-boring was put down for the Panchayat Board at Biccavole, East Godavari district, to a depth of 360 feet below ground level and a good sub-artesian spring which was tapped at 324 feet below ground level rose to 6 feet below ground level the supply being 4 gallons per minute at 10 feet below ground level. The President of the Panchayat Board proposes to construct a well of 10 feet diameter and 25 feet deep and utilize the water for supply to the villagers. A number of borings were conducted during the year in Bhadrachalam taluk of the East Godavari Agency for drinking and agricultural purposes, and owing to the popularity and success of these borings, the demand for borings from the public and Government departments has increased. Two borings were put down in existing wells in which there was no water at Venkataramagudem, West Godavari district, and springs were tapped with a yield of 30 gallons per minute at 25 feet and 20 feet below ground level respectively. The owner of the land is growing garden crops and expects to realize an annual income of Rs. 1,100, as against a former return of Rs. 200 only from dry and rain-fed crops. In a boring put down at Gopannapalam, Ellore taluk, West Godavari district, to a depth of 90 feet below ground level in a well of 42 feet deep, a strong sub-artesian spring was tapped at 90 feet yielding a supply of 60 gallons per minute at 32 feet below ground level. As a result of the boring, the cultivator is deriving an additional annual income of Rs. 400. In another boring put down at Garlamadugu, West Godavari district to a depth of 210 feet below ground level in a well of 58 feet deep, a strong sub-artesian spring was tapped, yielding a supply of 50 gallons per minute at 25 feet below ground level, and as a result of the boring, the cultivator is growing tobacco and deriving an additional income of Rs. 800. In an existing well at Venkatakrishnapuram, West Godavari district, three borings were put down and fresh water springs were tapped in each of them, the discharge in each case being 80 gallons per minute at 35 feet below ground level, an additional annual income of about Rs. 850 accruing to the owner of the land. In a boring put down at Gosala, Kistna district, in a well 22 feet deep, a strong sub-artesian current was tapped yielding a supply of 250 gallons per minute. In another boring conducted at Vanukur, Kistna district, in a well 31 feet deep, a spring was met with, which supplies at the rate of 250 gallons per minute. In a boring put down in an existing well in the Government Sugarcane Station, Coimbatore, a strong sub-artesian spring was tapped, yielding a supply of 45 gallons per minute.

107. *Work of the power drills.*—Considerations of space will admit only of a very brief reference to the work of the power drills. One of the drills was engaged at Vizagapatam throughout the year in putting down two 10" borings, one for the Vizagapatam Municipality and the other for the Mental Hospital, to a depth of 166 and 170 feet respectively. In the boring put down

for the municipality, fresh water was tapped at 120 feet below ground level and rose to 25 feet, supplying 30 gallons per minute at 40 feet below ground level. The boring for the Mental Hospital was in progress at the close of the year. A drill was engaged at Vizagpatam for the King George Hospital and a ground-boring was put down to a depth of 170 feet. A good sub-artesian current was tapped and a steady supply of 75 gallons per minute at 57 feet 8 inches below ground level was forthcoming. Another drill was engaged at Waltair in putting down two 6" borings, one for the Andhra University and the other for the Zamindar of Chemudu to a depth of 197 and 141 feet respectively. A fourth boring was put down for the Loyal Mills, Limited, Koilpatti, to a depth of 350 feet below ground level. Fresh water springs were tapped and the borehole yields 1,080 gallons per hour at 95 feet below ground level, thus solving satisfactorily the water-supply problem of the mills. An 8" ground-boring which was put down in the compound of the Collector's bungalow, Trichinopoly, had been carried down to a depth of 112 feet by the close of the year, and has since been satisfactorily completed. The power drill which was engaged by the Union Mission Tuberculosis Sanatorium, Arogyavaram near Madanapalle Road, completed the second boring. The boring was carried down to a depth of 301 feet below ground level and powerful springs were tapped at 91 feet below ground level, with a discharge of 30 gallons per minute. The authorities of the Sanatorium propose to utilize this supply of water by raising it to a high level tank and laying down pipe connexions. The drill was then lent to the Electricity Department and a 6" ground-boring, 100 feet deep was put down at Bommidu, Salem district. Springs were tapped at 67 and 80 feet, and the borehole was found to yield seven gallons per minute at 95 feet below ground level. The supply was found sufficient for the use of the staff and the Electricity Department propose to install a pump on the borehole. With another power drill a ground-boring was put down to a depth of 305 feet below ground level at Adoni, Bellary district, for industrial purposes. A good spring was tapped and water rose to 25 feet below ground level, supplying 45 gallons per minute at 80 feet below ground level. The drill which was engaged at Willingdon Island, Cochin Harbour Works, during the previous year, continued the first boring which was taken to a depth of 300 feet below ground level. The water obtained from the borehole, which was sent by the Harbour authorities to the King Institute, Guindy, for bacteriological tests, was declared unfit for drinking purposes. The boring was therefore continued deeper with a view to tapping fresh springs but, at this stage, the pipes overturned. The borehole was therefore abandoned and a second boring, 10 feet away from the first bore was started and it had reached a depth of 256 feet by the close of the year.

108. *Torpedoing operations.*—There were at the beginning of the year eleven applications pending, 31 were received and 31 applications were disposed of during the year,

109. *Pumping sets.*—The department maintained 22 pumping plants for hiring out to ryots to pump water to their crops during periods of drought or for well sinking. The number of applications pending at the beginning of the year was two, 45 were received and 42 applications were disposed of during the year. Three pumping sets were employed at the Central Jail, Trichinopoly, to pump out water continuously from wells for the use of the prisoners in the jail.

110. *New investigations.*—There were, at the beginning of the year, 17 applications for information and advice on hand, 191 were received and 193 applications were disposed of during the year.

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

Division.	Pending on 1st April 1936.	Received during the year.	Disposed of during the year.	Pending on 1st April 1937.	Remarks.
Bezwada ..	8	12	13	7	Two industrial and eleven pumping plants.
Coimbatore ..	4	8	12	..	Six industrial, five pumping and one combined plants.
Tanjore ..	3	19	13	9	Nine industrial and four pumping plants.
Madras ..	2	5	7	..	Five industrial, one pumping and one combined plants.
Total ..	17	44	45	16	

The capital invested in the above plants, including the cost of buildings, amounted to Rs. 88,868. It may be of interest to record the horse-power of the largest and the smallest plants erected during the year in each division :—

Division.	Largest plant.	Smallest plant.
	B.H.P.	B.H.P.
Bezwada ..	22—24	5
Coimbatore ..	34	6
Tanjore ..	34	6½
Madras ..	41	17

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

Division.	Acreage brought under cultivation.	Probable enhanced income accruing therefrom.
		RS.
Bezwada	425	9,100
Coimbatore	..	..
Tanjore	15	750
Madras	20	500

A 6-cwt. ice plant driven by a 8-h.p. Petter engine was erected by the department during the year for Mr. Dandapani Chettiyar of Negapatam and the owner was very satisfied with the way in which the work was done.

112. *Compounding system.*—Under this system owners of private installations are entitled to have their plants inspected and overhauled three times a year on payment of a small fixed fee per annum and also at other times, if special requisitions are received for which, however, a small additional fee is charged. The number of plants compounded during the year under review was 491, as against 504 in 1935-36. The following statement shows the number of plants under maintenance in the four divisions :—

Division.	Industrial plants.	Pump- ing plants.	Com- bined plants.	Elec- trical plants.	Total.
Bezwada	53	48	1	..	102
Coimbatore	29	104	14	..	147
Tanjore	101	66	10	23	200
Madras	10	20	12	..	42
Total	193	238	37	23	491

The total capital cost of the above installations is estimated at Rs. 28,90,720. The largest and the smallest plant compounded in the divisions were as follows :—

Division.	Largest size of plant. H.P.	Smallest size of plant. H.P.	Total approximate horse-power compounded.
Bezwada	66	1	1,857
Coimbatore	56	1½	2,122
Tanjore	200	1½	4,118
Madras	42	5	625

113. *Sugarcane-crushing mills.*—The department is in possession of nine power-driven sugarcane-crushing mills, three with engines and six without engines, and these are hired out to the public for crushing their cane. There was a heavy demand during the year for the use of these mills by the sugarcane growers, and

all the departmental mills were engaged during the crushing season. The mills in the Bezwada division were hired out to seven individuals with engines attached to them. About 2,557 tons of cane were crushed and 175.4 tons of jaggery manufactured, the total amount realized therefrom being Rs. 16,417. A mill without engine was lent in the Chingleput district to three land-owners and the produce of about 25 acres of sugarcane was crushed. One set was lent to cultivators at Kattuvarpalli and Kolumum and was utilized for crushing 450 tons of cane for the manufacture of jaggery.

114. *Sugar manufacture.*—The department is in possession of two sugarcane centrifugals and demonstrations with these plants were carried out in different places. One centrifugal was hired out to Mr. N. M. Khajamiah Ravuttar of Sembattu and experiments were conducted by him with a view to determining the relative advantages of the "moss curing" and "centrifuging" processes for the small-scale manufacture of sugar.

115. *Services rendered to co-operative societies.*—The Pinto chekku of the Coimbatore Co-operative Stores and Bank, Limited, and the engine belonging to the Udipi Co-operative Agricultural and Industrial Society, Limited, Kalyanpur, were under the supervision of the department. The plants of the Kallakurchi, Sankarapuram, Rishivandan and Nangavaram Co-operative Societies in the Tanjore division continued to be under departmental supervision during the year.

116. *Services rendered to departments of Government.*—During the year under review the value of services rendered to the Agricultural, Revenue, Public Works, Jail, Forest, Educational, Medical, Fisheries, Labour, Judicial, Health, Registration and Postal departments in the various divisions, amounted to Rs. 14,815-6-4, as shown below, as against Rs. 13,868-10-8 in 1935-36 :—

Division.	Value of services rendered.
	RS. A. P.
Bezwada	6,011 0 0
Coimbatore	4,411 12 4
Tanjore	3,562 10 0
Madras	830 0 0
Total	14,815 6 4

117. *Loans for the purchase of pumping plants.*—Loans are granted only in cases where there is a reasonable prospect that by means of such loans the lands of the ryot will be improved and his income increased. No loans were granted during the year under review.

118. *Industrial Engineering Workshop*.—The total value of work orders executed in the workshop for various departments and for private persons, during the year under review, was as follows :—

Details of work done under different heads.	Amount realized.	
	1936-37.	1935-36.
	RS.	RS.
I. Pumping and boring ..	59,740	66,792
II. Inter-departmental ..	9	70
III. Other Government departments ..	663	490
IV. Private parties ..	832	1,705
Total ..	61,244	69,057

The working of the concern during the year resulted in a net loss of Rs. 2,427-2-6, against a net loss of Rs. 4,034-15-8 in the previous year. The orders of Government approving the revised standing orders for the workshop were received during the year.

INDUSTRIAL EDUCATION.

119. *Staff*.—Mr. N. M. Adyanthaya held the post of Inspector of Industrial Schools until the 19th March 1937, except from 4th to 18th January and again from 10th to 18th March 1937 when he was on leave. In G.O. Ms. No. 539, Development, dated 5th March 1937, the post was ordered to be kept in abeyance. The Inspector of Industrial Schools continued to act as Secretary to the Board of Visitors to the Government Industrial School, Madura, as a member of the Board of Examiners of the Government Fisheries Training Institute, Calicut, and as an official visitor to eleven central jails and the Senior Certified School, Chingleput.

120. *State technical scholarships*.—Three scholars returned to India during the year on the completion of their training in the United Kingdom. Three new scholarships of the value of £216 each per annum were awarded during the year, two for training in Electrical Engineering with special reference to Broadcasting tenable for a period of two years and one for aviation tenable for a period of about fifteen months. One of the returned scholars is reported to have secured a temporary appointment as Research Chemist under Messrs. Parry & Co., Ltd. The following scholars were under training outside India at the end of the year :—

Name.	Subject of study.
(1) Mahamad M. Farokhi ..	Sugar Engineering.
(2) V. G. Sundaram ..	Electrical Engineering with special reference to Broadcasting.
(3) V. V. Lakshmana Rao ..	Electrical Engineering with special reference to Broadcasting.
(4) G. C. Arya ..	Aviation.
(5) B. Jagannatha Hegde ..	Glass technology.

Numbers (1) to (4) are paid from Provincial Funds, while the cost of number (5) is met from the endowment provided from the residuary funds of the estate of the late Mr. M. J. Murphy, to which reference was made in paragraph 117 of the report of the previous year.

121. *Scholarships tenable at the Victoria Jubilee Technical Institute, Bombay*.—One new scholarship of the value of Rs. 60 per mensem tenable for a period of three years was awarded during the year for the study of Textile Manufacture. At the end of the year, there were two scholars under training in the Department of Textiles at this Institute. A subsidy of Rs. 400 was paid to the Institute on behalf of the two scholars under training.

122. *Scholarships tenable at the Andhra University*.—Five new scholarships of the value of Rs. 40 each per mensem tenable for a period of three years were awarded during the year for study in the B.Sc. (Hons.) course in Technology at the Andhra University College, Waltair. Four scholars who were under training completed their course on 31st March 1937.

123. *Post-graduate scholarships tenable at the Indian Institute of Science, Bangalore*.—Three new scholarships of the value of Rs. 60 each per mensem were awarded during the year, one each for study in the departments of Physics, Organic Chemistry and Bio-Chemistry. There were twelve scholars under training in the Institute during the year as shown below :—

Electrical Technology	...	...	...	...	3
General Chemistry	...	...	...	...	1
Organic Chemistry	...	...	...	...	3
Bio-Chemistry	...	...	...	...	4
Physics	...	...	...	...	1

124. *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 1936 to pupils learning trades in various industrial schools recognized by the department. A bonus equivalent to two months' average scholarship was also granted to such of the pupils as satisfactorily completed the prescribed courses of study during the year. The object of these scholarships is to encourage deserving pupils, who

are in need of assistance, to remain long enough in an institution to acquire a sufficient working knowledge of their trade.

125. *Government School of Technology—Staff and General.*—M.R.Ry. M. V. Jagannatha Ayyangar continued to act as Principal of the school and Mr. N. S. Rajan as Senior Lecturer throughout the year. The School of Technology provides courses of instruction in mechanical engineering (five years), electrical engineering (four years), printing (five years), plumbing (two years), electrical wiring (two years), as well as courses in mechanical drawing for woodworkers, metal workers, bricklayers, masons and plumbers, each of two years' duration. The tuition in printing is organized in three courses, one for compositors and proof-readers (two years), one for machine-minders (two years) and the third an advanced diploma course of one year for those who complete the other two courses. The annual prize day was held on the 17th March, when Sir William Wright, of Messrs. Parry & Co., Ltd., presided, distributed the prizes, and delivered an address.

126. *Admissions.*—Admission to the various courses of study in the school is restricted to bona fide apprentices and workmen who are actually engaged in the trade which they wish to learn. The number of new admissions during the year was 365 as against 325 in the previous year, of which 129 were admitted to the electrical engineering course, 65 to the mechanical engineering course, 53 to the printing course, and the remainder distributed among the other courses, such as, wiring, plumbing and vernacular drawing classes. The strength of the school on the 31st March 1937 was 992 as against 1,001 in the previous year and the average number of classes held during a week was 98 as against 89 in the last session.

127. *Examinations.*—The final examinations in the various subjects were, as usual, conducted by outside examiners. The L.M.E. and L.E.E. diploma examinations were conducted by Mr. A. P. Adam, Engineer, Buckingham Mills, and Mr. W. F. Thrupp, Engineer, Madras Electric Supply Corporation, Limited, respectively. Thirty-two candidates qualified themselves for the L.E.E. and 24 for the L.M.E. Diploma. The electric wiring competency examination was conducted jointly by Messrs. P. V. Chari, Electrical Engineer, P.W.D., and C. V. Krishnaswami Chetti, Electrical Engineer, Madras Corporation. Eighty-two candidates, including 42 private candidates, appeared for the examination and 46 were awarded competency certificates. Messrs. W. H. Warren, Superintendent, Diocesan Press, Vepery, and W. E. Marsh, Superintendent, M. & S.M. Railway Press, Madras, conducted the final examinations in printing (composing, proof-reading and machine minding). Of the 39 students who appeared for these examinations, 22 were awarded certificates. The practical examinations in plumbing and vernacular drawing were conducted by Mr. V. Ganesa

Ayyar, Engineer, Madras Corporation. Of the 27 candidates who appeared for these examinations, 25 were awarded certificates. The supplementary examinations in mechanical and electrical engineering were held in October 1936 and were conducted by Messrs. A. P. Adam, Engineer, Buckingham Mills, and M. G. Ramiah, Engineer, The General Electric Company, Madras, respectively. Twenty-nine candidates were awarded the L.E.E. and six the L.M.E. Diploma out of 43 and 13 respectively that appeared for these examinations. The school continued to be the centre for the Presidency for the City and Guilds of London Institute examinations, for which 270 candidates appeared for the various technological subjects and 154 came out successful.

128. *Scholarships.*—In addition to the 12 Government scholarships tenable at the school for a period not exceeding five years, the Commissioner of Labour and Rural Uplift awarded three scholarships to students belonging to the depressed classes, whilst the Trustees of the Sri Venkateswara Hostel continued to award 10 scholarships during the year. Each of the District Boards of Guntur and West Godavari continued to award one scholarship to a candidate nominated by them. The Trustee of the Victoria Jubilee Scholarship Fund, Mangalore, and the Trust Board of the Victoria Technical Institute, Madras, continued their scholarships during the year, while a student was awarded a scholarship of Rs. 40 per mensem by the Trustees of the Sir Dorabji Tata Trust, Bombay. A few charitable institutions in the city, such as, the Muhammadan Educational Association of South India and the Kanyaka Parameswari Charities continued their grant of monthly stipends to a few deserving poor students. During the year, an endowment of the value of Rs. 13,200 was instituted by Messrs. Kamala Rangachari as a scholarship fund in memory of her husband the late Dr. S. Rangachari for the award of four scholarships of the monthly value of Rs. 10 each to poor Brahman students and the first scholarship was awarded to a student of the electrical engineering class.

129. *Equipment.*—The electrical laboratory was strengthened by the addition of an universal testing set and some meters. Books to the value of nearly Rs. 1,000 were also purchased for the library, during the year.

130. *Career of ex-students.*—The employment bureau, which was started by the Principal sometime ago with a view to assisting students to secure suitable appointments on the completion of their training, functioned fairly satisfactorily. With a view to ascertaining the number of unemployed amongst the engineering students of the school, a circular was issued during the year to all the students who had passed out during the last three years requesting them to report whether they had secured employment and, if so, what pay they were drawing. The replies received go to show that about 75 per cent of the students have obtained suitable posts,

and it is gratifying to be able to record that some of them despite their limited resources, have been able to establish small concerns of their own.

131. *Preparatory section.*—In this section, selected boys who have passed Form I are given a three years' course of general education heavily biased towards industry to prepare them to take up apprenticeships in workshops. The Madras and Southern Mahratta Railway Company, Limited, pays stipends to such of their nominees as are selected for admission and takes them into the works as trade apprentices on completion of the preparatory course. The number of new admissions to this section during the year was 62, of which 20 were stipendiary students of the M. & S.M. Railway Company, Limited. The strength of the school at the end of the year was 129 as against 113 in the previous year. Ten students satisfactorily completed the course of training during the year and were awarded certificates.

132. *Perambur branch school.*—This school which is attached to the Madras and Southern Mahratta Railway Company, Limited. Workshops at Perambur, completed another year of successful work. The number of new admissions was 31, of which 10 were admitted to the Engineering courses and the remaining to the drawing classes. The strength of the school on 31st March 1937 was 98 as against 91 in the previous year. The final year examinations were as usual conducted by the Railway officials and eleven students who came out successful were awarded certificates.

133. *Sports.*—The School of Technology participated during the year in the inter-collegiate sports and won the Wilson Cup for football, whilst it stood second in the league championship. The school won the Lalita Sastri shield for boxing, whilst in hockey, the school was runner-up in the Stocks' shield tournament.

134. *Casting and metal-working class.*—In G.O. No. 2291, Development, dated 15th December 1936, Government sanctioned the opening of a class for training in casting and simple metal-working at the School of Technology. Instruction is given in the preparation and manufacture of articles of brass and other metallic alloys using modern moulding processes. The course is of one year's duration, and instruction is provided for twelve boys. The preliminary arrangements for organizing the class were completed during the year and the class was actually started on the 1st April 1937.

135. *Madaya Industrial School.*—M.R.Ry. V. Raghava Ayyar continued as Superintendent during the year. This school which caters for the needs of the southern districts of the Presidency provides courses of training in the engineering and wood-working trades extending over a period of five years and also a course in electrical wiring which extends to two years. The latter course which has been sanctioned by Government as a temporary measure for three years was started in July 1936.

136. *Admissions and withdrawals.*—During the year, 77 candidates sought admission to the school, but only 51 actually joined. There were 14 withdrawals, due mostly to the inability of the parents of the students to maintain them. The strength of the school at the end of the year was 87 as against 73 in the previous year.

137. *Examinations.*—The annual and final examinations were, as usual, conducted by the Board of Examiners consisting of the Superintendent of the school and Mr. J. H. Lawson, Manager, Pasumalai Trades School. Of the 64 students who presented themselves for the examinations, sixty were declared to have passed. All the twelve final year students having satisfactorily completed their training in wood-work and metal-work were awarded certificates.

138. *Board of visitors.*—The Board, consisting of officials and non-officials with the Director of Industries as Chairman and the Inspector of Industrial Schools as Secretary, was reconstituted for a further period of three years from 1st April 1936.

139. *Hostel.*—The hostel attached to the school functioned satisfactorily. The present strength of the hostel is 35, of which 11 are in the vegetarian mess and 24 in the non-vegetarian mess. The messes are efficiently run and the charge per head averages between Rs. 9 and Rs. 10 per month.

140. *Financial position.*—The receipts and expenditure of the school for the year were Rs. 16,482 and Rs. 31,128 respectively. The latter figure includes an expenditure of Rs. 1,353 incurred under capital account on the provision of an electrical installation for lighting the school and hostel and the carrying out of improvements to the drainage arrangements. The net cost to Government of running the school was only Rs. 13,293 as against Rs. 13,302 in the previous year, and the amount of Rs. 17,500 which was recommended as reasonable by the Retrenchment Committee in 1932 and accepted by Government, the further reduction in expenditure being effected in spite of the additional expense of the new electrical wiring course during the year under report. The average cost of training per pupil was Rs. 153 as against Rs. 182 in the previous year.

141. *Other Government industrial schools.*—The Government Industrial Schools at Calicut and Bellary and the Government Trade School at Mangalore, which were started in 1929, are now in their eighth year of existence. They are, however, still on a temporary basis, their retention having been sanctioned up to the end of March 1938. These schools provide instruction in the engineering and wood-working trades, the duration of each course being limited to five years. No fee is levied for tuition, but deserving poor pupils are awarded scholarships by Government up to a limit of one-third of the number of pupils admitted every year to

the first year classes in each industrial school, whilst certain district boards and municipalities award a few scholarships to pupils coming from their areas. The strength of these schools at the close of the year was 59 in Bellary, 55 in Calicut and 52 in Mangalore. The annual and final examinations were conducted by the boards of examiners appointed by Government consisting of the Superintendent of each school and one professional gentleman of the locality. Six students satisfactorily completed their course of study in the Bellary school and four each in the Calicut and Mangalore institutions and all of them were awarded certificates. The boards of visitors and the selection committees constituted for each school continued to function satisfactorily and during the year they met twice in Calicut and Mangalore and once in Bellary. The Calicut school participated in the Malabar Educational Exhibition held in September 1936, and was awarded a certificate of merit for its exhibits. The equipment of the Bellary school was strengthened during the year by the addition of a milling machine and that of the Calicut school by a cupola. Government sanctioned during the year the provision of hostel accommodation for the Bellary school by converting a portion of the existing buildings to suit the purpose. The plans and estimates having been approved, the work was entrusted to the Public Works Department and arrangements have been made to open the hostel from the commencement of the next school session. The receipts and expenditure of these schools for the year were—

	Receipts.	Expenditure.		Net recurring cost.
		Recurring.	Non-recurring.	
	RS.	RS.	RS.	RS.
Calicut	10,711	17,610	1,400	6,899
Bellary	12,843	17,203	1,905	4,360
Mangalore	2,086	9,516	..	7,430
Total	25,640	44,329	3,205	18,689

The non-recurring expenditure of Rs. 3,305 represents the cost of additional equipment purchased during the year, including the erection of a foundry shed at the Calicut school. It will be seen that the net cost to Government of running these schools during the year was Rs. 18,689 as against Rs. 20,978 in the previous year and Rs. 28,504 in the year 1934-35.

142. *Aided Industrial Schools.*—The Inspector of Industrial Schools continued to supervise the non-textile schools and the Principal, Government Textile Institute, the textile schools. The C.B.M. Industrial School at Samalkot, which was under the management of the Baptist Mission for some years, was closed during the year for financial reasons. An industrial school managed by the Industrial Association, Rajahmundry, and providing instruction in general mechanics and woodwork—the courses extending over four years—was recognized by the department during the

year. By an arrangement between the Baptist Mission at Samalkot and the Rajahmundry Industrial Association all the pupils and teachers of the former institution, together with the equipment purchased for it with the aid of Government grants within the last five years, were taken over by the Rajahmundry institution, with the approval of Government. At the close of the year there were 74 recognized schools, excluding those managed by Government direct. On the 31st March 1937, there were 7,717 pupils receiving instruction in these schools (including Government institutions) as against 7,558 in the previous year. Of these, 2,748 were Indian Christians, 2,525 Non-Brahman Hindus, 794 Depressed classes, 748 Brahmans, 457 Muhammadans, 116 Europeans and Anglo-Indians, 86 criminal tribes, and 243 others. A sum of Rs. 92,153 was distributed in the form of maintenance grant (including Rs. 3,228 capitation grant), representing an average of Rs. 14-14-0 per pupil per annum. A further sum of Rs. 19,212 was distributed as equipment grant and Rs. 15,615 as building grant to certain schools. The teachers' training sections attached to the St. Joseph's Industrial School, Tindivanam, in cabinet-making, the C.S.M. Girls' Industrial school, Madras, in embroidery, and the American Mission Industrial School at Palmaner, in needle-work and dress-making continued to function satisfactory during the year.

LEATHER TRADES INSTITUTE, MADRAS.

143. *Staff.*—M.R.Ry. K. Seshachalam Choudhary continued as Leather Research Chemist and functioned as Superintendent of the Institute throughout the year. In G.O. Ms. No. 2137, Development, dated 26th November 1936, M.R.Ry. P. Siviah Choudhary was appointed as temporary tanning expert and he assumed charge of the post on the 17th of December 1936.

144. *Advice and assistance to tanners.*—The tanning expert visited a tannery at Madhavaram and demonstrated improved methods of soaking, liming, pickling and tanning of dry sheep skins and gave advice in regard to the collection of the dust coming off the fluffing machine. A tannery at Tiruvottiyur was also visited and advice given in regard to the removal of stains on wet chrome splits. Advice with reference to the process of pickling goat and sheep skins for export was given to a merchant in Madras. A tanner was advised in regard to the adoption of suitable methods to counteract the swelling of pickled hides in tan liquors and in regard to rectifying the cracking of grain in over-swollen bark tanned hides, and also in regard to increasing the yield of natural chrome sole leather. A tanner enquired as to how dry sheep skins could be tanned so as to produce the same results as with the wet salted skins, and the process was demonstrated to him at the Institute. A tanner in Sembiam desired a quantity of sheep skins to be tanned for him by the white chemical tannage process for export to London. The Tanning Expert, after carrying out experiments in the laboratory of the Institute, supervised the tanning of

200 sheep skins with this tannage at the tannery at Sembiam. This tannage is the first of its kind carried out in Madras, and the report from London on the consignment of skins is awaited with interest. A quantity of snake skins were also tanned for this tanner by the same method and good results were obtained. Samples of cow and buff sole sides, welting leather, and cow russets were received from the Superintendent, Central Jail, Vellore, and a selection was made from them after carrying out the necessary tests and analyses. As the result of a discussion with the Inspector-General of Prisons and the Deputy Inspector-General of Police, who visited the Institute, it was decided that the leather supplied to the jail should be tested periodically in order to ensure deliveries being up to the standard of the tendered samples and it has now been arranged for each consignment to be inspected and passed at the factory by the Tanning Expert.

145. *Experiments and investigations.*—The experimental work initiated by the Tanning Expert before the close of the year comprised (i) study of the pickling of hides and skins, (ii) study of the South Indian tannage with a view to introducing modifications that would have the effect of shortening the period of the tanning process and so reduce the cost of tanning, (iii) investigation of the possibility of replacing the imported wattle bark by indigenous tanning materials, such as divi divi, and (iv) the preparation on an experimental scale of an improved leather for water buckets. The pickling of hides and skins is essentially a process of preservation which is different from the ordinary method of curing with salt. There is a demand from foreign countries for pickled skins and experiments were commenced with a view to determining the modifications in the ordinary liming and deliming processes that are necessary for the production of pickled hides of suitable quality. Different lots of skins pickled under varying conditions were prepared at tanneries at Pallavaram, Madhavaram, and Erode, and the reports on the skins prepared under the direct supervision of the Tanning Expert and exported to London are awaited. Experiments were initiated shortly before the close of the year with a view to determining whether any improvements can be effected in the ordinary Madras tannage by shortening the period of tanning or by using lesser quantities of the materials employed in the different processes. The different processes that will be subjected to detailed examination are (i) soaking, (ii) liming, (iii) deliming, (iv) tanning and (v) use of synthetic tannings. It has been found possible on a small experimental scale to so modify the ordinary process as to shorten appreciably the period of tanning of goat skins, and if these results are borne out by large scale tests in the tannery over a period, it is hoped that it will be possible to reduce not inconsiderably the cost of tanning skins by the ordinary avaram process. The only indigenous tanning materials that are at present used by the Madras tanning industry are—avaram, konnam and myrobalans. Divi divi is not utilized at present, although it

is rich in tannin content and experiments have been initiated with a view to ascertaining whether it would be feasible to replace wattle bark, at least to some extent, by divi divi in the tanning of hides.

146. *Leather working class.*—A reference has been made elsewhere in this report to the opening of a class in the Institute for providing a year's intensive course in shoe-making and the manufacture of simple leather goods. The class was started on the 9th of March 1937 with 10 students, two places having been reserved for boys to be deputed subsequently by the District Economic Councils of Trichinopoly and North Arcot districts. All the boys are of the shoe-making class and 14 years of age or over.

147. *Leather chemistry and general chemical work.*—The Leather Research Chemist, who was also in charge of the Institute, continued to function as the departmental industrial chemist in addition to his duties in the Leather Trades Institute. Seventy-one samples of tanning materials, water used in tanneries, limes, lime liquors, tan liquors, chrome liquors, leathers, and effluents were analysed in the laboratory of the Institute during the year. At the request of the Forest Utilization Officer, a series of experiments on sandal bark were carried out and subsequently leathers were tanned with the bark which contains about 22 per cent of tannin. In its tanning value, sandal bark cannot compare with, and, moreover, is higher in price than avaram. It was not considered worth while, therefore, to continue the experiments as it was not likely that they would have proved of any real value to the leather trade. Of the South Indian terminalias, only *Terminalia chebula* and *Terminalia pallida* have been studied and the results published. The study of the other terminalias—*Terminalia arjuna*, *Terminalia belerica* and *Terminalia tomentosa* was taken up during the year and the study of *Terminalia arjuna* was completed. As mentioned in last year's report, samples of avaram bark from plantations raised by the Forest department in several districts have been sent periodically to the Leather Research Chemist for analyses. The analysing of these barks was continued during the period under review and the last consignment is expected in September 1937, when a consolidated report on the work done will be drawn up. The experimental demonstration of the preparation of white sugar and improved jaggery from palm juice by the open-pan system at Navadur, West Godavari district, and the demonstration of improved methods of coir retting and coir production at Baruva conducted by the Leather Research Chemist during the year are referred to elsewhere in this report.

148. *Wattle bark and extract.*—A reference was made in the report of the previous year to the fact that wattle extract had been introduced to a limited extent in the place of wattle bark for the tanning of hides and that a representation received from a Madras firm that the import duty on wattle extract should be abolished,

had been supported by the department. The use of wattle extract in preference to bark, would enable the cost of tanning to be reduced to some extent as the former is a more economical tanning agent. The question formed the subject of further correspondence during the year, and the Local Government addressed the Government of India recommending the removal of the duty on wattle extract. The Government of India were unable, however, in existing circumstances, to accept the recommendation of the Local Government. It may be mentioned that legislation has been enacted in South Africa in respect of the grading, inspection, and certification of wattle bark for export, and came into force from 1st of January 1937. There is a proposal that a sample of each grade of bark should be deposited at the Leather Trades Institute by the Government of the Union of South Africa so that the different grades may be inspected by the tanners in this Presidency whenever necessary.

SCHOOL OF ARTS AND CRAFTS, MADRAS.

149. *Staff*.—M.R.Ry. D. P. Roy Choudhury was in charge of the school throughout the year.

150. *Strength and attendance*.—The number of students on the rolls on the 31st March 1937 was 244 as against 248 in the previous year. The average attendance was 200 and the percentage of attendance during the year was 78 as against 79 in the previous year.

151. *General*.—Further progress was made with the experiments on enamelling on gold, silver and copper, and cotton and leather painting. There is an increasing demand for the enamelled articles turned out in the school. Thirty-two armorial shields of former Governors of Madras of different sizes and designs consisting of wood-carving and lacquer work were executed in the school. The standard of the Fine Arts section was well maintained, the students again producing some excellent specimens of work in painting and sculpture many of which were exhibited as well at the annual school exhibition. The number of articles manufactured in the school during the year was 633 valued at Rs. 5,266-7-6, and the number of articles sold was 608 valued at Rs. 5,365-13-6, respectively.

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

Year.		Number appeared.	Number passed.	Percent- age.
1934-35	..	16	11	68.75
1935-36	..	26	18	69.00
1936-37	..	52	28	54.00

The annual school examinations were conducted in April, and the students of the Arts and Crafts sections who had completed their training and passed the examinations were awarded diplomas. The Cotton Memorial Prize—a gold medal—was awarded to M. Palani, a student of the Woodwork section, whilst the Rao Bahadur N. B. Balakrishna Mudaliyar gold medals were awarded to N. Muni-swami and S. Murugesan of the Metal Work section.

153. *Stipends and scholarships*.—The number of scholarships and stipends awarded to students in the school from various sources was 50 as shown below :—

(i) Adi-Dravida stipends	...	...	...	21
(ii) School stipends	...	...	...	15
(iii) Victoria Technical Institute scholarships	...	...	...	9
(iv) Sri Venkateswara scholarships	...	...	...	2
(v) Hyderabad State scholarship	...	...	...	1
(vi) Bihar Government scholarship	...	...	...	1
(vii) Dr. Rangachari Endowment scholarship	...	...	...	1
				50

154. *Finance*.—The expenditure for the year amounted to Rs. 45,658-0-2 as against Rs. 45,155-11-9 in the previous year. The net cost of the school was Rs. 40,439-10-2 showing an increase of Rs. 473-2-5 as compared with the previous year. In order to bring about some reduction in the net cost of the school, the fee payable by students admitted into the Fine Arts section from outside the Madras Presidency was raised from Rs. 3 to Rs. 5 per mensem, whilst a fee of Rs. 3 per mensem was charged for the first time in the case of students from the Madras Presidency. In the case of the Crafts section, however, no fees are levied as the majority of the students under training in this section of the school come from poor families.

155. *School exhibition*.—The annual exhibition of the various specimens of arts and crafts prepared by the students and teachers of the school was held from the 28th of January to 7th of February 1937, and was attended, as in previous years, by many distinguished visitors including Lady Marjorie Erskine, H.H. the Maharaja of Travancore, H.H. the Junior Maharani of Travancore, and the Maharaja of Jeypore. The number of exhibits was larger than on the previous occasions, whilst their quality was on the whole of an even higher standard. The exhibits included paintings, sculptures, furniture of modern design, silver and gold enamelled jewellery, metal work, lacquer work, cotton painting, hand painted leather articles, and engravings, etc. The value of the articles sold amounted to Rs. 3,731-8-0, of which paintings of the students accounted for Rs. 2,050, and enamelled articles for Rs. 487.

The exhibition generally was again favourably commented upon in the newspapers. A number of paintings executed by the Principal, members of the staff and students were exhibited at the Industrial and Agricultural Exhibition held at Lucknow during the year. A few specimens of articles designed and executed in the school were also shown at the Exhibition of Contemporary Art in Industry organized by Mrs. F. E. James and held at Madras in January 1937.

156. PROGRAMME OF WORK FOR 1937-38.

I. General.

(a) Continuance of efforts to establish industries of basic importance in the areas served by the hydro-electric projects.

(b) Conduct of further enquiries in regard to the possibility of manufacturing steel from the Salem iron ores.

(c) Collection of information in regard to the equipment required for the manufacture of various articles on a small scale, and publication of short bulletins on the subject.

II. Statistics.

(a) Introduction of two forecasts in respect of cholam, cumbu, ragi, korra, varagu, samai, and one forecast of area and yield in respect of horsegram, greengram, redgram and blackgram.

(b) Institution of three forecasts of area and yield in respect of each variety of tobacco.

III. Engineering.

Conduct of experimental trials with a power drill driven by an oil engine instead of by a steam engine as in the case of the existing drills.

(Provided that the necessary funds are sanctioned by Government in time to permit of the demonstration being carried out during the year.)

IV. Industrial Education.

Examination of the possibility of providing more specialized courses of training in the Government Industrial schools.

V. Textiles.

(a) Continuance of the experiments in regard to the manufacture of gold-thread.

(b) Carrying out of the Government of India subvention scheme for the grant of assistance to the cumbly weaving and Ellore pile carpet industries.

(c) Introduction of the revised courses of instruction in the Textile Institute.

VI. Sericulture.

(a) Opening of an aided grainage and an aided farm.

(b) Conduct of further research on the diseases of silk worms.

(c) Organizing the supply of 48 lakhs of disease free layings.

(d) Introduction and popularization of univoltine seed.

(e) Increasing the supply of cross-breed layings.

(f) Preparation on a small experimental scale of silk worm guts.

(g) Conduct of propaganda work in connexion with the extension of the areas under mulberry in the Kollegal taluk and in certain other district centres.

VII. Kerala Soap Institute, Calicut.

(a) Continuance of the laboratory experiments on the preparation of toilet creams, brilliantines, hair oils and other similar articles.

(b) Preparation on an experimental scale of insecticides, fungicides and sprayers.

(c) Distillation of essential oils.

VIII. Leather Trades Institute, Madras.

(a) Investigation of the possibility of introducing improved methods of curing and preserving of raw hides and skins.

(b) Examination of the advisability of constituting peripatetic tanning parties.

(c) Further study of the pickling of hides and skins.

(d) Further study of the South Indian tannage with a view to shortening the period of the tanning process.

(e) Investigation of the possibility of replacing the imported wattle bark by an indigenous tanning bark.

IX. School of Arts and Crafts.

(a) Examination of the possibility of introducing a pottery section.

(b) Further development of the work on enamelling on gold, silver and other metals, on lacquer, and of painting on leather.

RECEIPTS AND EXPENDITURE.

157. The following statement compares the receipts and expenditure of the department during the years 1935-36 and 1936-37. Details are exhibited in Appendix I.

Item.	1935-1936.	1936-1937.	Decrease — or increase +.
	RS.	RS.	RS.
Expenditure ..	11,54,581	11,84,773	+ 30,192
Receipts ..	4,16,992	4,74,090	+ 57,098
Net cost ..	7,37,589	7,10,683	— 26,906

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Receipts.—There was an increase under receipts under Kerala Soap Institute, Pumping and Boring, Sericulture, and Textile Institute.

APPENDIX I.

Statement showing the Receipts and Charges of the Department of Industries for the year 1936-37.

Receipts.		Expenditure.	
RS.	A. P.	RS.	A. P.
Pumping and boring	84,073 0 10	A. Direction	1,16,224 4 2
Industrial installations	3,116 6 0	B. District Engineering	2,88,337 4 10
Industrial schools	57,106 2 2	C. Grants-in-aid to Industrial Schools	1,34,534 0 0
School of Arts and Crafts	5,609 3 10	D. Industrial Scholarships	24,689 7 0
Textile Institute	629 6 9	E. Industrial Schools	76,730 1 1
Sericulture	3,504 1 10	F. School of Technology	80,558 3 8
Sugarcane crushing mills	1,953 0 0	G. Leather Trades Institute	14,200 8 4
Rent of buildings	18 0 0	H. School of Arts and Crafts	45,587 9 2
Kerala Soap Institute	1,82,117 5 4	I. Textile Institute	46,152 12 6
Industrial Engineering Workshop	48,568 2 1	J. Sericulture	28,800 9 10
Grant for handloom industry	74,260 0 0	K. Kerala Soap Institute, Calicut	1,46,077 12 11
Grant for sericultural industry	13,137 1 3	L. Experiments on oils and fats at the Institute, Calicut	15,828 2 10
Other receipts	6,134 1 7	M. Industrial Engineering Workshop	51,108 7 5
Total	4,80,225 15 8	N. Grant for Handloom Industry	74,260 0 0
Recoveries of overpayments	1,418 4 0	O. Grant for Sericultural Industry	13,137 1 3
Collection of payments for services rendered	3,150 5 0	P. Miscellaneous Experiments	2,665 14 7
Total	4,84,794 8 8	Total	11,58,692 3 7
Deduct Refunds.	10,704 6 4	Expenditure in England—Stores	3,466 10 8
Net Receipts	4,74,090 2 4	Expenditure other than stores	22,720 0 0
Net cost of the department	7,10,682 11 11	Gain by exchange	11,84,878 14 3
Total	11,84,772 14 3	Total	11,84,772 14 3

EX. B.—The figures are provisional as they are subject to modification in the March final and supplemental accounts.

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APPENDIX II—cont.
Statistics relating to Government and recognized Industrial Schools for 1936-37—cont.

Serial number, name and place of institution.	Number on rolls on 31st March.	Engl-nearing trades.	Englne leading.	WOODS WORKING trades.	Bastan work.	Textiles, cotton.	Textiles, WOOL.	Leaces, needle work.	Remarks.												
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
Alfred Searcos (Botes)—cont.	1936.	1937.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Leather work.
34 O.M.S. Industrial School, Vithanagar.	25	20	..	..	..	..	52	11	..	..	..	..	..	..	..	..	..	..	..	20	
35 St. Joseph School, Guntur.	75	77	25	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
36 Municipal Institute, Masuli-petam.	123	88	88	..	..	..	29	..	..	..	..	..	..	..	..	..	..	..	..	11	
37 Purnama School, Purnama, Madras.	49	58	18	..	..	..	30	4	..	..	..	..	..	..	..	..	..	..	..	(a) 16 6 (a) Tailoring.	
38 O.M.S. Industrial School, Pudukottai.	50	64	18	2	..	..	56	4	..	..	..	..	..	..	..	..	..	..	..	(b) Agriculture, animal husbandry, poultry and bee-keeping.	
39 St. Joseph's Industrial School, Ottasamund.	54	56	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	(b) 38 (b) Agriculture, animal husbandry, poultry and bee-keeping.	
40 District Board Industrial School, Mettanada, Bannad.	27	38	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	(c) 2 (c) Brick-laying.	
41 St. Theresa's Industrial School, Salem.	38	51	7	..	..	..	42	1	..	..	..	..	..	..	..	..	..	..	..	..	
42 St. Francis Xavier's Industrial School, Tanjore.	103	97	..	..	..	..	54	..	..	..	48	..	..	..	..	..	..	..	..	..	
43 St. Mary's Industrial School, Kovam.	69	61	10	..	..	..	51	4	..	..	..	..	..	..	..	..	..	..	..	..	
44 Municipal Industrial School, Kumbakonam.	22	29	..	..	..	..	13	..	..	..	18	..	..	..	..	..	..	..	..	..	
45 Board Industrial School, Tanjore.	24	32	18	..	..	..	14	..	..	..	..	..	..	..	..	..	..	..	..	(x) 19 3 (1) Collector.	
46 S.P.G. Art Industrial School, Nazareth.	140	130	25	5	..	..	86	11	..	..	..	..	..	..	..	..	..	..	..	..	
47 St. Joseph's Industrial School, Adalapuram.	66	40	..	..	..	..	18	1	..	..	22	2	..	..	..	..	..	..	..	..	
48 O.M.S. Industrial School for the Blind, Palamcottah.	70	68	..	..	..	..	..	..	20	..	48	4	..	..	..	..	..	..	..	..	
49 St. Ignatius Industrial School, Tuticottin.	29	38	..	..	..	..	38	..	..	..	..	..	..	..	..	..	..	..	..	..	
50 Ambian's Art Industrial School, Arumuganeri.	121	88	..	..	..	..	74	..	..	..	..	..	..	..	..	..	..	..	..	(e) 14 9 (e) Tailoring and	
51 St. Joseph's Industrial School, Titch-nopoly.	120	120	1	..	..	..	76	6	..	..	..	..	..	..	..	..	..	..	..	..	
52 Methodist Mission Industrial School, Karur.	100	105	4	..	..	..	71	..	8	..	22	..	..	..	..	..	..	..	..	..	
53 All Saints' Industrial School, Puthur.	32	31	..	..	..	..	25	..	6	..	..	..	..	..	..	..	..	..	..	..	
54 Scripps Agricultural and Industrial School, Mayanur.	23	24	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	(f) 24 (f) Agriculture, poultry and bee-keeping and allied subjects.	
55 St. Aloysius Industrial School, Vizagapatam.	27	25	25	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
AIDEP SCHOOLS (Girls).																					
56 C.S.M. Industrial School, Kilpank.	45	61	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
57 Servasdan Industrial School, Cheput.	73	78	..	..	..	..	..	..	9	..	..	..	..	..	..	..	..	..	..	..	
58 St. Bridget Industrial School, Nungambakam.	52	38	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
59 St. Anne Industrial School, Rayapuram.	26	49	..	..	..	..	..	..	..	..	26	3	..	..	..	..	..	..	..	..	
60 St. Thomas Convent Industrial School, Mylapore.	28	31	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
61 C.S.M. Late School, Chingleput.	67	69	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
62 Methodist Mission Industrial School, Ikkaadu.	114	110	..	..	..	..	..	..	..	..	37	..	..	..	..	..	..	..	..	..	

APPENDIX II—cont.

Statistics relating to Government and recognized Industrial Schools for 1936-37—cont.

Serial number, name and place of institution.	Number on rolls on 31st March.		Engineering trades.		Engine tending.		Wood working trades.		Rattan work.		Textiles, cotton.		Textiles, wool.		Other textile trades.		Lace, embroidery and needle work.		Other subjects (specified in remarks column).		Remarks.
	1936.	1937.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
AIDED SCHOOLS (GIRLS)—cont.																					
63 St. Antony's Industrial School, St. Thomas' Mount.	80	83	..	..	..	..	..	..	..	..	..	..	..	..	..	..	83	..	..	..	
64 L.M. Girls' Industrial School, Erode.	52	48	..	..	..	..	..	..	..	..	7	3	..	..	..	..	..	..	41	7	Mat and basket making.
65 Methodist Mission Industrial School, Dharapuram.	37	57	..	..	..	..	..	..	..	..	..	..	..	..	..	..	57	20	..	..	
66 Immaculate Conception Convent, Coimbatore.	26	43	..	..	..	..	..	..	..	..	..	..	..	..	..	..	43	1	..	..	
67 St. Joseph's Orphanage Industrial School, Guntur.	18	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..	
68 St. Joseph's Industrial School, Madura.	65	28	..	..	..	..	..	..	..	..	..	..	..	..	..	..	28	..	..	..	
69 Nazareth Convent Girls' Industrial School, Ootacamund.	27	28	..	..	..	..	..	..	..	..	..	..	..	..	..	..	28	..	..	..	
70 Leipzig Mission Womens' Industrial School, Mayavaram.	31	30	..	..	..	..	..	..	..	..	18	3	..	..	..	..	7	1	5	3	Mat wearing.
71 R.C. Lace School, Vadakangulam.	45	32	..	..	..	..	..	..	..	..	..	..	..	..	..	..	32	1	..	..	
72 Hindu Girls' School, Kudangulam.	25	28	..	..	..	..	..	..	..	..	..	..	..	..	..	..	28	6	..	..	
73 Holy Cross Convent Industrial School, Tuticorin.	85	77	..	..	..	..	..	..	..	..	..	..	..	..	..	..	77	19	..	..	
74 Holy Cross Convent Industrial School, Trichinopoly.	53	38	..	..	..	..	..	..	..	..	..	..	..	..	..	..	38	..	..	..	
75 St. Joseph Convent Industrial School, Bellary.	71	23	..	..	..	..	..	..	..	..	..	..	..	..	..	..	23	7	..	..	
76 A.A.M. Women's Industrial School, Palmaner.	64	33	..	..	..	..	..	..	..	..	..	..	..	..	..	..	33	7	..	..	
77 Commonwealth Embroidery, Calicut.	33	23	..	..	..	..	..	..	..	..	..	..	..	..	..	..	23	5	..	..	
78 St. Vincent Girls' Industrial School, Calicut.	39	43	..	..	..	..	..	..	..	..	..	..	..	..	..	..	43	..	..	..	
79 Sacred Heart Convent Industrial School, Anjengo.	25	26	..	..	..	..	..	..	..	..	..	..	..	..	..	..	26	1	..	..	
80 O.E.L.M. Girls' Industrial School, Nayadupet.	38	47	..	..	..	..	..	..	..	..	..	..	..	..	..	..	47	..	..	..	

APPENDIX III.

Statistics relating to Government and recognized Industrial Schools for the year 1936-37.

Serial number, name and place of institution.	Number on rolls on 31st March 1937.	Total recurring cost (excluding expenditure on new buildings and equipment).	Receipts from		Total columns (4) and (5).	Receipts and expenditure to the nearest rupee.											Non-recurring.
			Fees.	Sales.		Net recurring cost, column (3) minus column (6).	Net recurring cost per pupil, column (7) + column (8).	Maintenance.	Scholarships.	Stipends.	Recurring grants from other departments or public bodies.	Total recurring grants, columns (9), (10), (11) and (12).	Balance of recurring cost met by managers' funds, column (7) minus column (13).	Expenditure on new buildings.	Building grant.	Equipment grant.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	
GOVERNMENT INSTITUTIONS.																	
1 Government School of Technology, Madras.	1,219	80,558	..	27,828	27,828	52,730	43	..	..	..	..	..	52,730	..	..	..	
2 School of Arts and Crafts, Madras.	244	45,588	233	5,376	5,609	39,979	164	..	..	..	..	..	39,979	..	..	..	
3 Government Textile Institute, Madras.	106	46,153	6	629	629	45,524	429	..	..	..	..	..	45,524	..	..	..	
4 Government Industrial School, Calicut.	55	17,610	..	10,711	10,711	6,899	125	..	..	..	..	..	6,899	1,400	..	..	
5 Government Trade School, Mangalore.	52	9,516	..	2,086	2,086	7,430	143	..	..	..	..	..	7,430	..	..	..	
6 Government Industrial School, Bellary.	59	17,203	..	12,843	12,843	4,360	74	..	..	..	..	..	4,360	..	..	..	
7 Government Industrial School, Madras.	87	29,775	..	16,482	16,482	13,293	153	..	..	..	..	..	13,293	1,353	..	..	
AIDED SCHOOLS (BOYS).																	
8 C.N.T. Institute, Vepery, Madras.	474	51,860	22,276	7,109	29,385	22,475	47	5,725	1,575	565	..	7,865	14,610	4,729	2,365	1,000	
9 Anjuman Industrial School, Madras.	87	..	..	..	..	..	..	5,580	..	..	..	..	..	..	..	..	
10 Orr's Assisted Industrial School, Madras.	47	1,580	..	..	..	1,580	34	800	..	..	..	800	780	..	..	..	
Unaided schools.																	
11 Ramakrishna Mission Industrial School, Mysore.	43	10,615	1,213	3,444	4,657	5,958	139	2,500	284	..	..	2,784	3,174	3,100	1,370	2,000	
12 Gokulam Cottage Industrial School, Madras.	46	2,101	..	101	101	2,000	43	470	14	..	..	484	1,516	..	..	284	
13 Sri Ram Motor School, Madras.	32	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
14 A.A.M. Industrial School, Katpadi.	115	84,868	..	69,928	69,928	14,940	130	3,360	305	..	..	3,665	11,275	..	..	..	
15 Anjuman Industrial School, Vellore.	87	16,346	303	11,278	11,581	4,765	55	2,200	356	..	380	2,936	1,829	..	..	250	
16 Anjuman Industrial School, Melvisbaram.	63	6,639	..	2,857	2,857	3,782	60	1,300	352	..	..	1,652	2,130	..	..	200	
17 Anjuman Industrial School, Tirupattur.	40	3,855	..	488	488	3,367	84	830	198	..	..	1,028	2,339	..	..	200	
18 Don Bosco Industrial School, Vellore.	26	7,684	..	2,640	2,640	5,044	194	750	125	..	..	875	4,169	..	..	137	
19 St. Joseph's Industrial School, Tindivanam.	74	27,263	..	17,775	17,775	9,488	128	3,300	957	..	..	4,257	5,231	..	..	400	
20 Danish Mission Industrial School, Panruti.	81	15,268	..	6,445	6,445	8,823	109	2,700	160	..	..	2,860	5,963	..	..	300	
21 C.S.M. Agricultural School, Melrosapuram.	65	5,536	..	818	818	4,718	73	1,000	122	..	60	1,182	3,536	76	..	749	
22 A.A.M. Industrial School, Velacheri.	23	4,726	..	1,874	1,874	2,852	124	550	359	..	..	909	1,943	..	..	..	
23 Kodambakkam Industrial School.	27	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
24 Victory Memorial Blind School, Poonamallee.	17	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
25 Lady Willingdon Leper Settlement, Chingleput.	17	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
26 St. Joseph's Industrial School, Coimbatore.	173	91,174	64	58,930	58,994	32,180	186	3,620	384	..	75	4,079	28,101	..	..	500	
27 P.S.G. & Sons Industrial School, Peelamedu.	141	12,625	303	3,798	4,101	8,524	60	2,125	219	..	..	2,344	6,180	..	7,500	3,000	
28 London Mission Weaving School, Erode.	43	5,445	95	272	367	5,078	118	1,200	47	..	..	1,247	3,831	..	..	117	
29 U.L.C.M. Rural Reconstruction School, Guntur.	27	5,556	..	2,592	2,592	2,964	110	775	6	..	..	781	2,183	..	..	98	
30 American Mission Cabinet making School, Guntur.	39	13,462	..	11,118	11,118	2,344	60	930	95	..	..	1,025	1,319	..	..	149	
31 Commonwealth Trust Engineering Works, Mangalore.	16	912	..	..	..	912	57	320	80	..	..	400	512	..	..	..	
32 Industrial School, Rajahmundry.	113	1,394	528	101	629	785	7	..	..	197	..	197	568	..	..	..	
33 Sri Krishna Parisramalayam Industrial School, Kavutaram.	25	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
34 C.M.S. Industrial School, Vidyanagar.	20	3,009	..	1,844	1,844	1,165	58	515	68	..	..	583	582	..	..	49	
35 St. Joseph's Industrial School, Gunadala.	77	11,726	..	5,731	5,731	5,995	78	2,400	459	..	..	2,859	3,136	..	..	249	

APPENDIX III—cont.

Statistics relating to Government and recognized Industrial Schools for the year 1936-37—cont.

Serial number, name and place of institution.	(1)	Number on rolls on 31st March 1937.	(2)	Receipts from										Receipts and expenditure to the nearest rupee.						
				(3) Total recurring cost (excluding expenditure on new buildings and equipment).	(4) Fees, etc.	(5) Sales.	(6) Total, columns (4) and (5).	(7) Net recurring cost, column (3) minus column (6).	(8) Net recurring cost per pupil, column (7) ÷ column (2).	(9) Maintenance.	(10) Scholarships.	(11) Stipends.	(12) Recurring grants from other departments or public bodies.	(13) Total recurring grants, columns (9), (10), (11) and (12).	(14) Balance of recurring cost met by managers' funds, column (7) minus column (13).	(15) Expenditure on new buildings.	(16) Building grant.	(17) Equipment grant.		
36 Municipal Technical Institute, Marupattam.	83	28,337	513	28,850	23,818	4,519	78	1,700	190	..	..	..	377	2,267	2,252	..	..	..	1,138	252
37 Pasumalai Trades School, Pasumalai.	84	14,353	..	6,486	6,426	7,926	194	1,200	192	..	..	..	647	2,039	5,887	..	..	..	282	..
38 C.S.M. Industrial School, Dindigul.	85	43,362	..	41,190	41,190	2,172	39	1,200	106	..	..	..	67	1,363	809	..	..	..	200	..
39 St. Joseph's Industrial School, Ootacamund.	86	6,464	..	215	215	6,249	164	750	..	..	..	..	..	750	5,449	..	..	..	584	..
40 District Board Industrial School, Muthamendal.	87	7,405	..	3,022	3,022	4,473	88	700	23	..	..	..	..	723	3,750	..	..	..	200	..
41 St. Theresa's Industrial School, Salem.	88	21,864	..	16,113	16,113	5,751	59	1,600	184	..	..	..	..	1,784	3,967	..	..	..	200	..
42 St. Francis Xavier's Industrial School, Tanjore.	89	25,335	..	13,344	13,344	12,991	213	1,880	189	..	..	..	..	2,069	10,922	..	..	..	00	..
43 St. Mary's Industrial School, Kumbakonam.	90	2,939	..	486	486	2,453	85	1,000	10	..	..	..	..	1,010	1,443	..	..	..	137	..
44 Municipal Industrial School, Kumbakonam.	91	..	..	..	..	..	750	..	..	..	..	..	..	..	..	..	..	2,000	..	..
45 Board Industrial School, Tanjore.	92	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	500	..
46 R.F.G. Art Industrial School, Nazareth.	93	22,973	..	13,079	13,079	9,894	76	3,750	249	..	..	..	42	4,041	5,853	1,144	..	..	500	..
47 St. Joseph's Industrial School, Adakavala-puram.	94	7,707	..	2,896	2,896	4,811	120	1,170	14	..	..	..	..	1,184	3,627	500	..	..	60	..
48 C.M.S. Industrial School for the Blind, Palamcottah.	95	11,225	..	3,533	3,533	7,392	109	1,900	353	..	..	..	..	2,252	5,140	..	..	..	50	..
49 St. Ignatius Industrial School, Tuticorin.	96	3,952	..	829	829	3,123	82	500	90	..	..	..	..	590	2,533	..	..	..	..	..
50 Ambam's Art Industrial School, Arumaganeri.	97	6,149	..	184	184	5,965	68	870	59	..	..	..	..	959	5,006	10,440	..	..	..	..
51 St. Joseph's Industrial School, Tichinopoly.	98	42,971	..	34,292	34,292	8,679	72	2,100	278	..	..	..	991	3,369	5,310	..	..	..	400	..
52 Methodist Mission Industrial School, Karur.	99	19,200	..	6,366	6,366	12,834	122	2,400	1,281	..	..	..	..	3,681	9,153	..	..	..	693	..
53 All Saints' Industrial School, Puthur.	100	8,372	..	3,316	3,316	5,056	163	980	24	..	..	..	..	1,004	4,052	..	..	..	93	..
54 Servinda Agricultural and Industrial School, Mayanur.	101	3,414	..	875	875	2,539	106	600	..	..	..	..	..	600	1,939	1,780	1,850	..	865	..
55 St. Aloysius Industrial School, Vizagapatnam.	102	25,682	..	25,306	25,306	4,376	175	1,150	30	..	..	..	..	1,180	3,196	..	..	..	..	..
56 C.S.M. Girls' Industrial School, Kilpauk.	103	5,762	529	2,160	2,689	3,073	50	700	88	540	..	..	..	1,323	1,750	..	..	..	..	..
57 Seva Sadan Industrial School, Chetput, Madras.	104	..	..	..	..	..	..	1,000	..	..	..	..	..	..	..	..	..	..	..	..
58 St. Bridget's Industrial School for Girls, Nungambakam, Madras.	105	9,695	..	537	537	9,158	240	1,500	..	..	..	..	..	1,500	7,658	..	..	..	..	..
59 St. Anne's Industrial School, Kayapuram.	106	5,824	..	222	222	5,602	114	500	36	..	..	..	..	536	5,066	..	..	..	100	..
60 St. Thomas Convent Industrial School, Mylapore.	107	7,921	..	865	865	7,056	228	350	60	..	..	..	..	410	6,646	..	..	..	..	..
61 C.S.M. Lace School, Chingleput.	108	3,452	..	884	884	2,571	37	400	57	..	..	..	..	457	2,114	..	..	..	63	..
62 Methodist Mission Industrial School, Irkachu.	110	23,513	..	17,121	17,121	6,192	56	1,375	819	..	..	..	..	1,694	4,498	..	..	..	..	..
63 St. Anthony's Industrial School, St. Thomas Mount.	109	6,875	..	..	..	6,875	83	700	..	..	..	..	..	700	6,175	..	..	..	..	..
64 L.M. Girls' Industrial School, Brode.	111	1,234	..	125	125	1,109	23	300	52	..	..	..	..	352	757	..	..	..	..	..
65 Methodist Mission Industrial School, Dharmaputam.	112	4,089	..	2,478	2,478	1,611	28	300	..	..	..	..	..	300	1,311	..	..	..	..	..
66 Immaculate Conception Convent, Combaratore.	113	7,526	..	2,174	2,174	5,352	124	950	27	..	..	..	..	977	4,375	..	..	..	..	..
67 St. Joseph's Orphanage Industrial School, Guntur.	114	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
68 St. Joseph's Industrial School, Madras.	115	3,533	..	..	..	3,533	126	500	83	..	..	..	..	533	2,950	..	..	..	..	..

APPENDIX III—cont.

Statistics relating to Government and recognized Industrial Schools for the year 1936-37—cont.

Serial number, name and place of institution.	Number on rolls on 31st March 1937.	Total recurring cost (excluding expenditure on new buildings and equipment).	Receipts from		Receipts and expenditure to the nearest rupee.												
			Fees, etc.	Sales.	Total, columns (4) and (5).	Net recurring cost, column (3) minus column (6).	Net recurring cost per pupil, column (7) ÷ column (8).	Recurring grants from Department of Industries.			Recurring grants from other departments or public bodies.	Total recurring grants, columns (9), (10), (11) and (12).	Balance of recurring cost met by managers' funds, column (7) minus column (13).	Non-recurring.		Equipment grant.	
								Maintenance.	Scholarships.	Stipends.				Expenditure on new buildings.	Building grant.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	
		RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	
AIDED SCHOOLS (GIRLS)—cont.																	
69 Nazareth Convent Girls' Industrial School, Ootacamund.	28	6,195	..	1,084	1,084	5,151	186	999	330	..	..	1,130	4,001	..	..	..	
70 Leipzig Mission Women's Industrial School, Mayavaram.	30	6,498	..	2,492	2,492	3,994	133	1,500	99	..	..	1,599	2,895	..	..	173	
71 R.C. Lace School, Vadakangulam.	32	1,751	..	460	460	1,291	11	500	..	..	..	500	791	..	..	..	
72 Hindu Girls' School, Kudangulam.	28	983	..	235	235	748	27	250	80	..	..	330	418	..	..	..	
73 Holy Cross Convent Industrial School, Tuticorin.	77	4,207	..	376	376	3,831	50	1,000	232	..	..	1,232	2,599	..	..	120	
74 Holy Cross Convent Industrial School, Trichinopoly.	38	3,261	..	..	..	3,261	86	800	294	..	..	1,094	2,167	..	..	..	
75 St. Joseph's Convent Industrial School, Bellary.	23	5,186	10	300	310	4,876	212	1,000	..	..	..	1,000	3,876	..	..	..	
76 A.A.M. Women's Industrial School, Palmaner.	33	4,427	168	29	197	4,230	130	1,400	36	456	..	1,892	2,338	..	..	348	
77 The Commonwealth Embroidery School, Calicut.	23	2,900	..	971	971	1,929	84	700	83	..	..	783	1,146	..	..	28	
78 St. Vincent Girls' Industrial School, Calicut.	43	4,860	..	326	326	4,534	105	750	68	..	..	818	3,716	..	..	150	
79 Sacred Heart Convent Industrial School, Anjengo.	26	2,194	..	2	2	2,192	84	400	149	..	..	549	1,643	..	..	..	
80 C.B.L.M. Girls' Industrial School, Nayandupet.	47	4,845	..	1,498	1,498	3,347	71	500	..	..	..	500	2,847	..	..	..	

APPENDIX IV
Statistics relating to recognized Industrial Schools for the year 1936-37.

Serial number and name of the institution.	Subjects in which instruction is provided.	Number of students who passed out in each subject.	Particulars as to the after-career of passed students.	Approximate total value of work turned out.
(1)	(2)	(3)	(4)	(5)
AIDED SCHOOLS (BOYS).				
				RS. A. P.
1 N.T. Institute, Vepery, Madras ..	(a) Mechanical engineering, (b) electric mechanics, (c) electric wiring, (d) workshop mechanics, (e) carpentry, (f) printing and (g) oil engine driving.	(a) 21, (b) 38, (c) 7, (d) 9, (e) 1, (f) 3, and (g) 9.	Two are employed	5,595 0 0
2 The Anjuman Industrial School, Madras.	(a) Carpentry, (b) carpet-weaving (c) dyeing and finishing.	(a) 8	All are employed	3,331 0 0
3 Orr's Assisted Industrial School, Madras.	Workshop theory and practice, mechanical engineering, scientific and mathematical instruments making.	....	....	..
4 The Ramakrishna Mission Industrial School, Mylapore, Madras.	Automobile engineering, course leading to L.A.E. diploma (five years).	2	Employed in the school workshop.	3,080 0 0
5 Gokulam Cottage Industrial School, Royapetta, Madras ..	Bee-keeping and Kri silk spinning and weaving.	10	Have joined the teachers' training course in bee-keeping.	250 0 0
6 Sri Ram Motor School, Madras ..	Motor mechanics	6	All are employed	..
7 A.A.M. Industrial School, Katpadi ..	Cabinet-making and carpentry	17	Some remain in the school for advanced training and others are employed.	..
8 The Anjuman Industrial School, Vellore.	Do.	3	Doing private work	12,000 0 0
9 The Anjuman Industrial School, Melvisharam.	Cabinet-making .. ..	....	....	3,141 0 0
10 The Anjuman Industrial School, Tirupattur.	Carpentry and Cabinet-making and drawing ..	2	Doing job work	400 0 0
11 Don Bosco Industrial School, Vellore ..	Carpentry and cabinet-making .. ..	....	....	2,800 0 0
12 St. Joseph's Industrial School, Tindivanam.	(a) Carpentry and cabinet-making, (b) blacksmithy and fitting.	(a) 8	All are employed	1,105 0 0
13 Danish Mission Industrial School, Panruti.	Carpentry, cabinet-making and cotton-weaving.	....	....	6,370 0 0
14 C.S.M. Agricultural School, Chingleput ..	Agriculture, mat-weaving, tape-making, cloth weaving, rope-making and fibre extraction, carpentry, poultry, brick-making and basket-making.	11	Two have joined the high school, three have gone for higher grade teachers' training and the rest have taken up agricultural and industrial pursuits.	305 0 0
15 A.A.M. Industrial School, Velacheri, St. Thomas Mount.	Cabinet-making .. ..	....	....	1,977 0 0
16 Kodambakkam Welfare Centre Industrial School.	Cabinet-making and smithy and rattan work ..	....	....	2,200 0 0
17 Victory Memorial Blind School, Poona-malle.	Cotton weaving and rattan work .. ..	....	....	2,750 0 0
18 St. Joseph's Industrial School, Coimbatore.	(a) Carpentry and (b) fitting	(a) 11, (b) 5	All are employed	63,000 0 0
19 P.S.G. & Sons Charity Industrial Institute, Peelamedu.	(a) Mechanical engineering, (b) carpentry, (c) electrician's course, (d) printing and (e) weaving.	17	Three are employed in the school workshop and the rest are employed in the various mills and factories at Coimbatore and around.	2,78,320 0 0
20 London Mission Weaving School, Erode.	Cotton-weaving	8	Employed in the school factory.	820 0 0
21 U.L.C.M. Rural Reconstruction School, Guntur.	Agriculture, weaving, poultry and bee-keeping.	....	....	2,591 0 0
22 American Mission Cabinet-making School, Guntur.	Carpentry and cabinet-making	8	One is employed in the school workshop and the rest are working in their villages.	12,340 0 0
23 Commonwealth Trust Engineering Classes, Mangalore.	Elementary, applied mechanics and machine drawing.	1	Working as improver	..
24 Industrial School, Rajahmundry ..	Carpentry and general mechanics	2 .. ..	....	1,082 0 0
25 Sri Krishna Parisramalayam Industrial School, Kavutaram.	Carpentry and cabinet-making .. ..	....	....	200 0 0
26 C.M.S. Industrial School, Vidyanagar ..	Leather work	3	All are employed	2,000 0 0
27 St. Joseph's Industrial School, Gunadala.	(a) Carpentry, and (b) smithy	(a) 11	One is undergoing advanced training in the school in carving and the rest are employed elsewhere.	8,500 0 0
28 Municipal Technical Institute, Masulipatam.	Mechanical and electrical engineering and artizan course.	....	....	..
29 Pasumalai Trades School, Pasumalai ..	Printing, carpentry and general mechanics ..	....	....	56,878 0 0
30 C.S.M. Industrial School, Dindigul ..	(a) Carpentry, (b) blacksmithy and (c) tailoring.	(a) 4, (b) 2, (c) 8	Three are employed	6,800 0 0
31 St. Joseph's Industrial School, Ootacamund.	Cabinet-making	4	Three are working in the school and one is undergoing training at Tindivanam.	48,500 0 0
32 District Board Industrial School, Muthanandal.	Agriculture and animal husbandry, farm economics, weaving, poultry, and bee-keeping.	....	....	303 0 0
33 St. Therese's Industrial School, Salem ..	Cabinet-making, smithy and brick-laying ..	1	Working in the village	3,110 0 0
34 St. Francis Xavier's Industrial School, Tanjore.	Cabinet-making and weaving .. ..	....	....	15,000 0 0
35 St. Mary's Industrial School, Kumbakonam.	(a) Carpentry and cabinet-making, and (b) blacksmithy.	(a) 4	Working in the school workshop.	12,500 0 0
36 Municipal Industrial School, Kumbakonam.	Cabinet-making and weaving .. ..	....	....	509 0 0
37 Board Industrial School, Tanjore ..	General mechanics and cabinet-making ..	....	....	..
38 S.P.G. Art Industrial School, Nazareth.	(a) Carpentry and cabinet-making, (b) blacksmithy, (c) motor driving and (d) tailoring.	(a) 5, (b) 11, (c) 3	(a) and (b) All are employed (c) One has set up a tailoring shop and two have gone to Ceylon for further training.	13,079 0 0
39 St. Joseph's Industrial School, Adaikal.	(a) Carpentry, (b) smithy (c) rattan work, (d) ..	(a) 1, (d) 2	Working in their villages	4,075 0 0

APPENDIX IV—cont.

Statistics relating to recognized Industrial Schools for the year 1936-37—cont.

Serial number and name of the institution.	Subject in which instruction is provided.	Number of students who passed out in each subject.	Particulars as to the after-employment of passed students.	Approximate total value of work turned out.
(1)	(2)	(3)	(4)	(5)
AIDED SCHOOLS (BOYS)—cont.				
45 All Saints' Industrial School, Puttur ..	Cabinet-making, carpentry and rattan work ..	....	....	798 0 0
46 Servindia Agricultural and Industrial School, Mayanur.	Agriculture and allied industries, poultry and bee-keeping.	....	....	27,217 0 0
47 St. Aloysius' Industrial School, Vizagapatnam.	Mechanical engineering and motor mechanics.	8	One is employed as a motor driver and the rest are employed in the school workshop	27,217 0 0
AIDED SCHOOLS (GIRLS).				
48 C.S.M. Girls' Industrial School, Kilpauk, Madras.	Drawing, needlework, dress-making and embroidery.	24 .. ..	....	2,786 0 0
49 Seva Sadan Industrial School, Chetput, Madras.	Needle-work, dress-making, embroidery, gold and silver lace work, cane and lacquer work.	3	Two are undergoing training and one is employed.	2,786 0 0
50 St. Bridget Industrial School, Nungambakkam.	Embroidery and dress-making ..	3	One is undergoing teachers' course and two are employed.	670 0 0
51 St. Anne's Industrial School, Rayapuram, Madras.	(a) Cotton-weaving, (b) embroidery ..	(a) 3, (b) 5 .. ..	....	221 0 0
52 St. Thomas Convent Industrial School, Mylapore.	Dress-making and embroidery ..	....	....	1,113 0 0
53 C.S.M. Lace School, Chingleput ..	Lace-making, embroidery and dress-making ..	13 .. ..	....	980 0 0
54 Methodist Mission Industrial School, Ikkadu.	Weaving, spinning, lacquer work, embroidery, lace-making and general needle-work ..	8 .. ..	....	15,324 0 0
55 St. Anthony's Industrial School, St. Thomas Mount.	Dress-making, embroidery, and needle-work ..	....	....	4,910 0 0
56 L.M. Girls' Industrial School, Erode ..	Weaving mat and basket-making ..	10 .. ..	....	279 0 0
57 Methodist Mission Girls' Industrial School, Dharapuram.	Embroidery and lace-making ..	20 .. ..	....	2,745 0 0
58 Methodist Mission Girls' Industrial School, Karur.	Do. ..	....	....	....
59 Immaculate Conception Convent Industrial School, Coimbatore.	Needle-work, embroidery and dress-making ..	....	....	1,296 0 0
60 St. Joseph's Orphanage Industrial School, Guntur.	Needle-work and dress-making ..	....	....	137 0 0
61 St. Joseph's Industrial School, Madura ..	Embroidery and drawing ..	....	....	....
62 Nazareth Convent Industrial School, Ootacamund.	Needle-work, dress-making and embroidery ..	....	....	2,294 0 0
63 Leipzig Mission Women's Industrial School, Mayavaram.	(a) Cloth-weaving, (b) mat-weaving and (c) needle-work.	(a) 3, (b) 3 and (c) 1 .. ..	....	2,500 0 0
64 R.C. Lace School, Vadakangulam ..	Lace-making ..	1	Working at home ..	151 0 0
65 Hindu Girls' School, Kudangulam ..	Lace-making and embroidery ..	6 .. ..	....	346 0 0
66 Holy Cross Convent Industrial School, Tuticorin.	Drawn thread embroidery and needle-work ..	19 .. ..	....	336 0 0
67 Holy Cross Convent Industrial School, Trichinopoly.	Embroidery and dress-making ..	....	....	....
68 St. Joseph's Convent Industrial School, Bellary.	Lace-making, embroidery and general needle-work.	7 .. ..	....	300 0 0
69 A.A.M. Women's Industrial School, Palmaner.	Embroidery, dress-making and weaving ..	7	All are employed as cottage workers.	4,977 0 0
70 The Commonwealth Embroidery School, Calicut.	Drawn thread and embroidery ..	5	All are employed ..	930 0 0
71 St. Vincent Girls' Industrial School, Calicut.	Dress-making, embroidery and knitting ..	....	....	342 0 0
72 Sacred Heart Convent Industrial School, Anjengo.	Lace-making, embroidery and needle-work ..	1 .. ..	....	55 0 0
73 O.E.L.M. Girls' Industrial School, Nayadupet.	Lace-making and embroidery ..	5	Four are employed ..	2,498 0 0
74 Danish Mission Girls' Industrial School, Keelur, Tirukkoyilur.	Do. ..	....	....	....



Handwritten notes and signatures: 'X 8. 2117 N 37' and a large 'R'.

Government of Madras

DEVELOPMENT DEPARTMENT

G.O. No. 2502, 10th November 1937

Industries—Administration Report, 1936-37—Recorded.

READ—the following paper :—

From the Director of Industries, dated 30th July 1937,
No. 1478-A/37.

Order—No. 2502, Development, dated 10th November 1937.

Recorded.

2. The year under review saw a partial fruition of the labours of the department for the industrialization of Mettur, in the formation of the Mettur Chemical & Industrial Corporation, Limited, with an authorized capital of Rs. 50 lakhs for the purpose of establishing an alkali industry and of manufacturing caustic soda, liquid chlorine, bleaching powder, hydrogen and other chemicals, and in the formation of the Mettur Industries Limited, under the managing agency of Messrs. W. A. Beardsell & Co., with an authorized capital of Rs. 20 lakhs for the purpose of establishing a cotton spinning, bleaching and finishing mill. Preparations are proceeding for the commencement of work by both the concerns. No small credit is due to Mr. Green, the Director, for the success that has attended the efforts of the department. It was he that first investigated the industrial possibilities of Mettur and brought them to the notice of the public and it was through his untiring efforts that these two projects took concrete shape during the year. The Government trust that it will not be long before they are in a position to register further progress in this direction and that investigations and experiments now in progress will soon result in the establishment of manufacture of stable fibre and calcium carbide at Mettur.

3. It is disappointing that the State Aid to Industries Act, 1923, has not so far materially contributed towards the industrial progress of the province. It was amended during the year with a view to increase its usefulness. The most important amendment effected was the clause introduced in the Act under which old or established

industries also could be given aid under the Act, in suitable cases, if special reasons existed therefor. The definition of the term "cottage industries" was also liberalized during the year. Formerly the term was taken to refer only to "industries carried on exclusively for the benefit of, and by, workers in their homes" and not to industries carried on for the benefit of middlemen, though the workers happen to work not in factories, but in their own cottages. This definition has now been relaxed in order to permit of the grant of loans to such industries carried on by workers in their own homes even though the middlemen stand to benefit, in greater or less degree, by the cottage workers' labour. Though the improved facilities thus made available were widely advertised, there have been no applications for aid from among the cottage workers. The Act has been just further amended in order to allow the grant of aid to village industries without having to go through the formalities prescribed by its provisions.

4. Increasing contact was established during the year between the department and the public by the publication in the press of the Director's monthly report on trade conditions in the province and of the weekly statement of wholesale prices of commodities prevailing on Monday each week at important market centres. The work of the Statistical section which issues this weekly statement is another attempt to interpret economic conditions and agricultural facts to trade. Crop forecasts form its main function at present. Twenty-six forecasts in all were issued in the course of the year covering practically all important crops grown in the province. Fifteen intermediate crop reports were also issued. The Government instituted fresh forecasts during the year in respect of the main dry food-grains and grams and after the close of the year in respect of each variety of tobacco. Crop-cutting experiments on an elaborate scale are now in progress in order to determine normal yields of food-grain and sugarcane crops under present conditions of improved methods of agriculture and thus to enable the section to revise, if necessary, the figures of normal yields which were fixed as early as 1919 and which form the basis of the present forecasts. The number of experiments to be conducted in each district being as many as 250 for food-grains and 60 for sugarcane, the results are expected to yield figures which should more or less approximate actuals. Proposals are also now under consideration as to how best to increase the usefulness of the section.

5. The Kerala Soap Institute worked at a profit of Rs. 22,113 as against Rs. 15,214 in the previous year and also provided facilities among others for carrying on experiments on cosmetics, manufacture of insecticides, fungicides, sprayers and essential oils. The courses of instruction provided at the Government Textile Institute were revised towards the close of the year but the question whether the institute should provide increased facilities for training in power looms still remains unsettled. The Government hope to come to an early decision in the matter. Experiments in the manufacture of gold thread are in progress in the institute.

6. The working of the Madras Provincial Handloom Weavers' Co-operative Society, Limited, with the help of the Government of India subvention for the handloom weaving industry, the working of the Woollen Subvention Scheme and the Sericultural Subvention Scheme referred to in the Director's report constitute the main activities of the department towards helping cottage industries, while classes already started or proposed to be started in leather goods manufacture, casting and metal working, pottery and coir working represent the department's attempts to aid the establishment of other cottage and small-scale industries in the province.

7. The net cost of the department decreased by Rs. 26,900 in spite of increased expenditure under some heads due to normal expansion of departmental activities and to the incurring of additional expenditure on new development schemes.

(By order of His Excellency the Governor)

C. J. PAUL,
Secretary to Government.

To the Director of Industries.
" Government of India, Department of Commerce (with C.L.).
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