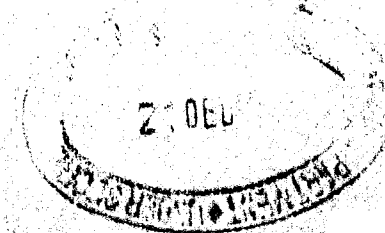
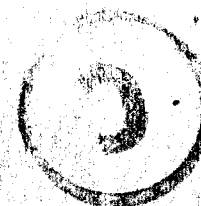


REPORT
OF THE
DEPARTMENT OF INDUSTRIES
MADRAS

FOR THE
YEAR ENDING 31st MARCH 1928



MADRAS
THE SUPERINTENDENT, GOVERNMENT PRESS
1928

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No. 393-E/28.

FROM

KHAN BAHADUR MUHAMMAD BAZL-UL-LAH SAHIB

BAHADUR, C.I.E., O.B.E.,

Director of Industries, Madras,

To

THE SECRETARY TO GOVERNMENT,

DEVELOPMENT DEPARTMENT.

Dated Madras, the 15th August 1928.

SIR,

I have the honour to submit the Administration Report of the Department of Industries for the year ended 31st March 1928.

I have the honour to be,

Sir,

Your most obedient servant,

M. BAZL-UL-LAH,
Director of Industries.

ADMINISTRATION REPORT OF THE DEPARTMENT OF
INDUSTRIES FOR THE YEAR ENDED
31ST MARCH 1928.

PERSONNEL.

Direction.—I was in charge of the Department throughout the year under review. Mr. L. B. Green, M.B.E., continued to hold the appointment of Deputy Director until 7th June 1927 when he handed over charge to Mr. W. Fyfe and proceeded on leave for a period of eight months. Mr. Fyfe acted as Deputy Director of Industries until Mr. Green returned from leave and resumed charge of his office on 7th February 1928.

2. *Director's tours.*—I was on tour for 153 days during the year. My tours covered most of the industrial centres in the Presidency. In August, I proceeded to Simla to attend the Session of the Council of State and on my way back I visited some of the important industrial centres in the North such as Delhi, Cawnpore, Lucknow, Agra, Ajmere and Bombay. I also visited Bangalore on two occasions in order to confer with the Director and Professors of the Indian Institute of Science.

EXHIBITIONS.

3. It is recognized as part of the policy of the Department that the organization of exhibitions should be encouraged and assisted as far as possible. Accordingly the Department participated during the year in a number of industrial and agricultural exhibitions held in various parts of the Presidency, e.g., at Angadipuram (Malabar), Battuvaripalle, Cuddapah, Kaveripauk, Madras, Madura, Mysore, Namakkal, Ponnur, Salem, Srirangam, Tanjore, Tiruppur, etc. At almost all these exhibitions, most of which were held in connexion with District Co-operative Conferences, a representative range of soaps and inks manufactured at the Kerala Soap Institute, Calicut, and the Government Industrial Institute, Madras, and specimens of finished leather from the Leather Trades Institute, Madras, were displayed and wherever possible, the working of pumping and boring machinery and improved weaving appliances was demonstrated for the benefit of the agriculturists and handloom weavers respectively. The most important of the exhibitions in which the Department participated were the All-India Exhibition held in Madras during Christmas week under the auspices of the Indian

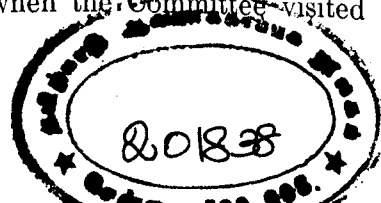
National Congress, the Exhibition held by the South Indian Athletic Association in conjunction with the Annual Park Fair, and the All-India Industrial and Agricultural Exhibition held in Mysore. In the All-India Exhibition held in Christmas last, which was organized on a larger scale than any held in Madras in recent years, all the branches of departmental activity were fully represented and in fact this display formed one of the chief attractions. The engineering exhibits at this Exhibition included one of the new American drills capable of boring through specially hard rock, a hand boring set, crude oil pumping set and high speed kerosine set, while the working of an air compressor drill was demonstrated to the public. A working model of an artesian boring put down by the Department at Vengatur, West Godavari district, and a newly designed power driven oil chekku attracted considerable attention. The exhibits of the School of Arts and Crafts were also favourably commented on, while other outstanding features were the display of the products of the Kerala Soap Institute and a demonstration of the process of soap-making by the cold process, and a working model of an hydro-electric power scheme exhibited by the Madras Trades School, the latter of which in particular attracted large crowds of interested spectators. In the Park Fair Exhibition also the departmental exhibits were a noteworthy feature. In the Mysore Exhibition, the departmental soaps, inks and specimens of finished leather were exhibited. At the Exhibition held at Madura, which was organized by the Madras Provincial Co-operative Union, Limited, Madras, in connexion with the 15th Madras Provincial Co-operative Conference, a demonstration of the working of a hand driven sizing machine and a bobbin winding machine and a display of articles made in the Government Industrial Institute, Madura, were important features. A number of gold and silver medals and first-class certificates of merits were awarded to the departmental exhibits at the various exhibitions. The expenditure involved in participating in these exhibitions is appreciable, but they serve a useful purpose in showing the public in what directions the Department can be of assistance to them.

COMMITTEES.

4. *Railway Local Advisory Committees.*—I continued to serve as the Government representative on the Local Advisory Committees of the South Indian and the Madras and Southern Mahratta Railway Companies.

5. *Indian Cinematograph Committee.*—I submitted written evidence to the Indian Cinematograph Committee and was orally examined upon it when the Committee visited Madras in January of this year.

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6. *Committee on Co-operation.*—I gave oral evidence before the Committee on Co-operation in Madras.

MADRAS STATE AID TO INDUSTRIES ACT.

7. *Statutory Board of Industries.*—The composition of the Board of Industries as it stood at the close of the year 1926-27 was as noted below :—

- | | |
|---|--|
| (1) Director of Industries, <i>Chairman</i> | } Ex officio. |
| (2) Secretary to Government, Finance Department | |
| (3) D. Stephens, Esq., elected by the Madras Chamber of Commerce. | } Elected by the Madras Legislative Council. |
| (4) M.R.Ry. Narayan Doss Girdhar Doss Avargal, elected by the South Indian Chamber of Commerce. | |
| (5) S. J. Green, Esq., elected by the Madras Trades Association. | |
| (6) J. A. Saldanha, Esq., B.A., L.L.B., M.L.C. | } Nominated by Government under section 3(2) of the State Aid to Industries Act. |
| (7) M.R.Ry. Diwan Bahadur P. C. Ethirajulu Nayudu Garu, M.L.C. | |
| (8) " Diwan Bahadur G. Narayanaswami Chetti Garu | } |
| (9) " R. Nagan Gowda Avargal, M.L.C. | |
| (10) " Rao Bahadur M. K. Venkata Achariyar Avargal | |
| (11) M. Muhammad Ismail Sahib Bahadur | |
| (12) Registrar of Co-operative Societies | |

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

Mr. S. J. Green left for England on the 26th March 1927 and as he was absent from India for three months, Government declared, under rule 6 of the rules framed under the Act, that he had ceased to be a member of the Board. The Madras Trades Association thereupon elected Mr. A. T. Luker as a member of the Board. Mr. L. B. Green proceeded on leave for eight months with effect from 7th June 1927 and during his absence, Mr. W. Fyfe, Acting Deputy Director of Industries, acted as Secretary to the Board in his stead.

8. In paragraph 3 of the report of the previous year, reference was made to the application from Mr. L. S. Krishnan for a loan of Rs. 25,000 for the purpose of establishing a saw mill and wood working plant at Nilambur which was pending with Government. Government issued orders during the year under report that they were unable to sanction the grant of the loan applied for as the security offered was insufficient.

9. The position of the Carnatic Paper Mills, which had up to 31st March 1927 received from Government loans aggregating Rs. 4,59,000 and had also been guaranteed an overdraft of Rs. 1,34,469-3-4 with the Imperial Bank of India underwent no

improvement during the year, and owing to lack of finance, manufacturing operations could not be started. In fact, the necessary expenditure on account of the payment of the staff and maintenance of the mortgaged property in a satisfactory condition had to be borne entirely by Government. For this purpose the Company were granted during the year further loans aggregating Rs. 14,845.

10. Of the three applications to which reference was made in last year's report, two were, as stated therein, rejected and the third, viz., that from Mr. S. V. Devarajan, Managing Director, the Salem Dye Works Syndicate, was placed again before the Board at its meeting held on 11th April 1927 and was recommended by the Board. The orders of Government sanctioning the loan applied for were received during the year under report and arrangements were being made at the close of the year for the disbursement of the loan.

11. During the year under review, three meetings of the Board of Industries were held on the 11th April, 11th July and 9th December 1927 at which the following applications were considered:—

(i) Application from Messrs. Ebrahim Sait & Co., Bellary, Proprietors, the Ismailia Cotton Pressing and Ginning Co., Adoni, for a loan of Rs. 40,000 for reviving and developing their cotton ginning and pressing factory.

(ii) Application from Mr. Muthyala Seenappa Ramanna, merchant, Bellary, for a loan of Rs. 20,000 for working his safety match factory at Bellary.

(iii) Application from Mr. M. S. Sarma, Proprietor, Messrs. Sarma & Sons, Triplicane, Madras, for a subsidy of Rs. 5,000 for carrying out researches in zincography and etching with a view to the reproduction of works of art.

(iv) Application from the Delta Exporting and Importing Co., Ltd., Palacole, for a loan of Rs. 10,000 for developing the handloom weaving and hand lace industries of the locality.

(v) Application from the Tindivanam Co-operative Agricultural and Industrial Society, Ltd., Tindivanam, for subscription by Government for shares to the extent of Rs. 15,000 for the development of the industries carried on by the Society such as bone disintegration, etc.

(vi) Application from Mr. T. S. Ramalinga Asari, Viswakarma Tile Works, Parli, South Malabar, for a loan of Rs. 50,000 for developing his tile factory.

(vii) Application from Dr. V. Shrinivas Rao Nayudu, L.M.S., Choolai, Madras, for a loan of Rs. 2 lakhs for the establishment of a Chemical Works at Vellore and for the grant of land and of firewood for the works.

(viii) Application from Messrs. Nookala Venkatasubbayya & Sons., cloth merchants and landlords, Appayarajupet, Pullampet P.O., for a loan of Rs. 15,000 for the establishment of a silk factory.

(ix) Application from Messrs. Abbas Magnesite Co., Moor Street, Madras, for the guarantee of an overdraft with the Imperial Bank of India to the extent of Rs. 6 lakhs for establishing a magnesite industry in the Salem district.

(x) Application from the Zamindars of Belgam, Parvatipuram, for a loan of Rs. 40,000 for developing their pyrotechnic match factory and starting an oil mill as a subsidiary industry.

12. Of the applications mentioned above, those from Messrs. Ebrahim Sait & Co., Bellary, The Delta Exporting and Importing Co., Ltd., Palacole, and Mr. T. S. Ramalinga Asari, Parli, were rejected unanimously by the Board as it was held that they did not come within the scope of section 5(i) of the Act. The Board likewise rejected unanimously the applications from Dr. V. Shrinivas Rao Nayudu and Messrs. Nookala Venkatasubbayya & Sons, on the ground that they did not satisfy the provisions of section 9 of the Act. Government were therefore precluded, under section 8(5) of the Act, from granting the aid applied for by these five applicants and they passed orders accordingly. The application of Mr. M. S. Sarma for a subsidy was rejected by the Board and Government declined to grant the aid applied for as they were not convinced of the soundness of the scheme of research proposed to be undertaken. The application from Mr. Muthyala Seenappa Ramanna was recommended by the Board unanimously and Government sanctioned the grant of the loan of Rs. 20,000 applied for. The amount was disbursed to the applicant on 29th September 1927. The application for a loan received from the Zamindars of Belgam was also recommended by the Board unanimously though they considered that the applicants were not eligible under the Act for a loan of an amount in excess of Rs. 11,000. Government sanctioned the grant of this loan and, at the close of the year, arrangements were being made for the disbursement of the amount. The application from the Tindivanam Co-operative Agricultural and Industrial Society, which was recommended by a majority of the Board, was under the consideration of Government at the end of the year. The application for the guarantee of an overdraft from Messrs. Abbas

Magnesite Co., was adjourned for further consideration pending the result of further enquiries as to the cost of production and the world demand for magnesite which the Board desired to be instituted. These enquiries had not been completed before the end of the official year.

13. In the result, out of the allotment of Rs. 4 lakhs provided in the budget for the year 1927-28 under the head 'Loans and Advances by Provincial Government—(f) Advances under Special Laws—State Aid to Industries', only one loan of Rs. 20,000 was, apart from the amount of Rs. 14,845, provided for the Carnatic Paper Mills, disbursed during the year. Two loans aggregating Rs. 21,000 were sanctioned though they could not be disbursed before 31st March 1928. The balance of the budget allotment lapsed to Government.

14. At the meeting held on the 11th April 1927, the question of amending certain rules and of framing new ones was considered in addition to the applications for loans already referred to. With the further experience gained of the working of the Act, it was considered desirable to frame certain additional rules and amendments to the existing rules. Accordingly a set of draft rules and amendments was drawn up and after consideration, these draft rules were unanimously approved by the Board. Government in passing orders thereon observed that no rule need be framed for the present under clause 3 of sub-section (b) of section 19 of the Act. The remaining draft rules which mainly dealt with the question of insurance of mortgaged properties, payment of penalty for non-payment of instalments on due dates, suspension of repayment of annual instalments, etc., were approved by Government with certain modifications.

15. The question of the future of the Carnatic Paper Mills continued to engage the attention of Government, and though no definite conclusion as to the future of the Mills was reached before the close of the year under review, it was found necessary to foreclose on the mortgage held by Government in order to safeguard Government interests. From a perusal of the audited balance sheet and income and expenditure account for the year ended 30th June 1927, it is observed that the value of the assets of the Carnatic Paper Mills determined in accordance with rule 11 of the rules amounted to Rs. 21,20,872-8-10 and the liabilities including the Government loans to Rs. 7,86,898-6-0, the net value of the surplus assets thus amounting according to the balance sheet to Rs. 13,33,974-2-10.

16. There was some improvement shown by Messrs. Muppana Somaraju and Veerraju in the maintenance of the accounts of

their concern. The firm earned a net profit of Rs. 1,10,164-14-8 on the operation of their silk factory for the two years ending 31st December 1926. The value of the assets of the business amounted to Rs. 3,12,453-13-4 and after deducting Rupees 1,04,197-1-0 representing liabilities, the net value of the surplus assets amounted to Rs. 2,08,256-12-4. The firm was again very prompt in repaying the instalment of the loan.

17. The Canara Rice and Saw Mills, Coondapoor, sustained, during the year 1926-27, a loss of Rs. 2,848-10-10. In consequence of the mills proceeding to utilize the unspent balance of the loan as working capital without obtaining the previous permission of Government, and in view of their unwillingness to act on the advice tendered by this Department and the Chief Forest Engineer, Government ordered the recovery of the unspent balance of the loan. The third instalment of the loan and the first instalment of the amount ordered to be recovered have been paid since the close of the year.

18. The Andal Mills, Gudiyattam (Proprietor, Mr. D. Rangaswami Nayudu), earned during the year ended 31st March 1927 a net profit of Rs. 2,280-6-11 which has more than counter-balanced the loss incurred in the previous year. The assets at the end of the year amounted to Rs. 35,189-1-11 and, after deducting the liabilities amounting to Rs. 24,862-9-2, the net assets of the concern stood at Rs. 10,326-8-9. The income for the year from the rice huller, flour mill, decorticator and sale of groundnut shells and cotton amounted to Rs. 12,439-6-11 as against Rs. 7,430-15-9 in the previous year.

19. From a perusal of the audit report on the accounts of the Kallakurichi Co-operative Agricultural and Industrial Society for the year ended 30th June 1927, received from the Deputy Registrar of Co-operative Societies, V Circle, Madras, it is observed that the Society earned in the year a net profit of Rs. 1,331-6-7. The paid-up share capital rose from Rs. 40,895-4-9 to Rs. 41,180-3-6. Although the main factory and the Sankarapuram branch continued to turn out satisfactory work, the results of the working of the Society as a whole were hardly up to expectations. The Society paid the first instalment of the loan on the due date. Arrangements were made by the Department during the year to carry out in the Society's premises a series of trials on a Muller oil expeller which a prominent European firm in Madras placed at the disposal of the Department for purposes of experiment.

20. During the year under report, the question of amending the Act with a view to exempting industries with a capital outlay not exceeding one thousand rupees and cottage industries from

the operations of certain sections of the Act received consideration. Although the State Aid to Industries Act has been in force for a period of nearly five years, very few applications for aid to cottage and small scale industries have been received. As this paucity of applications was attributed to the restrictive nature of section 9 of the Act which limits the maximum amount of aid to 50 per cent of the assets, and also to the requirement under the Act by which these industrialists are called upon to maintain detailed accounts, to render several returns and statements and to subject them to the audit of auditors approved by Government, it has been considered desirable to exempt small scale industries and cottage industries from the operations of sections 9, 10, 11 and 14 of the Act. Accordingly a Bill to amend the Act was drawn up during the year and published for general information with a Statement of Objects and Reasons.

GENERAL ASSISTANCE TO TRADE AND INDUSTRY.

21. The Department of Industries is the special organ of Government charged with the oversight of trade and industry, and the work of providing general and statistical information on industrial and commercial subjects is carried on in the Bureau of Industrial and Commercial Information, the scope and organization of which have been fully detailed in previous administration reports. The volume of inquiries dealt with has been well maintained and evidence of the Bureau's usefulness is forthcoming in the steady increase in the number of persons who resort to it for advice and assistance and by the numerous letters of thanks received for services rendered or information supplied. The number of visitors calling at the office to make verbal inquiries has increased to such an extent in recent years that it is becoming very difficult to find the necessary time to interview callers and discuss with them, often at length, the subject of their inquiry.

22. *Commercial and industrial inquiries.*—The number of industrial and commercial inquiries received from the public and other Government departments in regard to the sources of supply and markets for various articles and commodities was again large and, as usual, covered a wide range. A number of references were received from the Director-General of Commercial Intelligence and Statistics, Calcutta, in regard to overseas trade in general and with reference to the financial standing and business reputation of firms in particular. Information continued to be freely exchanged with His Majesty's Trade Commissioner, Calcutta, and the United States Trade Commissioner at Bombay and Calcutta

and with various foreign Consuls and other authorities. The Deputy Director continued to furnish the Director-General of Commercial Intelligence and Statistics with a short weekly review of trade and market conditions in respect of the main classes of produce.

23. It is difficult, if not impossible, to summarize in a few paragraphs the scope of the inquiries received during the year on industrial and commercial subjects, but the following twenty-five examples of measures taken to assist firms or individuals will, it is hoped, serve to illustrate the many and varied ways in which the Bureau is of practical use in supplying information and advice on industrial and commercial subjects:—

(i) A foreign trade official was furnished with information in regard to exporters of limed fleshings in Madras.

(ii) A co-operative organization in the mufassal was put in touch with importers of cardamoms in foreign countries.

(iii) Information in regard to the names of manufacturers of crepe sole rubber and the quantities produced by them was furnished to a Government department.

(iv) A Government department was furnished with the names of manufacturers of mustard flour or powder together with information as to their financial standing.

(v) A Government department in another province applied to this department for assistance in securing the services of a cigar roller and suitable arrangements were made for obtaining one from an important cigar factory in the Presidency.

(vi) A firm in the Northern Circars was furnished with information in regard to the occurrence and sources of supply of *Brossonetia papyrifera* bark.

(vii) A jail was put in touch with the makers of patterns of plate mouldings for belt buckles.

(viii) A Government department in another province was supplied with a list of hosiery factories in the Presidency together with information as to date of establishment, types of machinery used, method of finishing adopted, and as to whether or not the factories had been successful.

(ix) The Director, Royal Botanic Gardens, Kew, Surrey, was furnished with a report on the maroti oil industry on the West Coast, together with samples of the oil and the seeds.

(x) Information as to the localities in which Choudu (Dhobies earth) is available in the Presidency with the names of the principal collectors was furnished to a prominent firm in Madras.

(xi) A party in the Northern Circars was furnished with an estimate for the supply of a hand-driven machine for manufacturing gem biscuits.

(xii) A department of the Government of India was furnished with information as to suppliers of horsehair and wool cuttings of cloth, yarn, etc., suitable for axle box packing.

(xiii) A list of silk yarn dealers and reelers in Kollegal taluk was furnished to an enquirer in Chittagong.

(xiv) A Government department in another province was supplied with the names of dealers in avaram bark as also with information in regard to the trend of prices and prevailing rates.

(xv) A list of manufacturers of tin foil and glazed casing papers in the United Kingdom was furnished to a party in Madras proposing to manufacture sweets.

(xvi) A prominent firm in Madras was furnished with detailed information as to the methods adopted in the different districts of the Presidency for curing tobacco.

(xvii) A mica miner was furnished with the prevailing London market rates for the several qualities of mica splittings specified by him, together with a statement showing the quantity and value of mica splittings exported from the Presidency.

(xviii) An enquirer in Tuni was furnished with advice as to method of detection of the ash content of Kamala powder and as to the process of removing the adulterated matter, and with information in regard to the duty levied in America on the powder. A list of consumers of Kamala powder in the Bellary, Kurnool and Tanjore districts was furnished to a party in Amritsar.

(xix) A Government department in another province was furnished with a list of wholesale dealers in indigo seed together with the prevailing prices of the seed.

(xx) An enquirer in Ootacamund interested in the cultivation of tanning materials was furnished with a list of suppliers of avaram seeds in the Presidency.

(xxi) A firm in Bombay was supplied with the names of the principal dealers in raw as well as tanned lizard and reptile skins.

(xxii) A party in Cocanada was furnished with information as to the process of manufacturing casein.

(xxiii) A Government department in another province was furnished with a list of oil mills in the Presidency, the kind of seeds crushed, the output per day and the type of machines employed.

(xxiv) A firm in London who required red corundum was placed in touch with a party in Salem and samples and quotations

were obtained and forwarded. As the corundum was said to be somewhat impure, the party was advised as to the process of separating the impurities.

(xxv) A party in the West Godavari district was furnished with advice in regard to the establishment of an oil mill in his locality after a careful consideration of the prospects of and the scope which existed for setting up a mill in that area.

24. *Statistics.*—The Department continued to compile statistics relating to industries, including statements of cotton, jute, paper and woollen mills, planting products and mines and minerals, besides an annual review of the working of the Indian Mines Act, as also the fortnightly return of wholesale prices of certain basic commodities at selected marts in certain districts of the Presidency. The improvement which has been effected in the accuracy of the statistics compiled by the Department during the last few years was well maintained during the period under review.

25. *Lace and Embroidery Industry.*—In last year's report it was stated that the question of improving and developing the lace and embroidery industry in South India was receiving attention and that the reports of Miss Tweddle, who had been deputed to report on the position and prospects of the industry, were under the consideration of Government. The orders of Government were received only recently. Government are of opinion that it is unnecessary at present to establish any special agency in Madras for the purchase and distribution of raw materials to lace workers or for the collection of their lace for export. They, however, incline to the view that it is necessary to have a central organization in the Presidency which would keep itself in touch with the industry and bring to its notice up-to-date requirements of consuming markets, local and foreign, in the matter of design and finish and assist in the development of new lines of work wherever possible or necessary. The question whether the Women's Committee of the Victoria Technical Institute, Madras, could be developed to serve the purposes of such a central organization is under consideration. Government have approved provisionally the proposals contained in the report that an agent should be appointed in London who would purchase samples of goods produced in other countries which might be made in India, furnish information likely to assist in the development of cottage industries and act as a selling agent on behalf of producers who may wish to utilize his services. It has been suggested that the agent should also represent Government at trade fairs and organize and take charge of exhibits at such fairs. The question of selecting a suitable agent in London is now receiving

attention. The appointment of a lace expert for this Presidency does not appear to be urgent or in fact necessary. The first step is, as already indicated, the appointment of an agent abroad and the formulation of measures for a further development of the work of the Women's Committee of the Victoria Technical Institute.

26. *Coir Industry on the East Coast.*—Allusion has been made in the administration reports of the two preceding years to the question of the development of the coir industry on the East Coast and to the experiments initiated at Ambajipet in the Godavari district in regard to improved methods of retting coconut husks, which consisted essentially of soaking husks separated from the nuts at the proper stage in water under suitable conditions for some months. The experiments were continued during the year under review but the retting operations did not yield satisfactory results and it became evident that the selection of a site at a distance of 20 miles from the sea was not a happy one and that the experiments were not conducted under ideal conditions. The area in which the experiments were conducted is mainly a copra centre and as dry husks are in demand for purposes of fuel, husks of suitable maturity are only obtainable at a high price. Considerable difficulty was therefore experienced in securing coconuts of the required maturity for purposes of retting and those obtainable were forthcoming only at a cost which left little or no margin of profit in converting the fibre into yarn. The high price of husks and the dark colour of the fibre obtained rendered difficult the successful marketing of the product and, on a review of the position, it was considered inadvisable to continue the work at Ambajipet. The question whether further experiments could usefully be conducted in the neighbourhood of Thopputhurai in the Tanjore district was therefore investigated by the Textile Expert and the Leather Research Chemist and their joint report showed that the necessary facilities for the conduct of experiments in coir retting would be available there. There can be no question as to the desirability of conducting a detailed investigation into the nature of water that is essential for successful retting and the relative quality and yield of fibre from husks when retted with salt and ordinary fresh water. Inter alia, the possibility of shortening the time of retting requires to be carefully investigated. There is little doubt that fibre suitable for inferior quality mattings and for packing and bundling purposes, at least, can be produced in many districts of the Presidency where the coir industry is not at present carried on, but it should be possible in addition to produce in many places reasonably good quality fibre suitable for other purposes even

though it may not be practicable to produce weaving yarns of equal quality to the well-known West Coast varieties such as Alapat and Anjengo. There is no reason to apprehend that if the coir industry is successfully established elsewhere in the Presidency, such development would react unfavourably on the old established West Coast industry as the position is that for some time past there has been a shortage in the available supply of weaving yarns owing to the insufficiency of seasoned husks on the West Coast. There is reason to believe that both the local mat industry on the West Coast and the export trade could absorb an increased quantity of weaving yarns and if this is so, the line of advance appears to be for the West Coast, where conditions are particularly favourable, to concentrate on the production of the finer qualities, leaving the production of the lower qualities to other parts of the Presidency. Accordingly proposals for the conduct of further experiments in coir retting in the Tanjore district were being worked out at the close of the year.

27. *Decortication of Groundnuts.*—In last year's report, attention was drawn to the unsatisfactory methods of decorticating groundnuts practised in this Presidency and the scope which exists for improvement in this respect. A bulletin on the subject written by Mr. Green before he proceeded on leave was published in English towards the end of the year and Tamil and Telugu translations of it have since been prepared. This bulletin has been exceptionally well received by the trade and the press and it is evident that the need for improving the existing methods of decortication and shipment of kernels is becoming widely recognized. The attention of the Department has been drawn to a patent process that has been evolved for pressing groundnuts in shell into bales in order to secure the transport advantages of the decorticated kernels and to prevent the deterioration in the latter which takes place during transit, owing primarily to the damping of the kernels and the unsatisfactory methods of decortication in force. The greater part of the groundnuts consigned from the West Coast of Africa to Marseilles are shipped in shell and as a consequence the oil obtained therefrom commands a higher price than the oil expressed from kernels shipped from the Coromandel Coast. I doubt, however, whether there is scope in this Presidency for the adoption of the new process and consider that the line of advance should be to endeavour to improve the existing methods of decortication and shipment of kernels as outlined in the departmental bulletin rather than to encourage the shipment of groundnuts in shell in pressed bales. If a decorticator capable of shelling dry nuts with a minimum of breakage could be evolved, there would be

no necessity or justification for damping the nuts and, subject to satisfactory packing, there should then be very little deterioration in transit of kernels packed in bags. Further, the decortication of groundnuts gives employment to a considerable number of people and if the nuts were shipped in shell, a valuable rural or semi-rural industry with considerable potentialities of development would be lost to the Presidency. It is obviously desirable on economic grounds that, as far as possible, the various agricultural products should be shipped in as manufactured a form as possible. The importance of the preservation of quality is becoming increasingly realized and it seems likely that the market for inferior qualities will become more and more restricted. It is generally appreciated, however, that the problem of evolving and introducing satisfactory methods of decortication is a most difficult one.

28. *Ceramic Industry*.—The possibilities of developing the ceramic industry in the Presidency have received consideration from time to time and during the year the question again arose in connexion with the depressed condition of the tile industry on the West Coast. The tile manufacturers approached the Department with a request that the possibility of assisting the industry to recover its falling markets should be investigated departmentally. The latent possibilities of the ceramic industry generally would appear to merit a detailed inquiry and proposals for the employment of a special officer to carry out such an investigation were submitted to Government during the year. The orders of Government had not been received by the close of the year.

29. *Cement Industry*.—The question of a possible cement industry in this Presidency has come under review periodically during the last decade. The imports of cement into the Presidency during the last few years have averaged about 25,000 tons annually valued at Rs. 15 lakhs. There should thus be scope for the development of cement manufacture in the Presidency and the question of establishing a factory for the purpose was under examination at the close of the year by a firm of cement manufacturers who are being rendered all possible assistance by the Department in regard to the prosecution of their investigation.

30. *Survey of Cottage Industries*.—It was stated in last year's report that the question of organizing and developing cottage or rural industries which are suitable as subsidiary occupations for the agriculturists during the slack season was engaging attention, and that, as a preliminary, M.R.Ry. D. Narayana Rao Avargal, Deputy Collector, had been appointed Special Officer to carry out a survey of cottage industries—existing and potential—in the Presidency. This officer entered upon his duties early in the year

and after a study of the literature on the subject and drawing up a plan of operations, commenced the survey of the Cuddapah district on the 4th May 1927. When he had completed the survey of the Ceded districts, an additional staff of three special Tahsildars was sanctioned by Government to assist him in the survey and with a view to its expeditious completion. By the end of the year, the survey of the Cuddapah, Bellary, Kurnool, Anantapur, Madura, Ramnad, Tinnevely and Trichinopoly districts had been completed. The preliminary reports of the Special Officer in respect of the above districts have already been published for general information and it is hoped that it will be possible to complete the survey before the close of the current official year. After the survey of the Anantapur district had been completed, Government desired that, in addition to the general survey of a district, the Special Officer should make an intensive study of the economic conditions of the people in two selected villages with a view to ascertaining their principal occupation, the period of their leisure, the possible use to which that leisure could advantageously be put and so on. This economic survey is being made by the Special Officer side by side with the survey of cottage industries. As far as possible, action is being taken on such of the Special Officer's recommendations as specially relate to industries peculiar to particular districts, but such recommendations as are of a general character can be considered only when the survey is completed and the final report for the Presidency has been drawn up. In one of his reports, the Special Officer suggested the advisability of placing the peripatetic weaving parties under the direct supervision of Collectors. I do not consider that this suggestion would be practicable. I would prefer the establishment of peripatetic weaving schools on the lines of the present departmental weaving parties, to be maintained and managed by local bodies, inspected by officers of this Department, and assisted by grants-in-aid. Meanwhile I do not consider it advisable to increase the number of weaving parties until the necessary co-operative organization has been established to assist the weavers in disposing of the products of their looms as also to provide means for advancing loans to weavers for the purchase of comparatively costly improved appliances. Among the questions which arose out of the Special Officer's recommendations was that of evolving an improved charka. The charkas now on the market are not capable of producing yarn sufficiently even and fine to compete with mill-made yarn, and unless and until it is possible to devise a more efficient spinning wheel, and a more efficient apparatus for bowing, carding and preparing slivers, it is not reasonable to expect more than a limited market for hand-spun yarn. Technical research in European countries has not succeeded in rendering

the spinning wheel an efficient instrument, as the regularity of the threads spun on the wheel depends entirely upon the uniformity of the cotton sliver fed to the wheel. Experiments have been conducted in the Textile Institute on an improved Bengal spinning wheel but the results as regards the regularity of the yarn and the outturn obtained from it are not encouraging. The Textile Expert and the Industrial Engineer have been instructed to collaborate with a view to the evolution of an improved charka but the problem is a very difficult one and at the close of the year, success was not in sight.

31. *Museum of Industrial Products.*—One of the main difficulties under which the cottage industrialists labour is as regards the marketing of their finished products and it has been suggested that this difficulty could be overcome to a considerable extent by the establishment of a museum of industrial products in which would be exhibited typical samples of the various products with complete information as to place of manufacture, value and all other facts of commercial interest; in other words a place which could serve at once the purpose of a museum and an information bureau and to which wholesale dealers and others could resort for getting into touch with actual producers. When full details of the various cottage industries are available, it would be advisable, I consider, to extend the special duty of the Special Officer for, say, a further period of about three months to enable him to work out a suitable scheme on these lines in consultation with producers and consumers, local and foreign.

GENERAL CONDITION OF THE IMPORTANT INDUSTRIES IN THE PRESIDENCY.

32. In accordance with G.O. No. 918, Development, dated 23rd June 1927, the condition of the important industries in the Presidency during the year is reviewed below and in this connexion my thanks are due to several Chambers of Commerce and private firms for their co-operation in furnishing information.

33. *New Industrial Undertakings.*—The number of new companies registered increased from 52 in the previous year to 64 in the year under review. Statistics of new company registrations may be a poor index to business progress, but they need not be wholly ignored. Of the new registrations, nearly 60 per cent were trade and industrial concerns, 23 per cent banking and loan companies and the remaining 17 per cent miscellaneous companies. There was only one new cotton mill registered during the year, namely, the Sree Alagar Mills, Ltd., Madura, but this concern appears to have been wound up within six months of its registration. Among the new companies registered were one match

manufacturing concern, one gold thread manufacturing company and one tile works. The Madras Soap Factory, Ltd., the Shomtir Salt Co., Ltd., the Salem Industrials, Ltd., the Mahalakshmi Carpet Factory, Ltd., Sree Kaleswara Weaving Co., Ltd., Sundareswarar Textile Mills, Ltd., Surya Textile Mills and Industrial Co. of Cocanada, Ltd., Mysore Minerals, Ltd., and the Andhra Sugar Works, Ltd., went into liquidation or otherwise became defunct during the year.

34. *Mining Operations.*—The following prospecting licences and mining leases were granted during the calendar year 1927:—

				ACRES.
Twenty-two P.Ls. for prospecting for mica		over an area of		897.47
Nine	do.	barytes	do.	207.92
Two	do.	asbestos	do.	914.59
Two	do.	manganese	do.	925.41
One	do.	phosphatic nodules	do.	430.22
One	do.	magnesite and chromite	do.	82.96
One	do.	garnet	do.	54.79
Fifteen M.L. for working		mica	do.	820.64
One	do.	manganese	do.	1,503.16
One	do.	magnesite and chromite	do.	578.92

Mining continued to be carried on in the districts of Anantapur, Bellary, Cuddapah, Kurnool, Nellore, Nilgiris, Salem and Vizagapatam and the minerals raised were Manganese, Magnesite, Mica, Barytes, Corundum, Asbestos, Gold and Silver.

35. *Manganese.*—The mining of manganese was carried on in the districts of Vizagapatam and Bellary and the total quantity mined was 37,983 tons against 32,334 tons in the previous year and 30,040 tons in the year 1925. The output of the mineral in the Vizagapatam district rose by over 10,000 tons, but on the other hand the production in the Bellary district declined by nearly 3,000 tons. In the latter district, out of eleven mines only three worked during the year. The value of the mineral exported rose from 0.69 lakh in the previous year to 1.2 lakhs in the year under review.

36. *Magnesite.*—Mining operations continued to be conducted by only one company though, in connexion with the exploitation of the Kanjamalai iron ores, a small quantity of magnesite was again recovered. The output of magnesite in the Salem district was 16,966 tons as against 28,670 tons in the previous year, the decrease being attributable to a further contraction in the demand for calcined magnesite. As about 75 per cent of the exports of

Salem magnesite went to America, the increase in the United States import duty on calcined magnesite in December of the year under review from 14 to 21 dollars per ton is seriously affecting the Salem magnesite industry. Shipments to America had apparently been suspended at the end of the year. The Magnesite Syndicate are affected also by the increased quantity of Grecian magnesite offered in Europe as a result of the increased American tariff. Unless, therefore, new outlets can be found for the mineral, the outlook for the industry in the Salem district appears to be the reverse of promising.

37. *Mica*.—The output of mica in the Nellore district decreased from 663 tons in the previous year to 584 tons in the year under review. The decrease was mainly due to some of the productive mines not having been worked during the year owing to disputes among the partners. In this district the owners of mica mines still continue to adopt the 'Open Cast' method of extraction of mica, and it seems probable that the industry could be considerably improved by the adoption of scientific methods of extraction with a view to exploiting the underground deposits, instead of, as at present, depending only on the surface yield. The output of mica in the Nilgiris increased slightly during the year. The position of the mica industry in the Presidency underwent no improvement during the period under review. The production of "spotted" as opposed to "stained" mica continued to increase whereas the demand in Europe is almost entirely confined to small sizes of stained mica. There are very large stocks of spotted mica both in India and in Europe. The small quantity of stained mica raised during the year realized a higher price for export than in the previous year. Exports of mica increased in quantity from 10,207 cwt. to 12,603 cwt. although the value decreased during the year under review from Rs. 14.57 lakhs to Rs. 13.37 lakhs of which the share of the United Kingdom was Rs. 11.20 lakhs and that of Germany 1.75 lakhs.

38. *Barytes*.—The output of barytes, which is mined in the Kurnool district, showed an increase over the previous year of about 500 tons. The increase in output is attributable to more favourable conditions in the paint and varnish industry.

39. *Gold and Silver*.—The North Anantapur Gold Mines, Ltd., ceased operations in August, and it is understood that they will not be resumed. Up to the end of July 1927, 5,368 tons of tailings were treated in the mine from which 2,395.37 oz. troy of gold and 148.82 oz. troy of silver, valued at Rs. 1,37,445-2-0, were extracted.

40. *Corundum*.—There was a slight increase in the output of corundum mined in the Tiruchengodu and Namakkal taluks in the Salem district during the year, the quantity raised amounting to 22½ tons.

41. *Asbestos*.—This mineral is raised in Cuddapah district. The Mysore Development Syndicate which had been prospecting for asbestos were granted during the year a mining lease in respect of the area prospected by them. The output during the year showed a slight increase from 18½ tons to 22 tons. There is an increasing demand for asbestos and if the Cuddapah variety proves to be of good quality, mining operations in this district are likely to develop considerably.

42. *Textile Industries—Cotton Mills*.—There are at present 21 mills working in the Presidency, three each in Madras, Madura and Coimbatore, two each in Peelamedu and Cannanore and one each in Pandalapaka, Bezvada, Kallai, Calicut, Papaneseri, Koilpatti, Tuticorin and Papanasam. The number of spindles and looms employed in these mills during the year was about 640,000 and 4,700 respectively. There are also a number of small hand-weaving establishments chiefly on the West Coast which employ from two to twelve looms. The newly established Meenakshi Cotton Spinning Mill at Madura commenced operations during the year. This mill contains at present only 10,000 spindles, but it is intended to increase the number to 20,000. The yarn produced finds a ready sale in the Madura market. The mill is driven by a 1,200 horse-power high efficiency steam turbine which provides an unusually steady drive enabling yarn of uniform quality to be turned out. Despite the general depression in the cotton textile industry, the majority of the mills appear to have worked fairly successfully during the year and the position generally underwent no great change. Competition has been severe and the margin of profit obtainable small. The up-country spinning mills which possess the advantage of proximity to raw materials and local markets and are able to command relatively cheap labour appear to have fared best. A tendency has been apparent on the part of cotton mills to offset the narrow margin of profit obtainable by increasing the number of spindles or looms as the case may be, by replacing old by modern machinery, and by adopting the most efficient power drive possible. During the year under review the import duties on cotton textile machinery and mill stores and certain materials used in the industry were removed and a revised duty of 1½ annas per pound or 5 per cent ad valorem, whichever is higher, was imposed on cotton twist and yarn and cotton sewing or darning thread. The effect of this revision is that the duty is now leviable on all imported yarn at the rate of

1½ annas per pound unless its value exceeds Rs. 1-14-0 per pound in which case the duty will be levied at 5 per cent ad valorem. It is too early to say whether the duty, which was introduced with the view of affording Indian mills a measure of protection from Japanese competition, will fulfil its object, but it is obvious that the duty can benefit the cotton mill industry only to the extent to which the price of yarn is increased thereby and any increase in the price of yarn must be a burden on the handloom weaver. The extent of the effect which the duty will have on the handloom industry in general and on the earnings of the individual weaver in particular is being carefully watched by the department.

43. *Jute Mills.*—The number of jute mills in the Presidency was the same as in the previous year. The number of looms and spindles installed in them was 807 and 17,244 respectively. There is no special feature to report in regard to this industry during the year.

44. *Hosiery Mills.*—There are five fairly large factories at present working in the Presidency in addition to several small concerns. Two mills were closed down during the year owing to financial difficulties. A few of the mills appear to have worked successfully, but owing to severe competition the margin of profit was extremely small.

45. *Lace and Embroidery.*—The depression in the industry referred to in last year's report continued during the year under review and lace makers continue to experience difficulty in finding a steady outlet for their goods.

46. *Madras Handkerchiefs.*—It was stated in last year's report that the trade in Madras handkerchiefs had been dull. This period was preceded by one of very active business as a result of which large quantities of an inferior quality were produced and shipped. The arrival in the consuming centres of these inferior quality goods was responsible for the marked dullness in the trade which prevailed throughout 1926, as buyers were not prepared to buy such consignments except at a very reduced price. As a result, exporting firms in Madras insisted on the weavers producing a better quality. When the better quality goods reached the consuming markets, the demand improved and was maintained till towards the end of 1927, when it again began to fall off owing to the weavers, despite the efforts of the exporters to maintain the quality, taking advantage of the increasing demand to produce inferior qualities by the use of cheaper yarns and inferior colours and also by putting in less yarn than the standard required. Large quantities of inferior handkerchiefs were again shipped during the months of brisk demand in the year 1927 and the dullness of trade -

which set in subsequently will probably last until stocks of the unsatisfactory goods have been absorbed and better qualities are again produced by the weavers under the stress of the present slackness in trade. The year under review was, on the whole, a fairly good one for the trade and the demand, although somewhat intermittent in character, was brisk and orders were plentiful, the weavers earning higher wages than for some time past. The value of Madras handkerchiefs exported rose from 15.06 lakhs of rupees in 1926-27 to Rs. 35.07 lakhs in the year under review. Owing to the continued depression in the sarong or kaili trade, a considerable number of weavers of kailis have taken to weaving Madras handkerchiefs and their newness to the work is another cause of the deterioration in quality that has set in. The only remedy for the existing state of affairs appears to be for exporting firms to take concerted action with a view to rejecting inferior goods and to get into closer touch with the weavers.

47. *Lungis, Kailis or Sarongs.*—The chief centres of the industry are Madras, South Arcot, Tinnevely, Trichinopoly, Tanjore and Chingleput and the principal markets are the Straits Settlements, Malay States and Burma. The trade has recently been showing signs of decline and there appears to be little evidence of any immediate revival. Whereas the value of the lungis exported in 1923-24 to foreign countries alone amounted to Rs. 212 lakhs, it amounted to only Rs. 140.61 lakhs in the year 1927-28. Several of the looms engaged in this industry are reported to be now idle, and, as already stated, many of the weavers have taken to the weaving of Madras handkerchiefs.

48. *Tanning Industry.*—The importance of the tanning industry to the Madras Presidency can be gauged by the fact that the annual exports of tanned hides and skins overseas in the last three years have averaged about 676 lakhs of rupees or an average of 16.23 per cent of the total foreign export trade of the Presidency. The value of tanned hides and skins exported from the Madras Presidency during 1927-28 amounted to 778.48 lakhs which is 17.73 per cent of the total value of foreign export trade.

49. *Cow Hides.*—The outstanding feature of the year's trade was the great rise in the price of tanned cow hides. This rise in price started about May 1927 and there was a steady rise until the beginning of February 1928 when prices had attained an average advance of approximately 60 per cent. In February, the market fell rapidly by about 5 to 6 annas per pound or approximately 25 per cent from the top prices realized. Subsequently, the market became very unsteady, but the year closed with prices approximately 40 per cent higher than at the commencement of the official year. The rise in price was caused by the general

shortage of raw hides and the final removal of all excess stocks of leather held throughout the world. America was a much larger buyer of tanned hides direct from Madras than in former years and also purchased large quantities of dressed leather from England made from East India hides. On the whole the Indian hide tanner experienced a good year and, generally speaking, made a good profit on his turnover.

50. *Tanned Goat Skins*.—There was a great demand for tanned goat skins during the year and a steady rise in price was seen throughout the year, particularly in lower grades. This is attributable to the general shortage of leather and to the increased buying power of the public in Europe and America. The increased demand for the lower grades is attributable to the new method of finishing the skins which enables the dresser to obtain as good a finish from a lower grade skin as he used to obtain formerly from skins of better assortment.

51. *Sheep Skins*.—Sheep skins were not in such demand as goat skins. There was a rise in price in the best varieties of sheep, while the commoner qualities, and more particularly the oily tannages such as Mutwadas, were rather slow of sale. This is probably due to the fact that there have been larger quantities of sheep skins produced in other countries.

52. *Tanned Buffalo Hides*.—Exports of these increased considerably and prices advanced by about 40 per cent during the year. This is attributable to the shortage of medium weight cow hides throughout the world.

53. *Tanned Cow Calf*.—These were in quite good request and advanced somewhat during the year. The advance, however, was not in the same proportion as in the case of cow or buff hides. There seems to be no special reason for this and cow calf skins appear to have been relatively cheap in comparison with light cow hides.

54. *Tanned Buff Calf*.—Up till August 1927, these were low in price and difficult to sell, but later there was a strong demand and in December particularly prices advanced considerably. Later there was some reaction, but on the whole the demand has since continued good and prices remain firm. America has been a larger buyer of these skins than in recent years.

55. *Outlook for the Tanning Industry*.—The position of the tanning industry generally during the year may be summarized as a very satisfactory one from the point of view of the tanner. After the war, tanners in Europe and the United States were left with heavy surplus stocks, but these having now been liquidated, world consumption will depend from now onwards upon world

production of tanned hides and skins and in accordance with the law of supply and demand, hides and skins should henceforward, and subject to temporary fluctuations, remain on a higher plane of values. The outlook for the Madras tanning industry, therefore, appears to be a promising one provided that the tanner is able to keep down his tanning costs to a reasonable level.

56. *Wattle Bark*.—This bark is being used to an increasing extent by tanners in South India and imports increased from about 5,800 tons in the previous year to over 8,800 tons in the year under review. Wattle is not at present used by skin tanners but it is used, in greater or less degree, by practically every hide tanner. Wattle was used in probably 90 per cent of the hides tanned during the year. Although the use of wattle has increased to such an extent, there are now fewer complaints from English tanners in regard to the quality of wattle tanned leather and this is probably attributable to the tanners having become more accustomed to its use.

57. *Oil Milling Industry*.—The difficulties in the way of developing this industry on a large scale were referred to in detail in last year's report. It would be difficult for an Indian manufacturing concern to crush on a large scale any seed the oil of which is not sold in a central market in this country, because of the heavy steamer and railway freights on oil and the prohibitive cost of non-returnable containers. A copra crushing mill which worked continuously during the year experienced great difficulty in finding a market for the expeller oil cake at reasonable rates in India. There is said to be a considerable deterioration in the quality of Malabar copra due to the smoke drying method adopted by the growers and unless steps are taken to revert to the traditional practice of drying the copra in the sun, the reputation and the corresponding high value of Malabar copra may depreciate in the world's markets. There are two power mills in Vizianagram which express oil from groundnut seed and these seem to have produced a good quality of oil and to have worked satisfactorily during the year.

58. *Sugar and Jaggery Industry*.—The number of factories working in the Presidency declined from ten in the previous year to eight in the year under review. Of these, two each are situated in South Arcot, Coimbatore and Tinnevely and one each in the Ganjam and East Godavari districts. The price of jaggery remained low during the year owing to the world production having exceeded the demand. Shipments of Java sugar to China were considerably affected by the political situation in the latter country and as a consequence Java sugar has been available for shipment to India at a comparatively low price. Imports of sugar including unrefined

sugar and molasses amounted to 66,425 tons valued at Rs. 140.41 lakhs as against 54,229 tons valued at Rs. 129.62 lakhs in the previous year. During the year, under review, owing probably to the difficulty of obtaining sufficient supplies of local jaggery, 6,081 tons of unrefined sugar valued at Rs. 15.48 lakhs was imported chiefly from Cuba for further refinement in the distilleries of the Presidency. A large proportion of the jaggery produced goes, as stated in last year's report, into direct consumption and as such the difficulty of obtaining supplies of jaggery for refining purposes is likely to persist.

59. *Tile Industry*.—The number of tile factories in the Presidency coming under the operation of the Indian Factories Act during the year was 52 of which 34 were in South Kanara, 15 in Malabar and one each in South Arcot, Bellary and West Godavari districts. There are besides a number of smaller establishments chiefly on the West Coast. The industry, generally, experienced a fairly satisfactory year, the Malabar factories in particular showing improved results. The South Kanara group of factories, however, were not so fortunate as they were affected by the depression in trade in the Bombay area as well as by excessive competition between the numerous Mangalore factories. Although there was a good demand for tiles from Colombo, Rangoon and from several centres in Southern India, a number of the smaller factories in Mangalore and Cochin State had to close down partly on account of insufficient capital and partly on account of the inferiority of their products. The question of conducting an inquiry into the position and prospects of the tile industry—to which reference was made in the last year's report—is still under consideration.

60. *Chemical Industries*.—There has been no further development locally in the manufacture of chemicals and the value of imports of the various articles comprised under the head 'Chemical and Chemical Preparations' expanded from Rs. 27.21 lakhs in the year 1926-27 to Rs. 32.61 lakhs in the year under review.

61. *Manure Industry*.—The demand for high class fertilizers continues to improve and considerable sums of money are now being expended on propaganda work by the large chemical companies in England who look to India to increase their output. The manure manufacturing industry on the West Coast experienced a good year, an increased volume of business having been transacted, more particularly with tea and coffee estates. The rubber estates evinced an interest in manuring and were experimenting, particularly with imported nitrogenous fertilizers, but since the slump in the price of rubber, manurial programmes for rubber

estates have been very considerably curtailed or cancelled altogether. As a result of incessant propaganda among cultivators conducted by the Agricultural Department, the ryots are beginning to exhibit an independent interest in the question of manuring and this has assisted to stimulate the trade. Manure mixing works on the West Coast have, generally speaking, been working at full capacity and a policy of decentralization has been carried out with a view to effecting an economy in transport charges. Calicut remains the chief centre, but compound manures are now mixed on a considerable scale at Mangalore and Cochin, for the respective planting districts served from each of these centres. The manufacture of fish manure and fish guano was again very restricted owing to the continued absence of sardine shoals in coast waters. A certain amount of fish manure was produced from mackerel, but mackerel manure has not established itself as a standard fertilizer and moreover it is not economic in price, if regard be had to its value per unit of nitrogen and phosphoric acid. Fish oil and fish guano presses ceased to operate during the year and the economic loss to the fishing population in Malabar has been considerable. A difficulty in regard to the fertilizer industry has been the high freight rates in force, but as a result of the representations made by Chambers of Commerce and other bodies to the railway authorities, it is understood that since the close of the year, one of the railway companies has already reduced its rates while it is hoped that the other railway administrations concerned will soon follow suit.

62. *Tobacco Industry*.—Manufacturers of cigars are finding it increasingly difficult to maintain the volume of export trade owing to the increased import duty imposed on cigars sent to foreign countries and to the fact that a cigar made of Indian leaf compares unfavourably in weight with cigars of the same approximate size made of other leaf, as a result of which the duty on Indian cigars is heavier than that on cigars of the same dimensions made in other parts of the world. The leaf used for cigar manufacture is grown principally in the Madura and Coimbatore districts, but the leaf obtainable to-day is hardly so good as the leaf which was available years ago. If the Indian cigar trade is to develop, it will be necessary to produce a leaf of a better quality, milder flavour and finer texture. This would postulate the employment of a tobacco expert and the setting up of an experimental station. It would first be necessary to decide, however, whether in the event of it being found possible to improve the local varieties, the prices obtained by the ryots would be commensurate with the additional expenditure involved.

63. *Match Industry*.—The East India Match Co., Ltd., Rajahmundry, was registered during the year with an authorized capital

of Rs. 8 lakhs of which Rs. 13,200 has been subscribed and Rs. 6,600 paid up. The Match Factory at Bellary commenced manufacturing operations with the aid of a loan of Rs. 20,000 sanctioned by Government under the State Aid to Industries Act. There was a sharp fall in the imports of matches from foreign countries, from Rs. 12.18 lakhs in the year 1926-27 to Rs. 5.08 lakhs during the year under review, but this was more than counter-balanced by increased coastwise imports from Burma and Bengal, the value of which expanded by 18.75 lakhs. During the year a loan of Rs. 11,000 was sanctioned to the proprietors of a pyrotechnic match factory started in Belgam in the Vizagapatam district but the amount was not disbursed until after the close of the year.

64. *Aluminium Industry.*—The imports of aluminium increased from 9,846 cwt. in the previous year to 11,951 cwt. during the year under review. The manufacture of aluminiumware is carried on as a cottage industry in and around Rajahmundry and gives employment to some 100 families. Three or four workmen are engaged in each cottage. Aluminium vessels are also manufactured in three shops in Bezwada but the output is sufficient only to meet the local demand. The position of the factory industry in Madras underwent no substantial change during the year except that it suffered to a considerable extent from the competition of the factories which have been started in Bombay during the last few years.

65. *Pencil Industry.*—There is only one factory manufacturing pencils in the Madras Presidency and this is situated in Madras. The factory has not been working very successfully in recent years owing to the severe competition of imported Japanese and German pencils and the difficulty experienced by the concern in obtaining its requirements of raw materials at favourable rates. It is understood that in Madras foreign pencils of a superior quality are selling at a lower price than the indigenous product and it is difficult to see how the concern can develop further, or indeed maintain its position in the face of intensive foreign competition, without some measure of protection.

66. *Saw Mills.*—Conditions in the saw milling industry were slightly better than during the preceding year, but the industry still remains in a somewhat depressed condition.

67. *Coir Industry.*—The coir industry of the West Coast enjoyed a fairly prosperous year, shipments of coir manufactures showing a satisfactory increase.

68. *Soap Industry.*—The Malabar district is both the largest consumer and the largest producer of soap in the Presidency and at Calicut there are, in addition to the Kerala Soap Institute, now

six soap factories. The monthly output of soap from those factories, exclusive of the Kerala Soap Institute, is from 30 to 35 tons. Cheap imitations of the well-known departmental brands are ordinarily made, but one or two of the factories are producing imitations of imported borax soap chiefly by the cold process. No private factory on the West Coast appears to have commenced the manufacture of milled toilet soaps. In the neighbourhood of Palghat, there are one or two small factories which turn out a few cases of soap per month. In the Trichinopoly district there are about nine soap factories which are worked more or less on a cottage industry basis, the manufacture being carried on in the veranda, kitchen or outhouse attached to the residence of the owner. The total monthly output of the Trichinopoly factories may be estimated at from 15 to 25 tons. In Tanjore also there are about six factories manufacturing from 15 to 25 tons per month. In Madura there are three factories, each of which turns out from three to five tons of soap per month. In Madras there are four or five factories making chiefly cheap household soap and the output of each is about 40 tons per month. There are one or two small factories at Mayavaram, one at Kumbakonam and probably others of which the department is not cognisant. Generally speaking, the quality of the soaps turned out in these small scale factories leaves a great deal to be desired. In view of the steadily increasing volume of imports there would appear to be considerable scope for the development of the industry and it is hoped that as the apprentices trained at the Kerala Soap Institute become available for employment, the quality of the soaps turned out in the private factories will gradually improve.

69. *Groundnuts.*—The trade in groundnuts is of increasing economic importance to Madras, the annual exports overseas in the last three years having averaged over 1,000 lakhs of rupees or an average of about 24 per cent of the total foreign export trade of the Presidency. The value of the foreign exports of groundnuts during 1927-28 amounted to 1,211.81 lakhs and represented 27.84 per cent of the total value of the foreign export trade. The groundnut crop was again a record one, showing an increase of over 25 per cent on that of the previous year. Owing, however, to a great increase in the demand from Europe, it has gone readily into consumption at prices slightly above the average of the previous crop.

MANAGEMENT OF MANUFACTURING CONCERNS OWNED BY GOVERNMENT.

70. The Kerala Soap Institute, Calicut, and the Industrial Institute, Madras, were the only manufacturing concerns under the control of the Department during the year.

KERALA SOAP INSTITUTE, CALICUT.

71. *Staff*.—Mr. A. K. Menon was in charge of the Institute throughout the year and Messrs. P. S. Srinivasa Ayyar and C. V. Narayana Ayyar continued as First and Second Assistants.

72. *Production and Accounts*.—The depression in trade continued during the year which was a trying one for most industrial concerns. The year opened with a stock of 60 tons 10 cwt. 10 lb. of soap and 219 tons 14 cwt. and 97 lb. of all classes of soap valued at Rs. 1,08,521-14-9 were manufactured during the year against 358 tons 13 cwt. 82 lb. valued at Rs. 1,65,306-1-0 in the previous year. The sales decreased in value from Rupees 2,44,338 in the year 1926-27 to Rs. 1,82,331 in the year under review. The decline in the volume of sales was a reflection of the falling off in the orders received during the year from the Director of Contracts which declined from Rs. 1,00,550 in the previous year to Rs. 6,150 in the year under review. A satisfactory feature of the year's working was that sales to the general public increased from Rs. 1,43,788 in the year 1926-27 to Rs. 1,76,181 during the year under review. The accounts of the year have not yet been audited, but it is expected that there will be a debit balance of Rs. 7,517-8-5 after providing Rs. 1,461-4-0 for audit fee, Rs. 1,754-13-0 for teaching allowance, Rs. 1,940-8-0 for direction charges and Rs. 2,475 for pension and leave salaries, all of which I consider excessive and greater than a commercial factory of similar size would have to carry. The teaching allowance, for instance, cannot in equity be debited against the factory production, whilst as I have pointed out before, quarterly audits are a needlessly expensive luxury as *pro forma* balance sheets and profit and loss statements would serve my purpose equally well. The interest charged in the accounts at 5.387 per cent amounted to Rs. 18,655-0-10. The net result of the year's working is that in spite of the unfavourable conditions and the practical absence of orders from the Director of Contracts, the Institute, after providing for all the heavy overhead charges mentioned above, was able to earn interest at the rate of 3.21 per cent on the capital invested in it. This result, although disappointing, cannot be regarded in the circumstances, as altogether unsatisfactory. A net profit, subject to audit, of Rs. 4,893-10-10 was realized during the last quarter of the year and the results during the current year are expected to be much more satisfactory; several valuable contracts having been secured shortly after the close of the year under review.

73. *Toilet Soaps*.—The policy of the Institute in maintaining the highest standard of quality for its products and supplying them at the lowest possible price was adhered to during the year. It

is satisfactory that, in spite of the keen competition experienced from well-known imported brands, as well as from Indian soaps, there was a substantial increase in the sale of toilet soaps, the value of which advanced from Rs. 26,926-0-11 in the year 1926-1927 to Rs. 44,171-15-5 in the year under report. The improvement in the demand for toilet soaps is largely attributable to the improved packing and get-up of the boxes introduced during the previous year.

74. *Sales Organization*.—Mr. R. C. Dalal continued during the year under review to act as agent for South Kanara, Malabar, Coimbatore, Nilgiris and the State of Mysore including Bangalore. The States of Cochin and Travancore were removed from his jurisdiction as the amount of business obtained therefrom was not considered satisfactory. Messrs. V. V. Publishing House, Ernakulam, an enterprising firm of general merchants, have been provisionally appointed as agents for these States subject to their furnishing the necessary security and executing the prescribed agreement. The volume of business introduced by Mr. R. C. Dalal from the West Coast and Mysore during the year was fairly satisfactory. Mr. Adam Hajee Muhammad Sait, the Madras agent, transacted a good volume of business during the year and his jurisdiction has since been extended by the addition of the districts of Chittoor and South Arcot. The Deccan General Trading Co., Secunderabad, agents for the Nizam's Dominions, made a good commencement with their agency, though sales have not developed in this market to the extent anticipated. There was an improvement in the volume of business introduced by Mr. G. Palaniappa Mudaliyar, the Madura agent. Of the stockists, Mr. K. Raghavendra Rao of Kumbakonam was the most satisfactory though a fair business was transacted with Messrs. T. C. Ramudu Jetty & Sons, Tanjore, and the Kodaikanal Co-operative Stores. The work of the other stockists was not altogether satisfactory. Messrs. Devar & Co., Colombo, were appointed as agents for the Institute in Ceylon towards the end of the year and it is anticipated that henceforth there will be a good outlet for the soaps, particularly toilets in that important market.

75. *Visits to Consuming Centres*.—Early in the year under review, Government approved my proposal that the Superintendent of the Institute should be permitted to visit important consuming centres in the Presidency and adjoining Native States with a view to developing the sales of the products of the Institute, and during the year, the Superintendent visited in this connexion Palghat, Podanur, Coimbatore, Coonoor, Wellington, Ootacamund, Trichinopoly, Srirangam, Tanjore, Kumbakonam, Madura and Madras. There can be no doubt that in order to obtain the best results

from the agents and stockists, it is necessary to visit them periodically in order to discuss local market conditions and to encourage them to develop sales. The experience of the leading British and American manufacturers in marketing their products has been that in order to obtain the best results from their agents it is necessary to keep in close personal touch with them. In fact, if the Kerala Soap Institute is to be successful in these days of intensive commercial competition, it is necessary that a study should be made of each market in turn and that any falling off in the demand for a particular variety of soap in any centre or district should be investigated without delay with a view to devising steps to overcome the competition of competing brands. Active propaganda has been conducted from the head office during the last few years, individual letters descriptive of the soaps offered by the Institute having been addressed to all large consumers, but although a certain measure of success has been achieved, experience indicated that in these days of trade depression and intensive competition, something more than this was needed in order to stimulate sales to the desired extent. The visit of the Superintendent to the chief consuming centres has enabled him to discuss with the agents and stockists the difficulties in the way of developing the sales of the Institute's products and also to investigate the scope for the introduction of new varieties of soap in the different markets. The personal contact thus established with the agents and stockists has been productive of good results, the demand for the standard brands turned out having increased since the visit of the Superintendent to some of the centres. Enquiries into the market for dyeing soaps also yielded some results, a small quantity of Neutral Oil soap and Tukey Red Oil soap having been sold to important buyers of these materials. The visits paid to the various centres yielded much useful information as to the prevailing market conditions and there can be no doubt that such occasional tours serve a distinctly useful purpose. It is difficult to overcome the preference for well-established imported brands, but the outlook for the Institute, as already indicated, is not unpromising. It can at least be claimed for the Institute's soaps that they are of the best quality and reach the consumer at prices which give excellent value for money.

76. *Training of Apprentices.*—The year under review saw the inception of a scheme for the training of apprentices in soap manufacture. One of the objects underlying the establishment of the Institute was to provide facilities for the training of students in the processes employed in soap manufacture, but owing to various difficulties, it was not possible to provide such training earlier. Six apprentices were admitted in May and the course ended in

March when the terminal examination was held, and all of them passed. Of the six students admitted for training, three were from Malabar, one from Chingleput, one from Bellary and one from the Hyderabad State. Two of the apprentices who were previously engaged in soap manufacture have since returned to their factories after having acquired considerable practical experience in the technique and practice of modern soap manufacture. Of the remainder, one is starting a factory of his own, one is likely to be appointed as a soap maker by a factory in Calicut, one wishes to undergo a further course of training in the Institute, whilst the intentions of the other are not known. The training the apprentices have obtained will enable them to make good quality soaps and in course of time the apprentices turned out by the Institute should have a very beneficial effect on the industry in general. In addition to the six apprentices who underwent a regular course of training, two students were admitted for a short course of three months' duration; one of these was a graduate from the West Coast and the other a B.Sc. from the Foreman Christian College, Lahore, where he is an instructor in soap technology. There has been a considerable number of applications for admission during the current year.

77. *Laboratory.*—In order to maintain the uniformly high standard of the Institute's products a careful examination of the various raw materials received and of the finished products in the various stages of manufacture has to be made, and during the year under review 570 analyses were carried out in the laboratory, of which 435 were of raw materials received into and finished products turned out by the factory. The constituents of various essential oils such as vetivert, citronella, geranium and sandalwood were determined. The oil contents of a number of seeds including sesamum, mustard, groundnut, ganja, castor and cotton seeds as also the oil contents of the cakes after pressing the seeds in the Domag oil mill were ascertained.

78. *Enquiries.*—A number of enquiries in connexion with the manufacture of soap, candles, etc., were received and answered during the year of which the following examples are given:—

(i) Three samples of gingelly oil received from the Coimbatore Co-operative Stores and Bank, Ltd., were tested for adulteration.

(ii) An analysis of soap was made for the Commonwealth Trust, Ltd., Calicut.

(iii) Mr. N. Natesa Sastri, Retired Deputy Collector, Coimbatore, was supplied with information in regard to the starting of a soap factory on a small scale.

(iv) Messrs. K. Basavaraju Bros., Samalkot, were given information in regard to the testing of gingelly oil for adulteration.

(v) An enquirer was supplied with information in regard to the extraction, by chemical methods, of oil from non-edible oil seeds such as pongam and margosa.

(vi) The Director-General of Commercial Intelligence was furnished with information in regard to the preparation of 'Kavati' oil from *Hydnocarpus wightiana*.

79. *Visitors*.—The Institute was as usual visited during the year by a considerable number of visitors and many educational institutions continue to make it a point every year to send their students to visit the factory to observe the processes of soap manufacture in all its stages. The visitors included Mr. A. Y. G. Campbell, Sir T. Desikachari, Sir Vasudeva Raja of Kollengode, the Hon'ble Mr. Arogyaswami Mudaliyar, Minister for Excise and Public Health.

GOVERNMENT INDUSTRIAL INSTITUTE, MADRAS.

80. *Staff*.—Mr. S. Venkatarama Ayyar continued to be in charge of the Institute throughout the year.

81. *Varieties of ink manufactured*.—The Institute continued to be engaged during the year in the manufacture of standard fluid inks, ink powders and ink tablets. A new quality of marking ink was prepared in accordance with the special requirements of a consumer. Experiments were made in regard to the production of a permanent coloured ink for the requirements of a Government department, but these were not successful.

82. *Production and Accounts*.—The output during the year amounted to 749 gallons of various classes of fluid inks, 12,365 tins of ink powders, 6,261 packets of ink tablets and 17 gallons of stamping ink. The sales amounted to 605 gallons of fluid inks, 13,781 tins of ink powders, 5,937 packets of ink tablets and 18½ gallons of stamping ink. The value of sales effected amounted to Rs. 6,967-13-6. The sales were mostly to the Madras Corporation, Madras and Southern Mahratta Railway Company, Limited, and a number of municipalities and district boards. The decline in output and sales was largely attributable to the absence of the usual orders from the Superintendent of Stationery, hitherto the largest consumer of the products of the Institute. The accounts as audited by the Assistant Director of Commercial Audit showed a loss of Rs. 9,389-1-1 on the year's working after allowing for direction, audit and all other overhead charges which contrasts with a profit of Rs. 1,487-10-0 in the previous year.

83. *Agent*.—Messrs. Narayanadoss Girdhar Doss were appointed as sole agents in succession to Messrs. T. A. Taylor & Co., with effect from 1st June 1927 but they entirely failed to realize expectations and at the end of the year, the question of terminating their agency was engaging consideration. The volume of business introduced by the Agent during the year amounted only to Rs. 2,624-13-6. In view of the fact that the Superintendent of Stationery evidently prefers to obtain his requirements elsewhere, there seems no need for the Industrial Institute to continue the manufacture of ordinary fluid ink, ink powders and tablets on a commercial scale and accordingly the question of transferring the concern to private enterprise was engaging attention at the close of the year.

84. *Printers Ink Experiments*.—The experimental manufacture of printers ink was continued during the year and attention was concentrated on an endeavour to lower the cost of production of news ink in order to enable it to be sold at competitive rates in the market. Accordingly a number of experiments were undertaken with a view to utilizing cheaper or more economical materials and a number of suitable recipes for the varying requirements of the trade were evolved during the year. The quality of the jobbing ink has been slightly improved. There are a very large variety of printing inks on the markets, but a different quality of ink is required for book printing, lithography, illustrations, posters, etc., each of which involves a correct selection of materials, the proper cooking of the varnish and the ascertainment of the correct proportions of materials and conditions of mixing and grinding, in conjunction with periodical practical tests of the finished products in the printing press. In view of the highly technical and scientific character of the process of manufacture of printers inks, results cannot be expected within a short period, but several promising recipes have been evolved. The results obtained so far appear to justify the continuation of the experiments on a small factory scale and accordingly arrangements have been made for the development of the manufacture of printers ink with the aid of special grinding and mixing machinery for which an indent has been placed on the Director-General of Stores.

85. *Miscellaneous*.—In connexion with an investigation into the distillation of wood, a few experiments were carried out on the distillation of coconut shells and of tan and wood waste. Preliminary experiments were also conducted in connexion with the purification of lamp black and a small trial was made with briquetting the product. A bulletin giving detailed information as to the manufacture on scientific lines of inks, ink powders and ink tablets was prepared and published shortly after the close of the year.

TEXTILES.

86. The activities of the Textile section of the department continued to cover not only the hand-loom weaving industry but also cognate subjects such as hosiery, lace and embroidery, dyeing, bleaching and cloth printing, in addition to wool spinning, sericulture, silk filature reeling, silk throwing, textile education and the conduct of research work in the sphere of textiles.

87. *Staff.*—Mr. D. M. Amalsad continued as Textile Expert and Principal of the Textile Institute throughout the year. Mr. K. T. Achayya continued to hold the appointment of Sericultural Assistant. Mr. Achayya's headquarters were transferred from Coonoor to Madras during the year in order to facilitate the supervision of sericultural operations in the Presidency generally, and in addition to his sericultural work he now assists the Textile Expert in the supervision of the peripatetic weaving parties and in the routine work of the section. Messrs. S. Swaminathan and P. Sundaramurthi continued as Lecturer in Textiles and Lecturer in Textile Chemistry respectively.

88. The object of the department is to improve the technical side of the industry and to endeavour to improve its organization with a view to enabling it to meet the highly organized competition of the power loom. The crux of the problem of the hand-loom weaving industry is how to standardize the products of the looms and to effect a reduction in the price of cloth without reducing the earnings of the weavers. The attention of the Department is now primarily concentrated on the formation of suitable organizations for running power-driven preparatory machinery in conjunction with hand-loom workers. Progress in the organization of the industry on its commercial and economic side must necessarily be slow and the task of producing standardized hand-made goods in quantity, of cheapening the cost of producing such goods, of replacing the sowcar by a net work of co-operative societies and last but not least, of creating a steady and regular demand for the cloths turned out, calls for the combined efforts of the textile technologist, research engineer, co-operator and trade intelligence officer or business organizer. In the following paragraphs will be summarized the progress made in the Textile section of the department during the year.

89. *Textile Institute.*—The Textile Institute in Madras continued to impart theoretical and practical instruction in the operation of hand and power-driven textile machinery and in modern textile practice. The Institute provides two courses of instructions—the Supervisor's course, which extends over a period of two years, and the Artisan's course, which now extends over a period of one year instead of only six months as formerly. The Supervisor's

course, which embraces both the theory and practice of textiles, is designed for those who intend to become teachers in weaving schools or managers of weaving factories and also assist in the organization of the industry. The Artisan's course is purely practical and is intended to turn out competent craftsmen. There were 52 students on the rolls on 31st March 1928, 25 of whom were undergoing training in the Supervisor's course and 27 in the Artisan's course. The men turned out by the Institute appear to find no difficulty in securing suitable employment. The instruction imparted in the Institute is free, but the weavers are unable to send their sons to the Institute for training at their own cost and the twelve scholarships which have been sanctioned by Government are inadequate. The training afforded in the aided weaving schools in the mufassal merely enables the students to produce the common class of fabrics which compete directly with the products of the power loom and consequently provide only a minimum of profit for the workers. The instruction given in these schools is moreover generally confined to cotton weaving and the equipment often leaves a good deal to be desired. In short, the instruction given is not of a character which will ultimately enable the student weavers to take their place in the organization of the industry as contemplated by the department and it is very desirable that a larger number of the weaving community should be able to avail themselves of the facilities afforded by the Textile Institute. The work of the Textile Institute continued to be hampered by the restrictions of the present rented building, the accommodation of which is inadequate for the Institute's growing needs. The question of constructing a permanent building for the Institute has been long under consideration, but considerable difficulty has been experienced in securing a suitable site and the question was still under consideration at the close of the year.

90. *Technical Research.*—Considerable progress has been made during the last few years on the technical side of the industry, several important labour-saving appliances having been evolved and introduced. A number of orders for improved appliances from jails and private institutions was executed during the year. The progress of research in respect of the more complicated textile labour-saving appliances, however, has not been so satisfactory and it is somewhat difficult to define where the work of the textile technologist ends and that of the experimental engineer begins. The difficulty may perhaps be overcome by providing in the new Textile Institute a small engineering workshop in which necessary experiments could be carried out.

91. *Peripatetic Weaving Parties.*—It is through the medium of the peripatetic weaving parties that practical effect is given to

the results of technical research. The parties demonstrate to weavers, dyers and cloth printers the advantages of adopting new appliances and methods, and the practical sericulturist attached to the party endeavours to introduce sericulture as a subsidiary occupation for agriculturists, in suitable areas. There were five parties at work during the year under review and these operated in the districts of Godavari, North Arcot, Salem, Madura and Tinnevely. The practical working of the hand-driven hot air sizing machine was demonstrated at Madura, Melapalaiyam, Salem and Gudiyattam with a view to paving the way for the ultimate introduction of power-driven sizing machines linked to groups of hand-loom weavers. The efforts made by the weaving parties to induce the weavers to adopt machine-sized warps wound suitably on weavers' beams met with some success. In view of the prejudice of the hand-loom weavers against machine-sized warps, the parties were obliged in the initial stages of their demonstration at a selected centre to purchase yarn at Government expense, size it on the departmental machine and dispose of it to the weavers at the cost price of yarn only. Once the weavers are convinced that machine-sized warps are equal, if not superior, to hand-sized warps, it is not difficult to induce the weavers to supply their own yarns to be sized on the machine free of cost, and when a sufficient number of weavers have become accustomed to working with weavers' beams provided by the parties, a small fee is charged for sizing, and in some cases the weavers render assistance by turning the machine while the warps are sized. Experience in the working of a hand-dresser sizing machine at Madura has shown that the net profit earned by it with 20s yarns amounted to Rs. 50 per month, with 40s yarns Rs. 60 per month, and with 60s, Rs. 70 per month. These figures, however, do not include any provision for the hire of the machine or interest on its capital cost. A hand-driven hot air sizing machine operating with 20s yarn can supply only enough warps for ten looms. Unless therefore 20 machines can be set up at a centre for supplying warps to 200 weavers there would be little scope for the installation later of a power-dresser sizing plant which would provide the requirements of the weavers for warps at a more economic price. The immediate task confronting the Peripatetic Weaving Parties therefore is to effect a sufficient sale of the hand-driven sizing machines. The weavers appear to be reluctant to set up these machines themselves and until there is a change in this respect, they will continue to be dependent upon street sizers, or upon capitalists who employ sizers to operate a sizing machine. The capitalist would find it a profitable venture to set up in many centres sizing machines, but is often reluctant to do so owing to his inability to supervise the technical character of the work. On the other hand, the sizers themselves have not

individually the means to purchase sizing machines, and it is not easy to evolve a co-operative organization comprising ten weavers and one sizer for the purchase and working of a machine. In these circumstances, it is fairly clear that unless some system of hire purchase is introduced, the efforts of the department are not likely to proceed beyond the stage of demonstration. Accordingly, since the close of the year, Government have been addressed in regard to the introduction of a scheme of hire purchase to provide for the sale of hand-sizing machines on easy terms. The Peripatetic Weaving Parties also demonstrated to weavers the advantages to be derived from the adoption of machine-sized warps, and some progress was made in overcoming the popular prejudice against the use of such warps on hand looms. The question of supplementing the activities of the Peripatetic Weaving Parties by the establishment of State-aided Peripatetic Weaving Schools, which would be under the control of District Boards and Municipalities and which would eventually replace the Peripatetic Weaving Parties was under consideration at the close of the year.

92. *Linked Organization.*—It is clearly recognized by the department that the introduction of improved weaving appliances affords only a partial solution of the problem of improving the condition of the hand-loom weaver and that if any material improvement in the economic condition of the weavers is to be effected, attention must be concentrated primarily on the preparatory processes. It is in the direction of creating an organization amongst the cotton, silk and wool weavers by which they would be linked with the speedier and more effective preparatory processes that an improvement in the position of the industry is possible. It is useless to increase the production of the loom unless the weaver is linked with a more economic and up-to-date method of warp preparation. The power-dresser sizing plant was obtained five years ago with the object of demonstrating to hand-loom weavers the advantages of machine-sized warps in long lengths of 500 yards wound suitably on weavers' beams, the use of which renders the loom vastly more productive than at present, and by enabling the weavers' family to employ more than one loom, assists in reducing the cost of production. The warps prepared on the machine have been distributed to weavers in different parts of the Presidency through the medium of the Peripatetic Weaving Parties. It has, however, not been found possible to set up a co-operative organization to take over and work the plant to the best advantage, owing to the difficulty of marketing large quantities of hand-woven cloth in direct competition with sowcars and cloth merchants. In the circumstances, the possibility of transferring the plant to a private firm was exhaustively examined during the period under review and shortly after the close of the

year, arrangements were made for its transfer to a firm in Mori in the Godavari district, which is already connected with the hand-loom weaving industry and gives employment to a large number of weavers in the locality. The plant is likely to be worked by its new owner at full capacity for the benefit of the weavers. I consider that the objects underlying the purchase of the plant are likely to be achieved more rapidly by its transfer to Mori than by its retention at Madras. It is a condition of the transfer that the firm maintain statistics of the production and distribution of the sized warps and that they undertake to supply such information in this connexion, as may be called for from time to time by the Director of Industries. Much valuable information in regard to the working of the machine should thus be forthcoming at a minimum cost to Government.

93. *Silk Throwing Plant*.—An improvement in the quality of Indian silk cloth involves the introduction of modern methods of throwing silk by which alone a better quality of yarn can be produced. Modern methods of preparing improved silk yarn for the loom are equally necessary. Accordingly a silk throwing plant was obtained during the year with a view to producing uniform twisted silk which would enable the weaver to manufacture such varieties of superior silk goods as are now imported from Japan and elsewhere. Now that this plant has been installed at the Textile Institute, it will be possible to show persons interested, the processes involved in the manufacture of good class silk and to train operatives in such processes. Data in regard to the commercial possibilities of the plant, when run in conjunction with modern Italian filature reeling machines, will also be forthcoming for communication to capitalists interested in the development of the industry.

94. *Wool Spinning Plant*.—In recent years, considerable progress has been made in cotton and silk hand-loom weaving by the introduction of the fly-shuttle slay, but the yarn at present used in the weaving of cumblies and dhurries is not sufficiently strong to stand the strain of the fly shuttle. Accordingly proposals were submitted to Government for the purchase of a wool-spinning plant, which in addition to providing instruction for the students in the Textile Institute will be used for experimental work with a view to ascertaining (1) whether the cut and chunam wool available in the Ceded districts can be spun into yarns of various counts suitable for the manufacture of cumblies, blankets, shawls, carpets and rugs and (2) whether such warp yarns will stand the strain of fly-shuttle weaving and whether chunam wool obtained from tanneries can be effectively cleaned and spun into yarns for both warp and weft, and also whether the addition of cotton fibre to chunam wool would

produce usable yarns. If the experiments are successful and uniform machine-spun yarn is produced, it should be possible to improve the quality of the carpets and cumblies produced in this Presidency. The plant is specially designed for instructional work and it is hoped that the students who receive instruction in its working will, after leaving the Institute, be able to interest capitalists in the industry and that in this way a number of similar plants may be set up in suitable areas.

95. *Dyeing*.—The Textile Institute now includes a dyeing section and suitable machinery has been installed with a view to demonstrating the process of dyeing by modern methods under varying conditions with a view to encouraging capitalists to establish small dyeing concerns in suitable centres. The equipment of this section is being gradually improved, and during the year a machine for stencil printing by the ærograph method was obtained. The possibilities of this machine in connexion with the development of the cloth printing industry of the Presidency will be demonstrated.

96. *Miscellaneous*.—The Textile Expert investigated the technical aspects of applications for loans under the State Aid to Industries Act received from the Salem Dye Works Syndicate, the Andhra Hosiery Mills, Bezvada, and the silk concerns of Messrs. Abdul Majid Sahib, Rajahmundry, and Mr. D. K. Narayana Rao, Dharmavaram. The erection of the cotton spinning mill at the Central Jail, Coimbatore, proceeded during the year under the supervision of the Textile Expert.

SERICULTURE.

97. *Coonoor Silk Farm*.—This farm was established at Coonoor in 1922 with the object of serving as a central distribution station for the supply of disease-free seeds to Kollegal and other selected centres in the Presidency, and as a research station for cross-breeding of worms of different species and for the evolution of a hardy race of silk worms which will stand not only the strain of the plains, but also yield a greater quantity of silk and so improve the economic condition of the rearers. A block of 12 acres of land on Tiger Hill, Coonoor, was acquired in 1924 for mulberry cultivation, but unfortunately the mulberry planted on the land has, almost from the commencement, been attacked by a virulent white powdery fungus disease which it has not been found possible to eradicate in spite of the pruning and spraying operations carried out under the supervision of the Government Mycologist. As the disease re-appeared during the year in a virulent form, the work of supplying disease-free seed to the rearers in Kollegal was affected. I am convinced that it will not be possible to bring the disease under control without continuous heavy expenditure, if at

all. Accordingly, Government have been addressed to sanction the abandonment of the Tiger Hill plantation and the transfer of the activities to Mathagiri, a village near Hosur in the Salem district. This village is on the Mysore plateau and has a climate very similar to that of Bangalore and is eminently suited for sericultural operations.

98. *Research.*—The experiments in the selection and crossing of French worms with the multivoltine Mysore worms with the object of evolving a hybrid variety superior to the present Mysore stock, which by constant in breeding has lost much of its vigour, were continued. Successful crops of French univoltine worms were raised and the hybrid worms passed through the thirteenth generation during the year under review. The seeds distributed from the hybridised eleventh generation have given good results. The new varieties of silk were carefully reeled on the domestic Italian reeling machine with satisfactory results. If hybridised seeds could be produced in sufficient quantities, mulberry cultivation would pay as well as food crops and worm-rearing could then be profitably undertaken as a subsidiary occupation. Pending the supply of disease-free hybridised seeds in sufficient quantities, attempts have been made to bring home to the rearers of Kollegal the advantages of a microscopic testing of their own moths.

99. *Peripatetic Rearing Party.*—The party continued to advise rearers in regard to rational methods of rearing worms in cottages and more particularly carried on the work of moth-testing in Kamakerai village of Kollegal taluk. Four additional Moth-Testers were sanctioned by Government during the year for employment on this work and there are now five Moth-Testers working under the supervision of the Silk Superintendent. The party examined nearly 45,000 layings at the houses of the rearers of which 3,300 layings were found to be diseased. The rearers are gradually becoming convinced of the economic advantages of having their seeds tested and the greatly improved prospects of raising crops by the use of such seeds. The party was also engaged during the slack season in teaching a number of intelligent rearers the use of the microscope. When a sufficient number of rearers have been trained in microscopic work, it is proposed to form them into a co-operative society so as to enable them to purchase microscopes and hire them out to individual members. When this has been done, the party will extend their activities to other villages of the Kollegal taluk.

100. *General.*—The change of headquarters of the Sericultural Assistant from Coonoor to Madras has enabled him to exercise a closer supervision over the district sericultural work and to acquire

a closer acquaintance with the processes subsequent to silk worm rearing, and with the silk reeling and silk throwing power-driven machinery installed in the Government Textile Institute, the object of which is to serve as a linked organization for the silk hand-loom weavers. During the year under report, the imports of cheap silk from China and Japan have to some extent affected the Kollegal silk industry and the question whether the industry will be able to maintain its position depends in some degree upon the satisfactory utilization of the waste produced during the operation of reeling. The rearers may offset to some extent the effect of the low price obtainable for reeled silk by converting the waste silk into yarn. The question of installing a miniature silk waste spinning plant in the Textile Institute for demonstration purposes will shortly be taken up. The future of the sericultural industry in the Presidency depends to a great extent upon its capacity to produce fine silk reeled by modern methods and twisted by modern machinery which will permit of the manufacture of superior silk cloths now imported from abroad. Finishing and calendering processes will also have to be introduced with a view to improving the general appearance of the fabric. The growing competition of imported artificial silk is also a factor which will have increasingly to be taken into account.

The areas newly selected as suitable for the introduction of sericulture included Vedakangulam, Kollimalais, Berhatti, and Kookulu, in which places successful crops of cocoons were raised during the year.

. INDUSTRIAL ENGINEERING.

101. The work of the Engineering branch consists mainly of the investigation of new engineering projects, of the erection of new power installations, the maintenance of pumping and industrial machinery already at work, the conduct of boring operations, the supply, erection and maintenance of pumps suitable for irrigation and the investigation of applications for loans under the Agriculturists' Loans Act, and of certain applications received under the State Aid to Industries Act.

102. *Staff.*—Mr. L. S. Pinto held the appointment of Industrial Engineer throughout the year. M.R.Ry. A. V. Varadaraja Mudaliyar and S. Rajagopal Nayudu were in charge of the Bezwada and Coimbatore divisions respectively during the whole of the year. M.R.Ry. P. K. S. Ramanujam Pillai was in charge of the Tanjore division during the year except for a period of two months from the 8th June to the 7th of August 1927, when he was on leave, and M.R.Ry. K. Govinda Menon, Supervisor, first grade, acted in his stead. M.R.Ry. N. Aiyakannu Achari continued to be the

Headquarters Assistant Industrial Engineer and was in direct charge of the departmental engineering workshops at Madras throughout the year.

The staff of the Engineering branch of the department now consists of an Industrial Engineer who is stationed at Madras, 4 Assistant Industrial Engineers with headquarters at Madras, Tanjore, Coimbatore and Bezwada respectively, 17 Supervisors, 38 mechanics and 165 boring maistris, drillers and apprentices. The work of the District Engineering staff is increasing to such an extent that the time is not far distant when it will be necessary to increase the number of divisions. During the year proposals were submitted to Government for the employment of 12 additional mechanics as well as a number of boring maistris and drillers in order to cope with the expansion of work and sanction to the entertainment of this additional staff was received shortly after the close of the year.

103. The following table shows the territorial jurisdiction of the executive staff as it stood on 31st March 1928:—

Districts comprising the division.	Name of sub-division in charge of supervisor.	Headquarters of subdivision.	Supervisors.	Mechanics.	Boring maistris, drillers and assistant drillers.	Apprentice boring maistris.	Surveyors.	Remarks.
Industrial Engineering Workshop.	Madras ..	Madras ..	1	..	..	..	..	..
Drawing Branch ..	Do. ..	Do. ..	1	1	..	..	..	..
. <i>Tanjore Division.</i>								
South Arcot	Cuddalore ..	Cuddalore ..	1	3	27	3	1	..
Tanjore	Tanjore ..	Tanjore ..	1	3				
Trichinopoly and Madura.	Trichinopoly ..	Trichinopoly ..	1	3				
Ramnad and Tinnevely ..	Tinnevely ..	Tinnevely ..	1	1				
<i>Coimbatore Division.</i>								
Malabar, South Kanara and Anjengo.	Calicut ..	Calicut ..	1	2	26	3	1	..
Coimbatore, Nilgiris and Salem.	Coimbatore ..	Coimbatore ..	2	5				
North Arcot and Chittoor.	Vellore ..	Vellore ..	1	3				
<i>Bezwada Division.</i>								
Ganjam, Vizagapatam and Godavari (East).	Vizagapatam ..	Vizagapatam ..	1	2	43	5	..	..
Kistna and West Godavari	Bezwada ..	Bezwada ..	1	2				
Guntur and Nellore ..	Nellore ..	Nellore ..	1	1				
Bellary and Kurnool ..	Bellary ..	Bellary ..	1	1				
Cuddapah and Anantapur.	Cuddapah ..	Cuddapah ..	2	4				
<i>Madras Subdivision.</i>								
Madras and Chingleput (under the control of the Industrial Engineer).	Madras ..	Madras ..	2	3	32	8	..	..

104. *Levy of Fees.*—The main object of the pumping and boring operations conducted by the department is to render assistance to ryots and small industrialists and thus indirectly increase the agricultural wealth of the country. The question whether the fees levied by the department for the use of drills and pumping sets were capable of reduction, whether the existing scale of fees stood in the way of a more extended use of these appliances, and whether a reduction in the fees charged was desirable and practicable came under examination during the year. As a result, Government sanctioned, with effect from 1st October 1927, a substantial reduction in the rates of fees charged. Government also decided that the advance and daily hire charges, but not transport charges, should be refunded in the case of unsuccessful borings by hand drills. The reduction of fees and their remission in the case of unsuccessful borings has been greatly appreciated by the public and has stimulated the demand for the services afforded by the Engineering branch. The fees received during the year have been affected to the extent of about 10 per cent, but it is hoped that the loss in income will gradually be offset by a more extended use of the departmental plant and machinery, particularly by the poorer classes of agriculturists. In any case, the immediate loss to Government by the introduction of the concessions should be more than outweighed by the ultimate gain in the shape of an access of agricultural wealth and revenue.

105. *Information and Advice.*—General information and advice on engineering questions is given free provided no local inspection is involved and the number of such inquiries dealt with during the year showed a considerable increase. Advice was also given to several co-operative societies and Government departments on a variety of engineering questions. In cases where a local inspection is necessary a fee of Rs. 10 is levied, in return for which advice is given in regard to the selection of a suitable site for a mill, factory or installation and as to the most suitable type of machinery for the purpose. The number of such applications received increased from 164 in the previous year to 214 during the year under review. The following table shows the number of applications for information and advice received and disposed of during the year:—

Division.	Pending on 1st April 1927.	Received during the year.	Disposed of during the year.	Pending on 31st March 1928.
Tanjore	7	64	65	6
Bezwada	4	70	63	11
Coimbatore	12	57	54	15
Madras	6	28	20	9
Total	29	214	202	41

106. *New Erections.*—The erection of machinery and plant is now undertaken for a nominal fee of 2 per cent on the capital cost of the machinery installed, the charge for this service having been reduced from the original rate of $2\frac{1}{2}$ per cent to 2 per cent during the year. The number of plants erected during the year increased by 36 as compared with the previous year. The following table shows the number of plants erected in the various divisions :—

Division.	Tending on 1st April 1927.	Received during the year.	Erected during the year.	Pending on 31st March 1928.	Remarks
Tanjore	2	34	34(a)	2	(a) 24 industrial, 9 pumping and 1 combined plant
Bezwada	6	16	19(b)	3	(b) 10 industrial, 8 pumping and 1 combined plant.
Coimbatore	..	41	36(c)	5	(c) 14 industrial and 22 pumping.
Madras	1	15	15(d)	1	(d) 14 industrial, 10 pumping and 1 combined plant.

The capital invested in the plants comprised in the above table, including the cost of the buildings connected therewith, amounted to about Rs. 6 lakhs. It may not be without interest to record the largest and smallest plants erected in each division :—

Division.	Largest plant.	Smallest plant.
Tanjore	32 b.h.p.	5½ b.h.p.
Bezwada	8 n.h.p.	3 „
Coimbatore	40 b.h.p.	6 „
Madras	25 „	4 „

The area brought or proposed to be brought under irrigation as a result of the pumping plants erected by the department during the year, or pending erection at the close of the year, was as follows :—

Division.	Area brought or to be brought under irrigation.	Approximate increased income accruing therefrom.
	ACS.	RS.
Tanjore	185	21,515
Bezwada	201	20,000
Coimbatore	500	75,500
Madras	200	28,500

107. *Compounding System.*—A feature of the engineering work of the department has for many years been the system under which, for a fixed fee of Rs. 10 per annum, owners of private installations are entitled to have their plants inspected and overhauled three times a year and also at other times if special requisitions are received for which, however, a small additional fee is charged. This system continues to grow in popularity as will be evident from the fact that the number of plants under maintenance by the department during the year increased to 500 as compared with 454 in the previous year. The following statement shows the number of plants under maintenance in the various divisions :—

Division.	Industrial plants.	Pumping plants.	Combined plants.	Total.
Tanjore	108	59	30	197
Bezwada	68	48	6	122
Coimbatore	50	59	8	117
Madras	15	42	7	64
Total	241	208	51	500

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

Division.	Largest size of plant.	Smallest size of plant.	RS. Total approximate horse-power compounded.
Tanjore	105 h.p.	3½ h.p.	4,082
Bezwada	1,400 „	1½ „	4,800
Coimbatore	62 „	3 „	2,409
Madras	58 „	1½ „	796

108. *Loans for Pumping Plants.*—Loans under the Agriculturists' Loans Act are granted by Government on favourable conditions to ryots for the installation of pumping machinery where there is a reasonable prospect that by means of such loans the ryot will be enabled to irrigate his lands to advantage and increase his income. During the year under report, 50 applications for loans were disposed of, of which 27 were withdrawn or rejected and 23 loans of an aggregate amount of Rs. 1,03,300 were sanctioned for disbursement to the applicants. This amount is the highest since the Act has been administered by this department. The amount actually disbursed during the year was Rs. 91,288-15-3. Of the 23 loans sanctioned during the year 2 were in the Madras subdivision, 5 each in the Tanjore and

Bezwada divisions and 11 in the Coimbatore division. The amounts disbursed in the three previous years were as follows:—

Year.					Number of loans.	Amount sanctioned.
						RS.
1924-25	..	..	..	..	25	97,800
1925-26	..	..	..	..	5	42,506
1926-27	..	..	..	..	9	47,000

The marked increase in the number of applications and the amount sanctioned for disbursement during the year as compared with the previous year is attributable to the unfavourable character of the season during the last few years as also to some extent to the speeding up of inquiries preliminary to the final consideration of a loan application. The department, as already indicated, grants loans to ryots on satisfactory proof that the supply of water is adequate, that the water can be used profitably for irrigation and that the borrower can give adequate security, while it has also to be ascertained whether the Public Works (Irrigation) Department has any objection to urge. Investigation on these lines necessarily takes time, but avoidable delays are rare.

109. *Boring.*—At the commencement of the year under review, the department maintained in operation 9 power drills and 57 hand drills, but these proving entirely insufficient to meet the demands of the public and other Government departments, sanction was accorded by Government to the purchase from America during the year of 3 more power drills of the improved type and 30 hand-boring sets, together with the staff necessary to operate them. The new drills arrived at Madras from America in March and at the close of the year, arrangements were in progress to assemble them. The fee for the hire of a hand-boring set was reduced during the year from Rs. 2-8-0 to Rs. 2 per day and the transport fee from Rs. 12-8-0 to Rs. 7-8-0, although the latter fee is not levied if the applicant is prepared to transport the set himself at his own expense within a specified time. In the case of unsuccessful borings by hand drills, it was decided, as already stated, to remit the fees, the decision of the Director of Industries as to whether a boring is successful or not being final.

110. The total depth bored during the year was 43,171 feet as against 37,517 feet in the previous year and 27,087 feet in the year 1925-26. It has been considered desirable in some cases where borings have been put down in tracts where there is extreme scarcity of water to test the water from the boreholes before pronouncing it as suitable for drinking or boiler feed purposes. In such cases samples of the water drawn were sent to the Leather Research Chemist for analysis and advice as to the method of

treatment to be followed in cases where treatment was considered necessary. 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:—

Divisions.	Applications pending on 1st April 1927.	Applications received or registered during 1927-28.	Applications disposed of during the year.	Pending disposal on 1st April 1928.	Total number of feet bored through.	Number of borings put down.	Number of borings successful.	Number of unsuccessful borings.
Tanjore	18	140	128	30	13,945	287	178	109
Bezwada	80	194	164	110	17,634	285	206	59
Coimbatore ..	29	86	85	30	5,770	161	122	39
Madras	13	78	66	25	5,782	130	66	64
Total	140	498	443	195	43,171	843	572	271

The deepest boring put down during the year with a hand-boring set was one of 300 feet in the Bezwada division and with a power drill one of 359 feet at Kanadukathan in the Ramnad district. In a boring put down at Kavanur, Vriddhachalam taluk, South Arcot district, an artesian spring was tapped at 186 feet below ground level, the discharge being 32 gallons per minute at 1 foot above ground level. The borehole has been lined with 6 inches pipes. It is understood that the supply from the borehole has enabled the owner to irrigate 10 acres of land and to increase his annual income by about Rs. 1,000. Two more deep borings are in progress in the same locality and there are indications that artesian springs are likely to be tapped in both the cases. One of the borings put down in the Bezwada division met with a good sub-artesian spring sufficient to justify the installation of a pumping plant, which has been installed to pump out water from the borehole to irrigate a garden. Over a dozen successful borings have been put down in the Ellore taluk all of which have tapped good sub-artesian springs as a result of which the ryots have been enabled to extend the area under tobacco cultivation and thereby increase appreciably their income. In a ground boring put down at Pedda Brahmadevan, Peddapuram taluk, East Godavari district, an artesian spring was tapped at 140 feet from ground level. The discharge from the borehole overflows from a 4-inch pipe at 3½ feet above ground-level yielding a discharge of 40 gallons per minute. The owner is constructing a tank in order to store water for the irrigation

of his lands. Two other boreholes put down at Samalkot, Peddapuram taluk, have tapped similar artesian springs at depths of from 113 to 130 feet from ground level, the strata being coarse sandy layers. In one case the discharge was 20 gallons per minute at 2 feet from ground level and in the other 25 gallons per minute just above the ground level. In the West Godavari district a boring put down at Nasugunta, Tadepalligudem taluk, to a depth of 230 feet, tapped an artesian supply yielding a discharge of 75 gallons per minute at 12 feet above ground level. It is understood that the ryot is now cultivating 10 acres of land with this supply. In a ground boring put down to a depth of 50 feet for a ginning factory in Hardagiri, Bellary district, a good sub-artesian spring was tapped at 34 feet from ground level and a deep well pump was fitted to the borehole. Two 6-inch ground borings were put down, one at Hardigiri and the other at Holaharvi in the same district and both having proved successful, a deep well pump was installed on each borehole.

111. *Borings for Local Bodies.*—Consequent on the prevailing water scarcity in various parts of the Presidency as a result of the failure of the monsoon during the year, a number of requisitions for borings for drinking water supplies were received from municipalities and local bodies, but it was not possible to comply with them owing to the heavy demand for the drills from agriculturists. Three trial borings were, however, put down with one of the new power drills at three different places within the Rayadrug Union, Bellary district, where boring operations were previously unknown and they yielded a reasonably good supply of drinking water at depths varying from 100 to 180 feet. The Union Board were advised to instal suitable pumps on the boreholes, and it is understood that the borings have relieved the water scarcity in the locality. As the work of putting down borings for drinking water supply to local bodies appertains properly to the Sanitary Engineering Department, it was suggested to Government that the Sanitary Engineer should maintain two or three drills for this purpose and thus be enabled to cope with a situation such as had arisen owing to the partial failure of the monsoon. Government shortly after the close of the year accepted this proposal and sanctioned the purchase by the Sanitary Engineer of nine hand-boring sets.

112. *Survey of sub-soil water in the Bellary district.*—Scarcity of drinking water and absence of irrigation facilities in certain tracts have led to the consideration of proposals for carrying out an intensive survey of underground water supplies in the Presidency. In order to collect data with a view to ascertaining whether such a survey would be effective in locating underground currents, it was decided shortly before the close of the year to

carry out an experimental survey in the Bellary taluk of the Bellary district. Apart from the fact that Bellary taluk is notoriously deficient in tanks and wells and singularly liable to drought, there is to be found in the Bellary firka, unlike other similar areas, an alternation of black, red, and mixed soils and experiments conducted in such a tract would, it was considered, be likely to yield more useful data as to the quality of water and the depth at which water could be found in such soils. The following villages in the Bellary firka were accordingly selected in consultation with the Collector of Bellary for the conduct of the survey:—

(1) Bellary, (2) Mundrigi, (3) Gonahal, (4) Andhahal, (5) Budihal, (6) Honnahalli, (7) Aladahalli, (8) Bisalahalli, (9) Bevinahalli, (10) Hadinagundu, (11) Sanganakal, (12) Sredaragadda, (13) Belagal and (14) Kolagal.

The total extent of these fourteen villages amounts to about 101 square miles. The villages form a compact block and lie within a convenient distance from Bellary. A boring party, equipped with two power drills and twelve hand-boring sets, has been sanctioned for the survey for a period of one year in the first instance. With this equipment, the boring party will, it is hoped, be able to put down 400 boreholes within a period of 12 months. A water diviner has also been associated with a view to minimising the number of unsuccessful borings. Opinions differ greatly as to the efficacy of water divining, but the measure of success that appears to have attended the recent attempts at water divining in the Bombay Presidency and elsewhere is such as to justify its being given a trial in connexion with the survey. It is intended that the boreholes put down in the course of the survey should, wherever possible, be used for extending irrigation facilities or for provision of drinking water supplies in the areas concerned. As soon as a borehole is completed, its capacity is tested and if the boring proves a success, the owner is required to make up his mind without delay if he would sink a well on the site with the aid of a loan under the Land Improvement Loans Act if necessary. The survey operations were actually started on the 28th March. In the initial stages the progress of the work was delayed by the prevalence of plague in most of the villages and the difficulty experienced in recruiting coolies to work the boring sets. Since the close of the year, however, the progress made has been on the whole satisfactory.

113. *Pumping Sets.*—The department maintains a number of pumping sets comprising oil engines and centrifugal pumps. These are of two kinds: one is used for pumping water for irrigation purposes and the other for well sinking. The former are

maintained for the purpose of (1) demonstrating to the ryots the advantages of lifting water by mechanical power and (2) watering crops to save from withering pending the repair of an existing installation. The second type of plant is utilized in connexion with the construction and sinking of wells. The number of pumping plants maintained during the year was 31. It was not possible, however, to comply with more than a small proportion of the applications received for assistance and shortly after the close of the year, Government sanctioned the purchase of nine additional pumping sets at a cost of Rs. 38,210. The following statement shows the number of applications for pumping sets registered and disposed of during the year:—

Division.	Number of applications pending on 1st April 1927.	Number of applications registered during the year.	Number disposed of during the year.	Number pending on 1st April 1928.
Tanjore	2	24	24	2
Beawada	3	23	23	3
Coimbatore	5	19	21	3
Madras	3	47	49	1
Total ..	13	113	117	9

The demand for pumping plants for well-sinking and for purposes of irrigation has been very great during the year and they are becoming increasingly popular with ryots in all parts of the Presidency. At the request of the Tahsildar of Omalur, Salem district, a pumping set was sent to Taramangalam village for watering from wells and tanks about 140 acres of paddy crop belonging to the ryots of the place and as a result of the timely assistance rendered by the department, the standing crop which was in imminent danger of withering, was saved. A number of ryots were also enabled by the use of this plant to deepen their wells and so improve their water supply. The President of the Taluk Board, Nandyal, hired one of these sets for well-sinking and irrigation in the villages of Nerva, Bhupanapad and Nandyal. As a result of cleaning and deepening the wells, the ryots were enabled to irrigate an additional area of land from which, it is understood, an additional income of about Rs. 3,000 has accrued. A party at Soorapalayam, Nellore district, engaged a set for the purpose of pumping out water from his mica mines and thereby was enabled to extend his mining operations and to increase his income. With the assistance of a departmental pumping set, a party in Rachakuttipallai, Rajampet taluk, Cuddapah district, was able to grow 20 acres of cambodia cotton and earn an enhanced income of about Rs. 1,200. Another ryot in Bitragunta, Nellore

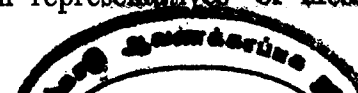
district, was able to deepen his well with the aid of one of these sets and as a result of the improved water supply which resulted, he has installed an 8 horse power engine and 3-inch pump on his well which now supplies sufficient water to irrigate about eight acres of paddy.

114. *Blasting*.—The torpedoing sets possessed by the department are used for blasting boreholes in rocky strata in the hope of exposing the water sources in the fissures caused by the explosion. Torpedoing is only tried as a last resort when a bore through rock fails to find water. The following statement shows the number of applications for blasting registered and disposed of during the year:—

Division.	Applications pending on 1st April 1927.	Registered during the year.	Number disposed of during the year.	Number pending on 1st April 1928.
Tanjore	3	4	7	..
Beawada	1	1	2	..
Coimbatore	1	5	4	2
Madras	..	1	1	..
	5	11	14	2

115. *Air Compressor*.—A Sullivan's air compressor was purchased by the department during the year for the purpose of carrying out blasting and excavation operations in rocky strata, and experiments were conducted with it on a well at Pungonam village in the Chingleput district. As a result of the experiments, which are still in progress, the well which was 42 feet in diameter and 15½ feet deep with the bed full of granite boulders was deepened by 6 feet. The use of compressed air machinery for deepening wells and excavating in rocky strata appears to have great possibilities.

116. *Oil Expeller Demonstration*.—Experiments with the Anderson oil expeller for extracting oil from groundnut and other seeds were conducted by the department in 1915, but the results of the trials were inconclusive. This type of machine has since undergone improvement and it was considered desirable to carry out a series of systematic trials with an oil expeller of the latest type with a view to ascertaining with a greater degree of definiteness, whether it was suitable for extracting oil from the seeds found in the Presidency or whether the greater initial cost and the considerable wear and tear on the internal parts of the machine outweigh the advantage derived by its higher efficiency. Messrs. Volkart Bros., the Indian representatives of Messrs. F. Muller



Esslingen, Germany, at this stage kindly offered to place, at the disposal of the department, free of charge a Muller expeller and roller mill for experimental purposes and their offer was accepted. The Kallakurichi Co-operative Agricultural and Industrial Society having agreed to provide the requisite power and to supply the seeds, it was decided to conduct the experiments in their mill at Kallakurichi which is a large groundnut centre in the South Arcot district. An amount of Rs. 6,000 was sanctioned by Government for the purpose, but owing to delay in the receipt of the filter press, and to the fact that the engine was found to be not sufficiently powerful to run the oil expeller and the sugarcane mill simultaneously and as the postponement of cane crushing during the season would have involved the Society in heavy loss, it was only possible to commence the experiments shortly before the close of the year. The Society intend to purchase the oil expeller on the completion of the trials, the results of which will eventually be published in the form of a departmental bulletin.

117. *Oil Chekku*.—As a result of the experiments conducted at the departmental workshop during the year, a new type of power-driven wooden chekku has been evolved which combines in itself the advantages of a rotary iron mill and the bullock-driven wooden country mill. The objection that are generally urged against the power-driven rotary oil mill are (1) that the oil produced is heated and discoloured and is not as pure as that produced by bullock-driven chekkus and (2) that the cake is delivered in the form of powder instead of in the form of flakes as in the country chekku and consequently its value as cattle food is considerably reduced. In the new chekku, these objections have been successfully overcome. It takes about 3 h.p. to drive and the percentage of extraction varies from 42 to 44 per cent according to the quality of the seeds crushed while that obtained from a bullock-driven mill is only from 38 to 40 per cent. Two chekkus of this type were exhibited at the All-India Agricultural and Industrial Exhibition and the South Indian Athletic Association Exhibition held at Madras in December 1927 and both were purchased subsequently by a local merchant, who has obtained very satisfactory results from them and since placed a repeat order for two more mills. Another local merchant has also purchased and installed two similar mills and has found them to be more efficient than the bullock-driven country mill. A merchant in Tuticorin who came specially to Madras to examine the working of the chekku has placed an order for five of them. At the close of the year there were orders for twelve of these mills pending execution and it was becoming evident that the demand for the improved type of chekku would be great.

118. *Services rendered to Co-operative Societies*.—Assistance was given to several co-operative societies in various parts of the Presidency on a variety of engineering matters and in the following paragraphs some instances of the services rendered are mentioned:—

(i) *Kallakurichi Society*.—A 30 b.h.p. Campbell oil engine installed in one of the factories of the Society could not be worked for a considerable period of the year owing to a crack in the bed plate caused by carelessness in running the engine and consequently the Society was undergoing heavy loss during the groundnut season. One of the departmental engines was lent to the Society as a result of which it was able to get through the groundnut season. The broken bed plate was repaired by the department but as the engine could not be relied upon for continuous work, the Society were advised to purchase a new engine and this was subsequently erected departmentally.

(ii) *Kalayanpur Industrial Society, South Kanara*.—A sugarcane crushing and jaggery manufacturing station on the model of the Pallapalayam factory was erected for the Society during the year. A three-roller sugarcane mill was lent to the Society during the cane-crushing season. It is understood that the Society secured a net income of about Rs. 600 on the season's working. The Society contemplate setting up a number of oil mills also, so that the engine may be kept employed during the off season.

(iii) *Pumping Scheme—Madapuram—Anantapur district*.—This scheme to irrigate 300 acres from wells was investigated at the request of the Registrar of Co-operative Societies. There are about 100 wells and arrangements were in progress at the close of the year to put up a portable pumping plant with a view to organizing a co-operative pumping society.

(iv) *Pumping Scheme, Ethavaram*.—At the request of the Co-operative Department, a proposal to irrigate about 250 acres lying on the bank of Muniyeru river by means of a pumping plant was investigated by the department. As it was considered, however, that the scheme would not be an economic proposition owing to the water supply being insufficient to raise the necessary crops, the proposal had to be abandoned.

(v) *Co-operative Pumping Societies, Malabar district*.—Two power installations for pumping water from rivers—one consisting of a 22 b.h.p. engine and 6 inches pump, and the other a 14 b.h.p. engine and 4 inches pump, for the extension of irrigation in the Malabar district were erected by the department.

(vi) *Co-operative Society, Hospet*.—A sugarcane crushing mill with an engine to drive it was lent to the Society for the 1927 season for cane-crushing purposes.

(vii) *Co-operative Society, Pallapalayam*.—The sugarcane-crushing station was formerly under the control of the department, but the power crushing of cane having been sufficiently demonstrated there, it was transferred to the Society in April 1926. A rice huller has been added to the existing mill and the whole machinery consisting of a 12½ h.p. engine five roller sugarcane mill, No. 3 Engelberg rice huller and 2 inches Myers pump were under the supervision of the department during the year.

(viii) *Irrigation Society, Melpattambakkam, South Arcot*.—This Society has been formed with a view to popularizing the use of power pumps for lifting water for irrigation. The proposal to install an engine and pump on an existing well was investigated and the water supply tested by means of a departmental test engine. The Society has recently purchased a pumping plant which is now under erection by the department. A similar society has been formed in Panruti, South Arcot, and the necessary assistance has been rendered it.

119. *Irrigation Schemes—Stuartpuram Settlement*.—At the instance of the Commissioner a scheme for the irrigation of about 100 acres for the Criminal Tribes Settlement at Stuartpuram was investigated during the year and as an experimental measure, the Commissioner has sanctioned an expenditure of Rs. 7,000 with a view to bringing under cultivation a portion of the lands. A pumping plant will be sent up and if the results are encouraging, steps will gradually be taken to increase the acreage under cultivation by installing a suitable plant of higher power.

120. *Industrial Engineer's Workshop*.—In the departmental workshops which are situated at Washermanpet, the machinery employed by the Pumping and Boring and other branches of the department is maintained and repaired. A considerable and increasing volume of work is also executed for private owners of compounded installations. Experimental work is also conducted and tests are carried out of new boring tools and departmental plant manufactured or repaired at the workshops. Further, the workshops provide the necessary training facilities in the assembling and operations of drills and departmental machinery for such of the subordinate staff of the department, e.g., boring maistris, drivers and mechanics, as are newly recruited or require special training in new plant or machinery of which they have had no previous knowledge or experience. There was a considerable increase in the volume of work executed during the year. Thirty new hand-boring sets were manufactured and supplied for district work. The rotary calyx drill which had hitherto been driven by a Peter oil engine was re-adapted to be worked by steam. A useful function of the Engineering branch is the testing of pumping

and industrial machinery, placed at its disposal by private firms and individuals, with a view to determining their suitability for the purpose intended. At the request of Messrs. Massey & Co., Ltd., Madras, efficiency tests of a small portable gas pumping plant consisting of a 1½ B.H.P. gas plant and 2×1½ inches centrifugal pump were carried. The trials conducted included tests under varying conditions, of charcoal consumption and the mechanical efficiency of the combination. A 3 inches pump was also placed at the disposal of the department by Messrs. Limaye Bros., Madras, for an efficiency test which was in progress at the close of the year.

The value of work turned out at the Workshops during the year amounted to Rs. 1,75,179-14-2 as against Rs. 1,09,260-8-11 in the previous year and Rs. 88,499-9-5 in the year 1925-26, and the operations yielded a net profit of Rs. 24,683-4-4 as compared with Rs. 7,702-12-3 in the previous year. The number of work orders executed during the year increased from 512 in the previous year to 595 in the year under review. The following table exhibits the number of jobs undertaken and executed for the various departments:—

Department.	Number of jobs.	Value.		
		RS.	A.	P.
Pumping and Boring	298	1,57,492	8	2
Inter-department	47	2,617	4	8
Other Government departments ..	8	1,798	9	0
Private parties	209	6,171	5	2
Workshop maintenance	33	7,105	2	2
Total	595	1,75,179	14	2

The great increase in the work done under the head 'pumping and boring' is a reflection of the rapidly increasing activities of this section of the department.

121. *Receipts*.—The total receipts of the Engineering section of the department for the year under review amounted to Rupees 80,112-4-0 exclusive of fees for services rendered to other departments of Government, as against Rs. 80,423-6-3 in the previous year. The value of services rendered to other Government departments in the three divisions was as follows:—

Division.	Value of services rendered.		
	RS.	A.	P.
Tanjore	3,908	10	0
Bezwada	8,412	0	0
Coimbatore	2,450	8	0
Madras	863	8	0
Total	10,634	5	0

INDUSTRIAL EDUCATION.

122. *General.*—Mr. W. Fyfe continued as Inspector of Industrial Schools until 7th June 1927 from which date up to 7th February 1928 he acted as Deputy Director of Industries. Mr. N. M. Adyanthayya, Principal, Madras Trades School, acted as Inspector of Industrial Schools in the place of Mr. Fyfe. The Inspector of Industrial Schools continued to act as Secretary to the Board of Visitors of the Madura Industrial Institute and as a member of the Board of Examiners of the Government Fisheries Training Institute, Calicut.

123. *State Technical Scholarships.*—Two State Technical Scholarships fell vacant during the year and were awarded for a period of two years in each case to Messrs. B. M. Lakshmipathi and T. Venkaji for the study of 'Mechanical Engineering with special reference to the manufacture of Agricultural Implements' and 'Paper Manufacture' respectively. The former had completed the B.E. degree of the Madras University in the Mechanical branch whilst the latter had, after graduation, been, for nearly four years, in the employ of the Carnatic Paper Mills, Rajahmundry, and had acquired considerable experience in the erection of machinery and plant connected with the manufacture of paper. This scholar had also undergone a special course of about six months duration in the Forest Research Institute, Dehra Dun, in the chemistry and technology of pulp and paper-making. The following statement shows the Madras technical scholars who were undergoing courses of training in the United Kingdom at the end of the year:—

Serial number and name.	Subject for the study of which the scholarship was awarded.
1. A. R. Sahasranam ..	Dyeing and Colour Chemistry.
2. P. T. Koman Nayar ..	Saw Milling.
3. K. Thiagaraja Pillai ..	Hydro-Electric Engineering and Heavy Traction.
4. A. R. Yethiraja ..	Manufacture of Sugar.
5. T. R. Seshadri ..	Chemistry of Drugs Manufacture.
6. T. Venkaji ..	Paper manufacture.
7. B. M. Lakshmipathi ..	Mechanical Engineering with special reference to the manufacture of Agricultural Implements.

The scholarships of Nos. 1 and 2 which expired during the year were extended for a third year of study in each case.

Mention was made in last year's report of the fact that a draft set of revised rules to govern the award of these scholarships had been submitted to Government for consideration and approval in consultation with the High Commissioner for India. These draft rules were approved by Government during the year and issued

in booklet form along with the rules prescribed to govern the award of the other scholarship schemes administered by the department. According to the old rules, the scholarships that fell vacant were awarded to the best qualified candidates that presented themselves. The result was that a majority of the ex-holders of these scholarships had to seek employment outside the Presidency, as there were few suitable openings for them in the Presidency itself. Under the revised rules, whenever a vacancy is in sight, two or more alternative industries are selected for the award of scholarship, the selection of industries being made with special reference to the industrial requirements of this Presidency. Further in order to ensure the recruitment of the right type of men for training in the selected industries, and to minimize the chances of candidates being selected for whom the requisite facilities could not be secured, the High Commissioner is now consulted beforehand as to the qualifications that the candidates for training should possess. Special care is also exercised, in selecting the industries, to ensure that, as far as possible, candidates trained in them will have reasonable prospects of employment within the Presidency. With this end in view, the revised rules provide that no scholarship shall be awarded to a candidate unless there is a definite prospect, on return to India, of his obtaining employment in which he will be able to put to use in this Presidency the knowledge and experience he has gained. The revised rules came into operation at the time of the last selection of candidates in August.

124. *Post-graduate Scholarships.*—Seven new scholarships tenable at the Indian Institute of Science, Bangalore, were awarded during the year. There were thirteen scholars undergoing training at the end of the year, of whom seven were in the first, five in the second and one in the third year of study respectively. The scholarship tenable at the Leather Trades Institute was awarded, with the sanction of Government, to N. Arogyanathan who had completed a course of study at the Institute.

125. *Scholarships tenable at the Victoria Jubilee Technical Institute, Bombay.*—Five new scholarships were as usual awarded during the year under review, two for the study of Sanitary Engineering and Plumbing, two for Technical and Applied Chemistry and one for Electrical Engineering. A sum of Rs. 4,200 was contributed to the funds of the Institute in accordance with the priority scheme propounded by the Board of Trustees of the Institute and referred to in some detail in paragraph 116 of the Administration Report for the year 1923-24. Eight scholars completed their course of study at the Institute, during the year, four in Textile Manufacture, two in Sanitary Engineering and Plumbing and one each in Electrical Engineering and Technical and Applied

Chemistry. The number of scholars under training at the end of the year was thirteen distributed as follows:—

Department of Textile Manufacture	3
Do. Technical and Applied Chemistry ..	5
Do. Sanitary Engineering and Plumbing ..	4
Do. Electrical Engineering	1
Total ..	18

126. *Industrial Schools Scholarships*.—Sixty new scholarships tenable for a period of 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 1927 to pupils learning a trade in the various recognized industrial schools and works classes. In accordance with the provisions of Chapter IX of the Code of Regulations, a bonus of Rs. 38 each was granted to such of the pupils as had satisfactorily completed their course of study during the year.

127. *Jamshedpur Technical Institute*.—The Tata Iron and Steel Co. provide, at the Technical Institute attached to their works at Jamshedpur, a combined theoretical and practical course extending over three years in the metallurgy of iron and steel. Each student undergoing the course of training is allowed a monthly stipend of Rs. 60. On the completion of the course, students are required to enter into an agreement to serve the Company for five years and are given a position in the works on a salary of not less than Rs. 7 per day. Government sanctioned a contribution of Rs. 6,000 to the Institute for a period of three years from 1927 in return for the reservation of three seats for candidates from this Presidency. The first batch of students were admitted in November last and are reported to be progressing well.

128. *Aided Industrial Schools*.—The following new institutions were recognized during the year:—

- (i) The St. Joseph's Girls' Industrial School, Guntur.
- (ii) The U.F.C.M. Lam Rural School, Guntur.
- (iii) The Danish Mission Lace School, Cuddalore.
- (iv) The Girls' Industrial School, Nellore.
- (v) P.S.G. & Sons Charity Industrial Institute, Peelamedu.

On the 31st March 1928, the total number of schools recognized by the department was 63, of which all except five were in receipt of grants in aid. The recognition accorded to the Weaving Institute, Alwartirunagiri, was, at the request of the management, withdrawn with effect from the beginning of the year under report. At the close of the year there were 3,798 pupils under training of

whom 2,006 were Indian Christians, 724 Non-Brahman Hindus, 370 depressed class pupils, 307 Muhammadans, 169 criminal tribe pupils, 132 Brahmans and 90 Europeans and Anglo-Indians. A sum of Rs. 89,699 was distributed to these institutions in the form of maintenance grants-in-aid representing an average of slightly over Rs. 23-8-0 per pupil per annum. A further sum of Rupees 14,889-12-0 was distributed as half grants for the purchase of equipment, whilst a sum of Rs. 98,661 was provided for building grants to certain institutions. A brief account of some of the institutions newly recognized during the year is given below.

129. (1) *The St. Joseph's Girls' Industrial School, Guntur*.—This institution provides instruction in dress-making and general needle work. The syllabus followed is a well-arranged one and the course which is of two years duration is supervised by a competent staff. The institution is conducted in a suitable building, and is maintained from the Mission funds assisted by a small Government grant.

130. *U.L.C.M. Lam Rural School, Guntur*.—This institution is conducted on very sound lines under the direct supervision of Mr. William Bembow, a graduate in Agriculture. The pupils receive class room instruction in the three R's and in agriculture during certain hours of the day and spend the rest of their time on the farm. Each pupil is allowed an acre of farm land on which he works and raises his own crops under the guidance of the instructors. Half the yearly yield is given to the pupil and the other half is appropriated by the Mission towards the expenses of the school. This arrangement acts as a direct incentive to hard work and induces a pupil to make the best use of the land. The school is at present conducted in thatched sheds some of which are used as a hostel and the others as class rooms.

131. *Girls' Industrial School, Nellore*.—This school has been established by Government under section 17 (i) of the Criminal Tribes Act and the entire charges are borne by Government in the Labour Department. It is conducted on half-time lines and inspected on the literary side by the officers of the Department of Public Instruction. The girls in attendance receive training half time in drawn thread work, embroidery and plain sewing. The school has been recognized under the Code of Regulations for Industrial Schools at the request of the Commissioner of Labour in order to enable it to acquire the status and secure the advantages of a recognized institution.

132. *P.S.G. & Sons Charity Industrial Institute, Peelamedu*.—A reference was made in the report of the previous year to the scheme propounded by Messrs. P.S.G. & Sons for the establishment of an industrial institute at Peelamedu. After some

modification of the original scheme, Government agreed to assist the promoters with a building grant up to a maximum of Rs. 75,000 in all, payable in instalments extending over a period of three to five years, the grant in each year not to exceed half the amount expended on works as certified by the Public Works Department. Government further approved a proposal that subsequent maintenance and equipment grants in accordance with the provisions of the Code of Regulations for Industrial Schools should also be guaranteed on condition that the balance of the total cost of the building scheme amounting to Rs. 1,25,000 and a sum of Rs. 25,000 towards equipment are provided by the promoters. The building operations were commenced during the year and as the construction of the Mechanical Engineering section is nearing completion, the management hope shortly to be in a position to start regular classes.

133. *Establishment of Government Schools.*—Government having accepted in principle the recommendations of the Committee on Industrial and Technical Education that model Government institutions should be established in suitable language areas of the Presidency, proposals were worked out in detail during the year for the establishment of three such institutions, at Calicut, Mangalore and Bellary, and these were under the consideration of Government at the close of the year.

134. *Madras Trades School—Staff.*—Mr. N. M. Adyanthayya continued as Principal of the School up to 7th June 1927 when he took over the duties of acting Inspector of Industrial Schools. M.R.Ry. M. V. Jagannathan acted as Principal from the 7th June 1927 to 6th February 1928. Early in the year Mr. C. V. Krishnaswami Chetti, B.Sc. (Tech.), was appointed as Visiting Lecturer in Electrical Engineering.

135. *Admissions and number on the rolls.*—The number of new admissions to the school was 255 of which 35 took the Mechanical Engineering course and 56 the Electrical Engineering course. The general educational standard of the students seeking admission was higher than in previous years. A considerable number of applications had to be refused on account of the applicants not being bona fide apprentices. It is becoming increasingly difficult for mufassal students to enter firms as apprentices since the number of suitable firms taking apprentices is limited and the opportunities for boys to learn a trade are correspondingly restricted. The average number of classes held was 50 per week. The total strength of the school on the 31st March 1928 was 425 as against 408 on the 31st March 1927.

136. *Examinations.*—During the year under review, 82 students presented themselves for the final examinations in the various branches; of these eight passed mechanical engineering, eight in electrical engineering, seven in builders drawing, five in plumbing, seven in minor sanitary engineering science, six in wood working and 15 in metal working. The examinations were conducted by outside examiners Messrs. A. F. Clay, A.M.I.E.E., of the Madras and Southern Mahratta Railway, W. B. Hornsocks, A.M.I.M.E., Chief Engineer, Buckingham and Carnatic Mills, A. McKay of the Madras and Southern Mahratta Railway and Diwan Bahadur A. V. Ramalinga Ayyar, B.C.E., M.I.E. (Ind), Retired Chief Engineer, Public Works Department. The electric wiring examinations were conducted by Mr. P. V. Chari, A.C.G.I., A.M.I.M.E., Electrical Engineer to Government, and Mr. P. Subba Rao, A.M.I.E.E., Officiating Professor of Electrical Engineering in the Engineering College. Sixty candidates appeared for the examinations and 39 passed. Of the 39 candidates who passed the examination, 22 were from the school and 17 from outside. The school continued to function as a centre for the examinations of the City and Guilds of London Institute examinations. Fifty-seven candidates from various parts of the Presidency appeared for these examinations of whom 26 were successful and were awarded certificates.

137. *Careers of ex-students.*—Of the fifteen students who were successful in obtaining the full technological certificates in Mechanical and Electrical Engineering, 12 are known to have secured suitable posts on an average monthly salary of Rs. 75. The whereabouts of the remaining three are not known and it is possible that they have obtained appointments outside the Presidency.

138. *Miscellaneous.*—An oxy-acetylene welding plant was installed in the school during the year and the final year students were given a training in acetylene welding by Mr. A. McAlpine of the Indian Aluminium Company who is a specialist in that subject. I have much pleasure in recording that nine scholarships of the monthly value of Rs. 8 each were awarded during the year by the Trustees of the Venkateswara Hostel to deserving students attending the school.

139. *Printing Classes.*—The printing classes which were started two years ago entered upon their third year. These classes continued to be popular with the employees of printing establishments.

140. *Perambur Railway School.*—The Trades School attached to the Madras and Southern Mahratta Railway Workshops worked

successfully during the year, the number of new admissions amounting to 82. The total strength of the school on the 31st March was 201. The annual examinations were conducted by Mr. Reid, an officer of the Railway Company. Forty-four candidates presented themselves for examination of whom 24 passed and were awarded certificates. The vernacular section of the school which is intended for the benefit of the workmen continued to be popular. The railway authorities have in view the construction of a separate building for the school in connexion with their new extension scheme and they have been furnished with information as to the accommodation required in order to provide for the future development of the school.

141. *Preparatory Trades School*.—In the Preparatory section of the school, 47 new admissions were made, of which 35 were nominated by the Madras and Southern Mahratta Railway. The railway authorities have kindly awarded stipends to the value of 5 annas per diem to each of their nominees. The present strength of the Preparatory Trades School is 64.

142. *Madura Industrial Institute—Staff*.—M.R.Ry. Rao Sahib C. S. Ramachandra Ayyar continued as Superintendent throughout the year except for a period of two months from the 13th June to 12th August 1927, during which he was on leave and M.R.Ry. V. Rama Rao, Assistant Superintendent, Mechanical Workshops, and M.R.Ry. A. R. Doraiswami Ayyar, Lecturer in Engineering, officiated as Superintendent for periods of five and a half and two and a half weeks respectively. Mr. V. Rama Rao was on medical leave from 1st April to 1st July 1927 and again from 12th January to 31st March 1928 during which period Mr. A. R. Doraiswami Ayyar acted as Assistant Superintendent in his stead. Mr. V. Venuswami Ayyangar continued to act as Assistant Superintendent, Motor section, throughout the year.

143. *Admissions*.—Of the 61 pupils who applied for admission to the probationary class, 30 were admitted. Of these 19 probationers were subsequently admitted into the first-year class. The strength of the Institute on 1st October 1927 was as follows:—

Probationers.	First year.	Second year.	Third year.	Fourth year.	Fifth year.	Short course—Motor driving.	Total.
24	18	15	15	11	13	12	108

The third batch of long-term apprentices completed their five years' course during the year and left the Institute in December 1927. Thirteen of the apprentices were examined of whom eight were successful. Almost all the final year apprentices who completed the course have since found employment on a pay ranging from Rs. 20 to Rs. 50 per mensem.

144. *Board of Visitors and Examiners*.—In G.O. No. 127, Development, dated the 27th January 1927, the Board of Visitors was reconstituted for a further period of three years. The Board met twice during the year and discussed several important questions concerning the Institute. The apprentices were tested by the Board of Examiners during the year with the result that 46 were found suitable and 15 unsuitable for promotion.

145. *Workshops*.—The number of orders booked during the year was 837, of which 66 were carried over to the present financial year. Up to November 1927 the amount of work in hand was insufficient, but subsequently some large orders were received from the Public Works Department for shutters and these considerably relieved the situation.

The following statement shows the value of the output during the last six years:—

Year.	Government departments.	Municipalities and District Boards.	Private firms and individuals.	Total.
1922-23	RS. 5,900	RS. 2,000	RS. 12,300	RS. 20,200
1923-24	5,400	7,300	17,000	29,700
1924-25	4,000	9,000	21,000	34,000
1925-26	6,123	9,887	21,344	37,354
1926-27	3,788	16,466	22,048	42,302
1927-28	..	..	..	42,287

The output of the workshop during the year amounting to Rs. 42,287 showed little improvement as compared with the previous year. As I have stated on a previous occasion, orders to the extent of about a lakh of rupees in the Metal work section and from Rs. 10,000 to Rs. 15,000 in the Woodwork section are required every year in order to provide the necessary practice for the students. The position has since undergone considerable improvement in this respect as consequent on the receipt of large orders from the Superintending Engineers, Tanjore and Trichinopoly Circles, the output is expected to be doubled during the current year.

146. *Equipment*.—The only capital expenditure incurred during the year was on the provision of a wood work planing machine and the installation of fire extinguishers. A few worn out and

obsolete machines were disposed of and the capital account of the undertaking reduced accordingly. In order to enable the Institute to cope with the increased orders received since the close of the year, it will be necessary to supplement the existing equipment in some directions.

LEATHER TRADES INSTITUTE.

147. *Staff.*—Mr. A. Guthrie, M.B.E., V.D., Principal, was on leave from 27th March to 6th October 1927 during which period the duties of Principal were carried on by the Vice-Principal, Mr. P. K. Rajamanikkam Nayudu, in addition to his own. Mr. P. K. Rajamanikkam Nayudu was on leave from 4th November 1927 to 4th January 1928. Mr. K. Seshachallam Chowdari, Research Chemist worked in the laboratories of the Indian Institute of Science, Mangalore, for a period of three months during the year in order to acquaint himself with bacteriological and bio-chemical methods.

148. *Instruction.*—I have referred in the last few administration reports to the decline in recent years in the number of applications for admission to the Institute and I regret that no improvement can be recorded in this respect during the year under review. No new students applied for admission to the three years course during the year and accordingly proposals were submitted to Government for the introduction of a modified course extending over two years. Pending orders on these proposals, which were under the consideration of Government at the close of the year, six students were accepted without fees for a two years course. The series of lectures in the vernacular for working tanners and maistris of private tanneries on the methods and operations employed in modern tannery practice, which had been started in the previous year by the Vice-Principal, were continued at Pallavaram during the year by the Senior Assistant Chemist. The average attendance at these lectures was 12. The management of the Chrome Leather Co. have expressed their appreciation of these lectures and have informed me that several of the maistris who attended them have since evinced a more intelligent interest in the conduct of the operations for which they are responsible. The Chrome Leather Co. have offered me the use of their school hall on Saturday mornings for a further series of lectures and a circular giving particulars of the above course was issued to all tanners in Pallavaram. My thanks are due to Mr. G. A. Chambers, Proprietor of the Chrome Leather Co., for the loan of the school room and for permitting maistris and operatives from other tanneries to attend the classes.

149. *Past students.*—One of the two students who completed their course during the previous year obtained employment with the Chrome Leather Co., and the other was awarded a scholarship

for research in the Institute. Mr. S. Raja, an ex-student of the Institute, who was awarded a State Technical Scholarship in the year 1924-25, returned to India after completing the three years course at the Leather Sellers' Technical College, London, and obtained employment in a Cawnpore tannery. In his last year in the Leather Sellers' Technical College, he was awarded four first prizes and he also secured a silver medal in the City and Guilds of London Institute Examination. Mr. Reddi, a former student and foreman in the Institute, secured an appointment as a reptile skin tanner with a firm in Raipur.

150. *Manufacturing Operations.*—The Institute undertook during the year the supply of 10,021 lb. of russet leather and 4,523 lb. of retanned sole leather for the Vellore Jail. The manufacture of suit case leather from horse hides developed considerably and firms in Madras now take all the leather of this class that can be finished in the Institute. The demand for the chrome tanned kavalai hides tanned in the Institute was greater than ever during the year, but it was found necessary to restrict manufacture considerably as a large proportion of the funds available for the purchase of raw materials were required for the purchase of the materials for the dressing and retannage of leather for the Vellore Jail.

151. *Analysis for the Trade.*—The facilities afforded by the Institute in the matter of carrying out analyses of various descriptions for tanners such as bark, water, chrome, lime liquor, effluent, etc., have proved very popular during recent years and are becoming more widely known. The Institute has also for some years past been undertaking the analyses of skins and hides intended for export with a view to ascertaining whether they have been adulterated by the excessive use of epsom salt and other dopes with the object of giving the hides or skins additional weight. The results of these analyses are generally required within 24 hours. This service is of great use to exporters and assists to keep adulteration within limits. Forty analyses of various kinds were carried out during the year.

152. *Myrabolams.*—During the year the Institute received from the Forest Department a number of samples of myrabolams derived from the various producing centres. Full analyses of these were made and the results communicated to the Forest Department and at the close of the year, work was in progress on the acid and bloom forming properties of the most important qualities.

153. *Research.*—The Leather Research Chemist, in addition to assisting in the investigation into myrabolam, studied the possibilities of *Hopea parviflora* as tanning material and the results

will shortly be published as a departmental bulletin. The tanning material *Terminalia pallida* was also studied. A paper by Mr. Seshachallam entitled "Studies in Avaram Bark" was published in the Journal of the International Society of Leather Trade Chemists in February 1928 while further papers on the subject were almost ready for publication at the end of the year. A bulletin summarizing the work done on Divi Divi was published shortly after the close of the year. The Leather Research Chemist conducted in all 44 analyses in the laboratory. An investigation into the softening of water for a rice mill at Bezwada was carried out and the examination of a gas given off from a borehole at Nepalli in Kistna district was also taken up. Mr. Seshachallam conducted inter alia a preliminary investigation into the possibilities of developing the coir industry in the Tanjore district to which reference is made elsewhere in this report.

154. *Miscellaneous work.*—The following examples are given of assistance rendered to the trade by the Institute during the year :—

(1) A local tanner who wished to export pickled skins to Europe had been supplied with a formula by his clients, but was unable to understand the details of working and accordingly consulted the Principal. A small pack of skins was pickled in the Institute in his presence by the method sent him, but it was shown at the same time that the formula was not suitable for Indian conditions and another lot was put through by alternative method. The skins pickled by the first method deteriorated considerably within a month whilst the ones prepared by the alternative method recommended by the Institute were found in good condition after nine months storage.

(ii) A local tanner exporting skins to England was requested by his English agents to arrange for a slightly softer feel to the skins without affecting their other characteristics. The Principal made a number of visits to the tannery and carried out a series of experiments there. Finally a suitable method was evolved to the satisfaction of the tanner.

(iii) A number of firms were supplied with information in regard to a suitable method of treating reptile skins.

(iv) A villager tanning skins for the manufacture of harmonium bellows was shown a method of deliming more suitable for his purpose than that employed by him previously.

(v) A Madras tanner pickled a large number of buff calf skins and then attempted to bark tan them with the result that they became hard and swollen. The Principal was consulted and after carrying out an analysis was able to take steps to minimize the damage. It was unfortunately impossible completely to rectify the damage as this had gone too far before the Principal was

consulted. If the tanner had applied for advice directly he noticed the swollen condition of the skins, it would have been an easy matter to reduce the swelling and to make a satisfactory leather from them.

(vi) A Pallavaram tanner who had about 10,000 lizard skins spotted in the tan yard came to the Institute for advice and assistance. The Vice-Principal spent the whole day at Pallavaram and was able to discover the cause and to remedy the defect.

(vii) A leather goods manufacturer having seen the various kinds of art leather exhibited by the Institute at the Mysore Exhibition came over to Madras and attended the Institute for a few weeks to receive instruction in the methods of dyeing and finishing of certain varieties of art leathers.

155. *Future of the Leather Trades Institute.*—The question of the future of the Institute was engaging the consideration of Government at the end of the year. In view of the improved outlook and the great importance of the tanning industry to the Madras Presidency it would, I consider, be most inadvisable to close the Institute entirely and so deprive the industry of the facilities afforded by it and of the assistance to which it has become accustomed. It seems to be the case that few of the Provincial Governments now find it necessary to maintain a first-grade Leather Trades Institute of their own, but there should be ample scope for one institution on the lines of the Madras Leather Trades Institute to serve the needs of all the Provinces both as regards the provision of instruction in tanning and leather processes and the conduct of research. I therefore suggested that the Governments of the various Provinces should be addressed with a view to ascertaining whether the Madras Leather Trades Institute could be maintained and developed to serve the purposes of such a central institute for the whole of India. There has also been a proposal to substitute a small cess for the existing export duty on hides and to expend the proceeds of the cess for the general benefit of the trade. The imposition of such a cess would postulate the maintenance of a first-grade Leather Trades Institute in order to enable an ordered programme of research to be carried out. There would certainly seem to be in India at present too many leather trades institutes. I believe there are actually five such institutes in existence and when it is considered that Great Britain with its large and highly organized leather industry can only support three combined research and instructional institutions and one purely research laboratory, it will be evident that there is little justification for maintaining a number of isolated leather institutions in India under present conditions. It is possible therefore that the solution of the difficulty in regard to the Madras Leather Trades Institute may lie in its conversion into a central or all-India

institution. This question was at the close of the year in the early stages of discussion.

SCHOOL OF ARTS AND CRAFTS.

156. *Staff.*—Mr. W. S. Hadaway continued to be in charge of the school up to 7th November 1927 when he retired after having served as Superintendent of the School for a period of twenty years. M.R.Ry. Rao Sahib N. R. Balakrishna Mudaliyar took over charge of the school from Mr. Hadaway and held the combined appointments of Superintendent and Assistant Superintendent until the end of the year.

157. *Strength and Attendance.*—The number of pupils on the rolls on 31st March 1928 was 466 of whom 15 were females. The average attendance during the year under report was 261 and the average number on the rolls was 498, which was made up of 452 full-time male pupils, 10 full-time female pupils and 36 part-time pupils. The figures for the three previous years were:—

Year.	Average number on the rolls.	Average attendance.
1924-25	443	235
1925-26	494	265
1926-27	533	281

The average attendance improved by 3 per cent during the year under review. The percentage of artisans under training increased from 55 per cent in the previous year to 57 per cent during the year under review. The steady increase in the percentage of artisans undergoing instruction is a satisfactory feature. The work turned out in the various departments of the school does not call for any special comment. Some excellent work was produced in the wood work, metal work, lacquer work and carpet weaving departments. The school participated in the All-India Exhibition held in Madras and the exhibits attracted considerable attention. Six students who left the school during the year are understood to have found suitable employment.

158. *Financial Statement.*—The expenditure for the year amounted to Rs. 67,618-7-6 as against Rs. 59,394-9-6 in the previous year. The receipts from sales again showed a satisfactory increase as compared with the previous year, as will be seen from the following statement which shows the amount realized by sales during the last three years:—

Year.	Receipts.
	RS. A. P.
1925-26	9,829 18 0
1926-27	9,575 15 6
1927-28	11,379 9 0

The accounts of the school were as usual audited by the Accountant-General.

159. *Library and Museum.*—Sixty-eight new books were added to the library during the year and the library now is a very comprehensive one including no less than 2,062 volumes exclusive of periodicals and is freely resorted to by the students and also by some members of the public who are interested in arts and crafts. The museum in which a representative range of articles turned out by the school are attractively displayed, now includes 2,106 articles many of which are used by the students for purpose of reproduction. Thirty-six articles were added to the museum during the year.

160. *Examinations.*—The results of the various Government Technical Examinations during the year are shown below with figures in respect of the two preceding years for purposes of comparison:—

Year.	Number appeared.	Number passed.	Percentage
1925-26	85	60	70
1926-27	107	79	74
1927-28	142	112	79

It will be seen that the number of students appearing for the technical examinations showed a very satisfactory increase during the year while the percentage of passes also improved.

Fine Arts.—Pending the establishment of a separate Institution devoted exclusively to the teaching of fine arts as recommended by the School of Arts Reorganization Committee, Government sanctioned, towards the close of the year, the reintroduction of classes in fine arts in the existing School of Arts and Crafts and the question of appointing an artist on the staff of the Institute is under the consideration of Government.

161. *Board of Visitors.*—The school was not visited during the year by any of the official visitors appointed by Government.

RECEIPTS AND EXPENDITURE.

162. The following statement compares the receipts and expenditure of the department during the years 1926-27 and 1927-1928. Details exhibited in Appendix IV:—

Item.	1926-27.	1927-28.	Increase or decrease.
	RS.	RS.	RS.
Expenditure	10,90,167	12,87,840	1,47,673 Increase.
Receipts	1,04,704	1,06,218	1,514 Increase.
Net cost	9,85,463	11,31,622	1,46,159 Increase.

It will be seen that there was an increase in expenditure and in receipts and in the net cost of the department. The increase in receipts was small and does not call for any special comment. The increase in expenditure was chiefly under (i) Direction, due to the cost of the staff employed in the Survey of Cottage Industries, (ii) District Engineering, (iii) Grants-in-aid, (vi) Madras Trades School, (viii) School of Arts and Crafts, (ix) Textile Institute, (x) Weaving Parties and Expenditure in England. The increase generally was attributed to a normal expansion and development of the several departmental activities.

PROGRAMME OF WORK FOR 1928-29.

163. The following items of work are proposed to be undertaken during the year 1928-29 subject to Government sanction where necessary :—

Industrial Engineering.—(i) Investigation into the scope which exists in Vizagapatam or other suitable centre for setting up an efficient power cane-crushing mill with improved furnaces similar to the one which was formerly working under departmental control at Pallapalayam in the Coimbatore district.

(ii) Survey of surface and sub-soil water in the Ceded districts.

(iii) Investigation of a scheme for pumping water from the Tungabhadra river, Bellary district, in order to irrigate from 500 to 1,000 acres.

(iv) Investigation of the possibilities of forming, where suitable facilities exist, co-operative societies for the pumping of water for purposes of irrigation.

Textile Section.—(i) Demonstration of a silk-twisting plant in the Textile Institute and the training of students in the operation of the plant.

(ii) Installation of a wool-spinning plant in the Textile Institute, Madras. This plant will afford practical training for the students in modern methods of wool-spinning and also serve as a demonstration of the commercial possibilities of such a plant.

(iii) Development of the dyeing section of the Textile Institute by the provision of additional equipment with a view to enabling students to be given a training which will permit of their starting and conducting small dyeing concerns of their own. Experiments will also be made with a view to replacing the methods of hand and skein dyeing now in vogue by cheese or warp dyeing.

(iv) Formation of a peripatetic dyeing party and of dyers co-operative societies for the joint purchase of dyestuffs and chemicals direct from the local representatives of manufacturers.

(v) Experiments in regard to the utilization of the waste silk available in this Presidency by converting it into spun yarns.

(vi) Investigation into the possibilities of mosquito curtain weaving in this Presidency.

(vii) Experiments with a view to sorting out, with the aid of special machinery obtained from Italy, cocoons and separating those which will ultimately yield male moths from those which will yield female moths.

(viii) Encouraging the constitution by district boards of peripatetic weaving schools which will carry out in their respective areas the work now performed by the departmental weaving parties.

Industrial Education.—Initiation of a scheme of apprenticeship training in various selected workshops and factories in the Presidency and for the provision of apprenticeship scholarships.

Madras Trades School.—Commencement of the fourth year printing classes and the third year course in the Preparatory Trades School.

Leather Trades Institute.—(i) Finishing of black russet leather and retannage of dhori hides for Vellore Jail.

(ii) Conduct of experiments in aldehyde tannage of kavalai hides.

(iii) Conduct of tanning experiments on a semi-commercial scale with the bark of *Hopea parviflora*.

(iv) Experiments on the tannage of skins with Neradol and alum, Neradol and formaline and Neradol and basic alum.

(v) Study of the effects of various deliming agents on bark tannage.

Leather Research Chemist.—Conduct of experiments in coir production at Topputurai, Tanjore district, with a view to shortening the retting period and producing saleable yarns.

Commercial Concerns—Kerala Soap Institute.—Investigation into, and experimental manufacture of, essential oils.

Government Industrial Institute, Madras.—(i) Installation of improved machinery for the manufacture of printers ink.

(ii) Experiments in regard to the preparation of high grade printers ink and the conduct of large scale experiments on news ink.

(iii) Preliminary investigation into the manufacture of lamp black.

Cottage Industries.—(i) Consideration of measures to give effect to the suggestions made in the final report of the Special Officer on the survey of cottage industries of the Presidency.

(ii) Establishment of an Industrial Museum for the products of cottage and small scale industries.

APPENDIX I.

Statistics relating to Industrial Schools for 1927-28.

District.	Name of the institution.	Boys or girls.	Number on rolls on 31st March		Draw-ing.		Mechanical engi-neering.			Civil engineering.	Draughtsman course.	Carpentry, cabinet-making and general work.	Metal work.	Weav-ing.		Needle crafts.			Agriculture and allied trades.	Oil-engine driving.
			1927.	1928.	Freehand Out-line.	Technical.	Miller's work.	Blacksmith's work.	Other brass- work.					Cotton.	Carpet.	Lace-making.	Knitbrodery.	Other brass- work.		
			(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
Madura	GOVERNMENT INSTITUTIONS.	Boys.	86	83								20	52							
Madras	Government Industrial Institute, Madura.	Do.	6	7																
Do.	Leather Trades Institute, Madras.	Boys and girls.	494	466								197	37		2					
Do.	School of Arts and Crafts, Madras.	Boys.	638	690		76			93											
Do.	Government Trades School, Madras.	Boys.	34	52										52						
Do.	Government Textile Institute, Madras.	Do.	1,258	1,298		76			93			217	89	52	2					
Trichinopoly.	GOVERNMENT INSTITUTIONS.	Boys.	52	47			13													
Madras	St. Joseph's Industrial School, Trichinopoly.	Do.	372	354		133	44		79			26	9	24						12
Trichinopoly.	C.N.T. Institute, Vepery, Madras.	Do.	73	58				2				36		14						
South Arcot	Wesleyan Mission Industrial School, Karur.	Do.	77	78								78								
	St. Joseph's Industrial School, Tindivanam.	Do.																		

APPENDIX I—cont.

Statistics relating to Industrial Schools for 1927-28—cont.

District.	Name of the institution.	Kattian work.	Plumbing and minor sanitary science.	Motor-car driving and repairs work.	Mat-making.	Basket-making.	Chemistry of leather manufacture.	Electric wiring.	Railway apprentices.	Engraving.	General education.	Scientific instrument-making.	Goldsmith's work.	Laquer work.	Special painting.	Printing and allied trades.	Boot and shoe-making.	Electrical engineering.	Probationer's course.	Preparatory Trades School course.
		(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)
Madura	GOVERNMENT INSTITUTIONS.			11																
Madras	Government Industrial Institute, Madura.						7													
Do.	Leather Trades Institute, Madras.									99			15	86	30					
Do.	School of Arts and Crafts, Madras.																			
Do.	Government Trades School, Madras.		19					80	201									99		
Do.	Government Textile Institute, Madras.																			
Do.	Government Textile Institute, Madras.		19	11			7	80	201	99			15	86	30	58		99		64
Trichinopoly.	GOVERNMENT INSTITUTIONS.																			
Madras	St. Joseph's Industrial School, Trichinopoly.																			
Trichinopoly.	C.N.T. Institute, Vepery, Madras.	6		9				2										16		
South Arcot	Wesleyan Mission Industrial School, Karur.																			
	St. Joseph's Industrial School, Tindivanam.																			

APPENDIX I—*cont.*
Statistics relating to Industrial Schools for 1927-28—*cont.*

Statistics relating to Industrial Schools for 1927-28—*cont.*

District.	Name of the institution.	Boys or girls.	Number on rolls on 31st March		Draw- ing.		Mechanical engi- neering.		Civil engineering.	Draughtsman course.	Carpentry, cabinet- making, and general work.	Metal work.	Weav- ing.		Needle crafts.			Oil-engine driving.		
			1927.	1928.	Technical.	Freehand Out- line.	Fitter's work.	Blacksmith's work.					Other branches.	Cotton.	Carpet.	Lace-making.	Embroidery.		Other branches.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
	AIDED INSTITUTIONS—cont.																			
Madras	Anjuman Industrial School, Madras.	Boys.	90	95	..	..	..	..	..	..	..	45	..	..	30	..	..	50	..	..
North Arcot ..	A. A. M. Industrial School, Katpadi.	Do.	127	150	..	..	..	..	..	..	..	114	..	..	..	..	..	..	..	..
Coimbatore ..	St. Joseph's Industrial School, Coimbatore.	Do.	150	153	..	..	30	..	..	..	..	123	..	..	..	..	..	..	..	..
Tanjore ..	St. Francis Xavier's Indus- trial School, Tanjore.	Do.	81	90	..	..	..	..	..	..	..	44	..	..	..	..	..	..	..	..
Tinnevely ..	S. P. G. Art Industrial School, Nazareth.	Do.	94	90	..	..	..	3	..	..	..	67	..	..	..	..	..	..	..	..
Vizagapatam ..	St. Aloysius Industrial School, Vizagapatam.	Do.	24	30	..	..	30	..	..	..	..	..	..	..	..	..	..	..	..	..
Kurnool ..	Cole's Vocational Middle School, Kurnool.	Do.	60	56	..	..	..	..	..	..	..	..	..	..	30	..	..	..	26	..
Puthur ..	All Saints Industrial School, Puthur.	Do.	34	35	..	..	..	4	..	..	..	25	..	..	..	..	..	..	..	..
Tanjore ..	St. Mary's Industrial School, Kumbakonam.	Do.	74	78	..	..	..	8	..	..	..	70	..	..	..	..	..	..	..	..
North Arcot ..	Anjuman Industrial School, Vellore.	Do.	54	50	..	..	..	..	..	..	..	50	..	..	..	..	..	..	48	..
Chingleput ..	U. F. C. M. Agricultural School, Melrosapuram.	Do.	48	48	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
South Arcot ..	Danish Mission Industrial School, Panruti.	Do.	82	97	..	..	..	..	..	..	..	44	..	53	..	..	..	..	..	..

APPENDIX I—*cont.*

Statistics relating to Industrial Schools for 1927-28—cont.

[illegible]

APPENDIX I—cont.
Statistics relating to Industrial Schools for 1927-28—cont.

(1) District.	(2) Name of the institution.	(3) Boys or girls.	(4) Number on rolls on 31st March		(6) Freehand Out- line.	(7) Technical. Drawing.	(8) Mechanical engi- neering.			(11) Civil engineering.	(12) Draughtsman course.	(13) Carpentry and general work.	(14) Metal work.	(15) Weav- ing.		(17) Needle crafts.			(20) Agriculture and allied trades.	(21) Oil-engine driving.
			1927.	1928.			Fitter's work.	Blacksmith's work.	Other bran- ches.					Cotton.	Carpet.	Lace-making.	Embroidery.	Other bran- ches.		
Chingleput ..	Aided Institutions—cont. A.A.M. Industrial School, Saidapet.	Boys.	22	27	..	..	..	..	..	..	..	14	..	..	..	..	..	..	..	..
North Arcot ..	Anjuman Industrial School, Melvisharam.	Do.	55	52	..	..	..	..	..	..	..	52	..	..	..	..	..	..	..	..
Ganjam ..	Raja's Industrial School, Parlakimedi.	Do.	19	18	..	..	..	..	..	..	..	18	..	..	..	..	..	..	..	..
Madras ..	Orr Assisted Industries School, Madras.	Do.	43	41	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tinnevelly ..	St. Joseph's Industrial School, Adakalapuram.	Do.	36	35	..	..	..	20	..	..	..	..	..	15	..	..	..	..	..	..
South Kanara.	Commonwealth Trust Engi- neering Works classes, Mangalore.	Do.	16	18	..	..	18	..	..	..	..	..	..	..	..	..	..	..	..	..
Madura ..	Pasumalai Trades' School, Pasumalai.	Do.	57	60	..	..	6	7	..	..	..	29	..	..	..	..	..	..	..	..
Bellary ..	Board Panchama School, Yenniganur.	Do.	13	15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Madras ..	Ramakrishna Students' Home Industrial School, Mylapore.	Do.	16	19	..	..	12	..	..	..	..	7	..	..	..	..	..	..	..	..
Tinnevelly ..	C.M.S. Industrial School for Blind, Palamcottah.	Boys and girls.	69	73	..	..	..	..	..	..	..	..	..	50	..	..	..	..	..	..
Madras ..	Sri Ram Motor School, Madras.	Boys.	76	72	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

APPENDIX I—cont.
Statistics relating to Industrial Schools for 1927-28—cont.

District.	(22) Name of the institution.	(23) Plumbing and minor sanitary science.	(24) Motor-car driving and repairs work.	(25) Mat-making.	(26) Basket-making.	(27) Chemistry of leather manufacture.	(28) Electric wiring.	(29) Hallway apprentices.	(30) Engraving.	(31) General education.	(32) Scientific instrument- making.	(33) Goldsmith's work.	(34) Lacquer work.	(35) Special painting.	(36) Printing and allied trades.	(37) Boot and shoe-making.	(38) Electrical engineering.	(39) Probationer's course.	(40) Preparatory School course.
Chingleput ..	Aided Institutions—cont. A.A.M. Industrial School, Saidapet.	..	9	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..	..
North Arcot ..	Anjuman Industrial School, Melvisharam.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Ganjam ..	Raja's Industrial School, Parlakimedi.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Madras ..	The Orr Assisted Industries School, Madras.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tinnevelly ..	The St. Joseph's Industrial School, Adakalapuram.	..	..	..	..	..	..	..	..	..	41	..	..	..	..	..	..	..	..
South Kanara.	Commonwealth Trust Engi- neering Works classes, Mangalore.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Madura ..	Pasumalai Trades' School, Pasumalai.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bellary ..	Board Panchama School, Yenniganur.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	15	..	..	..
Madras ..	Ramakrishna Students' Home Industrial School, Mylapore.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tinnevelly ..	C.M.S. Industrial School for Blind, Palamcottah.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Madras ..	Sri Ram Motor School, Madras.	..	72	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

APPENDIX I—cont.
Statistics relating to Industrial Schools for 1927-28—cont.

District.	Name of the institution.	Boys or girls.	Number on rolls on 31st March		Draw- ing.		Mechanical engi- neering.			Civil engineering.	Draughtsman course.	Carpentry and cabinet- making and general work.	Metal work.	Weav- ing.		Needle crafts.			Agriculture and allied trades.	Oil-engine driving.	
			1927.	1928.	Freehand Out- line.	Technical.	Printer's work.	Blacksmith's work.	Other bran- ches.					Cotton.	Carpet.	Lace-making.	Embroidery.	Other bran- ches.			
																					(1)
	AIDED INSTITUTIONS—cont.																				
Kistna	St. Joseph's Industrial School, Gunadala.	Boys	20	34	..	..	..	..	..	..	..	34	..	..	..	..	..	..	..	..	..
Tanjore	The Borstal School, Tanjore.	Do.	216	245	..	..	..	..	..	..	..	104	..	117	..	..	..	24	..	..	..
Godavari	C.B.M. Industrial School, Cocanada.	Do.	33	33	..	..	..	..	..	..	..	25	..	..	..	..	..	..	..	..	..
Coimbatore	L.M. Vg. School, Erode	Do.	73	92	..	..	..	..	..	..	..	38	..	92	..	..	..	..	..	..	..
Madras	Carpentry class, Madras Penitentiary.	Do.	43	38	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Kistna	Sri Krishna Parisrama- layam Industrial School, Cowtharam.	Do.	16	12	..	..	..	..	..	..	..	12	..	..	..	..	..	..	..	..	..
Malabar	Y.M.C.A. Industrial School, Areacode.	Do.	30	32	..	..	..	..	..	..	..	12	..	20	..	..	..	..	..	..	..
Madura	C.S.M. Industrial School, Dindigul.	Do.	17	25	..	..	..	..	..	..	..	17	8	..	..	..	..	..	..	..	..
Madras	Perambur Industrial School, Perambur.	Do.	105	78	..	..	..	..	..	..	..	41	..	..	..	..	..	20	..	..	..
Vizagapatam	St. Aloysius Supplementary Industrial classes, Vizaga- patam.	Do.	24	30	..	30	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Guntur	U.L.C.M. Lam Rural School, Guntur.	Do.	..	29	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Coimbatore	P.S.G. & Sons Charity Indus- trial Institute, Peelamedu.	..	2,491	2,587	..	163	153	44	79	..	..	1,158	18	481	30	..	..	64	103	..	12
	Total ..	..																			

APPENDIX I—cont.
Statistics relating to Industrial Schools for 1927-28—cont.

District.	Name of the institution.	Battan work.		Plumbing and minor sanitary science.		Motor-car driving and repairs work.		Mat-making.		Basket-making.		Chemistry of leather manufacture.		Electric wiring.		Railway apprentices.		Engraving.		General education.		Scientific instrument making.		Goldsmith's work.		Laquer work.		Special painting.		Printing and allied trades.		Boot and shoe-making.		Electrical engineering.		Probationer's course.		Preparatory Trades School course.	
		(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)																			
	AIDED INSTITUTIONS—cont.																																						
Kistna	St. Joseph's Industrial School, Gunadala.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Tanjore	The Borstal School, Tanjore.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Godavari	C.B.M. Industrial School, Cocanada.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Coimbatore	L.M.Wg. School, Erode.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Madras	Carpentry class, Madras Penitentiary.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Kistna	Sri Krishna Parisramalayan Industrial School, Cowtharam.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Malabar	Y.M.C.A. Industrial School, Areacode.	17	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Madura	C.S.M. Industrial School, Dindigul.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Madras	Perambur Industrial School, Perambur.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Vizagapatam.	St. Aloysius Supplementary Industrial classes, Vizagapatam.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Guntur	U.L.C.M. Lam Rural School, Guntur.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Coimbatore..	P.S.G. & Sons Charity Industrial Institute, Peelamedu.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
	Total ..	52	..	134	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	41	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	

APPENDIX I—cont.
Statistics relating to Industrial Schools for 1927-28—cont.

District.	Name of the institution	Boys or girls.	Number on rolls on 31st March		Draw- ing.		Mechanical engi- neering.			Civil engineering.	Draughtsman course.	Carpentry and cabinet- making and general work.	Metal work.	Wear- ing.		Needle crafts.			Agriculture and allied trades.	Oil-engine driving.
			1927.	1928.	Freehand out- line.	Technical.	Printer's work.	Blacksmith's work.	Other bran- ches.					Cotton.	Carpet.	Lace-making.	Embroidery.	Other bran- ches.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
AIDED INSTITUTIONS—cont.																				
Chingleput ..	U.F.C.M. Lace School, Chingleput.	Girls.	53	62	..	..	..	..	..	..	..	..	..	..	..	62	..	..	..	..
Madras ..	C.S.M. Girls' Industrial School, Kilpank.	Do.	83	75	..	..	..	..	..	..	..	..	..	..	..	25	50	..	..	..
South Arcot ..	D.M. Girls' Industrial School, Keelur.	Do.	42	33	..	..	..	..	..	..	..	..	..	..	..	..	33	..	..	..
Trichinopoly ..	Wesleyan Mission Industrial School, Karur.	Do.	23	21	..	..	..	..	..	..	..	..	..	..	..	21	..	..	..	..
Madura ..	St. Joseph's Convent Girls' School, Madura.	Do.	103	123	..	..	..	..	..	..	..	..	..	..	..	..	97	26	..	..
Tinnevely ..	S.P.G. Lace School, Idyan- gudi.	Do.	18	16	..	..	..	..	..	..	..	..	..	..	..	16	..	..	..	..
Do. ..	S.P.G. Lace School, Kudan- gulum.	Do.	25	22	..	..	..	..	..	..	..	..	..	..	..	22	..	..	..	..
Bellary ..	St. Joseph's Girls' School, Bellary.	Do.	71	85	..	..	..	..	..	..	..	..	..	..	..	19	22	..	..	..
Tinnevely ..	R.C. Lace School, Vadukan- gulum.	Do.	84	75	..	..	..	..	..	..	..	..	..	..	..	76	..	..	..	..
Do. ..	Hindu Girls' Industrial School, Kudangulam.	Do.	29	33	..	..	..	..	..	..	..	..	..	..	..	33	..	..	..	..
Do. ..	Holy Cross Convent Indus- trial School, Tuticorin.	Do.	64	67	..	..	..	..	..	..	..	..	..	..	..	67	..	..	..	..
Anjengo ..	The Sacred Heart Con- vent School, Anjengo.	Do.	21	23	..	..	..	..	..	..	..	..	..	..	..	..	23	..	..	..
Chingleput ..	Wesleyan Mission Industrial School, Ikhadu.	Do.	100	97	..	..	..	..	..	..	..	..	..	27	..	30	40	..	..	..

APPENDIX I—cont.
Statistics relating to Industrial Schools for 1927-28—cont.

District.	Name of the institution.	Battan work.	Plumbing and minor sanitary science.	Motor-car driving and repairs work.	Mat-making.	Basket-making.	Chemistry of leather manufacture.	Ele treio wiring.	Railway apprentices.	Engraving.	General education.	Scientific instrument making.	Goldsmith's work.	Lacquer work.	Special painting.	Printing and allied trades.	Boot and shoe-making.	Electrical engineering.	Probationer's course.	Preparatory Trades School course.
		(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)
AIDED INSTITUTIONS—cont.																				
Chingleput ..	U.F.C.M. Lace School, Chingleput.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Madras ..	C.S.M. Girls' Industrial School, Kilpank.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
South Arcot ..	D.M. Girls' Industrial School, Keelur.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Trichinopoly ..	Wesleyan Mission Industrial School, Karur.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Madura ..	St. Joseph's Convent Girls' School, Madura.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tinnevelly ..	S.P.G. Lace School, Idayan- gudi.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do. ..	S.P.G. Lace School, Kudan- gulum.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bellary ..	St. Joseph's Girls' School, Bellary.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tinnevelly ..	R.C. Lace School, Vadakan- gulum.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do. ..	Hindu Girls' Industrial School, Kudangulum.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do. ..	Holy Cross Convent Indus- trial School, Tuticorin.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Anjengo ..	The Sacred Heart Con- vent School, Anjengo.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Chingleput ..	Wesleyan Mission Industrial School, Ikkadu.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

Statistics relating to Industrial Schools for 1927-28—*cont.*

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Statistics relating to Industrial Schools for 1927-28—*cont.*

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APPENDIX II.

Statistics relating to Industrial Schools for 1927-28.

District and name of the institution.	Boys or girls.	Number on rolls on 31st March 1928.	Receipts.					Public funds.	Management contribution.	Total receipts (equal expenditure).
			Miscellaneous receipts including sale-proceeds of manufactured articles.	Fees.	Teaching and special grants.	Building grants.	Equipment grants.			
			RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.
GOVERNMENT INSTITUTIONS.										
Madura— Government Industrial Institute, Madura.	Boys.	83	..	..	..	..	..	72,776 9 3	..	72,776 9 3
Madras— Leather Trades Institute, Madras.	Do.	7	..	..	..	..	..	55,436 0 0	..	55,436 0 0
School of Arts and Crafts, Madras.	Boys and girls.	466	..	..	..	..	..	67,618 7 6	..	67,618 7 6
Government Trades School, Madras.	Boys.	690	..	..	..	..	..	63,764 0 3	..	63,764 0
Government Textile Institute, Madras.	Do.	52	..	..	..	..	..	40,645 3 11	..	40,645 3 11
Total ..	..	1,248	..	..	..	..	..	3,00,240 4 11	..	3,00,240 4 11
AIMED INSTITUTIONS.										
Trichinopoly— St. Joseph's Industrial School, Trichinopoly.	Boys	47	56,187 4 10	..	1,700 0 0	..	525 0 0	..	5,352 9 8	68,764 14 6
Madras— C.N.T. Institute, Vepery, Madras.	Do.	354	12,934 15 9	9,134 0 0	9,000 0 0	1,350 0 0	3,700 0 0	..	15,615 13 11	51,734 13 8

Trichinopoly— Wesleyan Mission Industrial School, Karur.	Do.	58	36,278 10 9	..	4,016 0 0	1,620 0 0	150 0 0	..	6,749 4 9	48,813 15 6
South Arcot— St. Joseph's Industrial School, Tindivanam.	Do.	78	17,306 9 6	..	5,200 0 0	..	540 0 0	..	2,002 2 6	25,048 12 0
Madras— Anjuman-i-Ahla-i-Islam, Madras.	Do.	95	10,773 9 9	..	6,000 0 0	..	320 0 0	..	3,000 0 0	20,093 9 9
North Arcot— A.A.M. Industrial School, Katpadi.	Do.	150	96,933 8 0	1,450 0 0	4,200 0 0	10,000 0 0	440 0 0	..	10,000 0 0	1,32,023 8 0
Coimbatore— St. Joseph's Industrial School, Coimbatore.	Do.	153	91,825 8 9	173 0 0	3,200 0 0	2,870 0 0	450 0 0	..	3,000 0 0	1,04,518 8 9
Tanjore— St. Francis Xavier's Industrial School, Tanjore.	Do.	90	24,143 11 8	..	3,000 0 0	14,974 0 0	114 0 0	..	18,178 14 3	60,410 9 11
Tinnevely— S.P.G. Art Industrial School, Nazareth.	Do.	90	22,791 12 6	..	4,000 0 0	5,800 0 0	360 0 0	..	12,139 3 7	45,091 0 1
Vizagapatnam— St. Aloysius' Industrial School, Vizagapatnam.	Do.	30	5,400 0 0	..	3,000 0 0	..	..	..	1,139 0 0	9,539 0 0
Kurnool— Coles' Vocational Middle School, Kurnool.	Do.	56	2,555 12 5	300 0 0	3,000 0 0	..	..	..	15,000 0 0	20,855 12 5
Trichinopoly— All Saints' Industrial School, Puthur.	Do.	35	8,423 3 6	..	2,000 0 0	..	105 0 0	..	1,187 10 1	11,715 13 7
Tanjore— St. Mary's Industrial School, Kumbakonam.	Do.	78	36,112 12 2	..	3,500 0 0	..	200 0 0	..	..	39,812 12 2
North Arcot— Anjuman-i-Isha-a-Thal Hassanath, Vellore.	Do.	50	4,145 6 10	..	1,950 0 0	..	600 0 0	..	1,935 4 4	8,670 11 2
Chingleput— U.F.O.M. Agricultural School, Melrosapuram.	Do.	48	2,900 0 0	..	1,000 0 0	..	..	..	4,100 4 4	8,000 4 4

APPENDIX II—cont.

• Statistics relating to Industrial Schools for 1927-28—cont.

District and name of the Institution.	Boys or girls.	Number on rolls on 31st March 1928.	Receipts.					Public funds.	Management contribution.	Total receipts (equal expenditure).	
			Miscellaneous receipts including sale-proceeds of manufactured articles.	Fees.	Teaching and special grants.	Building grants.	Equipment grants.				
AIDED INSTITUTIONS—cont.											
South Arcot— D.M. Industrial School, Panruti.	Boys.	97	9,995 8 1	..	3,600 0 0	3,000 0 0	345 0 0	..	15,794 8 3	32,735 0 4	
Chingleput— A.A.M. Industrial School, Saidapet.	Do.	27	14,937 8 0	403 10 1	700 0 0	..	..	..	2,600 0 0	18,641 2 1	
North Arcot— Anjuman Industrial Orphanage, Melvisharam.	Do.	52	2,626 4 9	..	1,750 0 0	..	380 0 0	..	5,044 10 3	9,800 15 0	
Ganjam— Raja's Industrial School, Parlakimedi.	Do.	18	2,454 6 5	..	600 0 0	..	..	..	2,412 15 5	5,467 5 10	
Madras— The Orr Assisted Industrial School, Madras.	Do.	41	..	..	2,700 0 0	..	..	..	2,942 15 6	5,642 15 6	
Tinnevely— St. Joseph's Industrial School, Adaikalapuram.	Do.	35	1,556 10 6	..	1,050 0 0	..	..	..	2,843 15 11	5,450 10 5	
South Kanara— Commonwealth Trust Engineering Works Classes, Mangalore.	Do.	18	..	..	400 0 0	..	..	..	404 4 3	804 4 3	
Madure— Pasumalai Trades School, Pasumalai.	Do.	80	18,963 9 3	..	2,000 0 0	2,000 0 0	500 0 0	..	20,676 9 10	44,140 3 1	

Bellary— Board Panchama School, Yemmiganur.	Do.	15	16 4 0	..	300 0 0	..	..	..	300 0 0	616 4 0
Tinnevely— C.M.S. Industrial School for Blind, Palanacottah.	Boys and Girls.	73	6,507 0 9	..	2,000 0 0	..	40 0 0	..	2,100 1 8	10,647 2 5
Madras— Ranakrishna Students' Home Industrial School, Mylapore.	Boys.	19	256 5 0	40 0 0	1,200 0 0	4,000 0 0	1,870 0 0	..	8,578 13 0	15,945 2 0
Sree Ram Motor School, Madras.	Do.	72	3,000 0 0	7,070 0 0	..	..	..	..	2,068 0 0	12,138 0 0
Kistna— St. Joseph's Industrial School, Gundala.	Do.	34	5,582 4 0	..	1,300 0 0	6,847 0 0	350 0 0	..	7,433 0 0	21,512 4 0
Tanjore— Eoratal School, Tanjore .. Godavari— The C.B.M. Industrial School, Coonada.	Do. Do. Do.	245 33	30,861 0 0 1,600 0 0	.. ..	.. 1,000 0 0	.. ..	.. 488 0 0	.. ..	.. 1,870 0 0	†30,861 0 0 4,968 0 0
Coimbatore— L.M. Weaving School, Erode.	Do.	92	4,875 11 8	..	1,400 0 0	..	700 0 0	..	1,360 0 4	8,335 12 0
Madras— The Madras Penitentiary Carpentry classes.	Do.	38	15,736 13 11	..	..	..	..	2,693 11 0	..	†18,430 8 11
Kistna— Sree Krishna Pararama- layam Industrial School, Cowtharam.	Do.	12	1,042 0 0	..	600 0 0	..	101 0 0	..	105 0 0	1,848 0 0
Malabar— Y.M.C.A. Industrial School, Araakode.	Do.	32	657 11 7	..	600 0 0	..	109 0 0	..	2,680 0 7	3,996 12 2

• Expenditure met from Local funds.

† Expenditure met from the Jail Department budget.

APPENDIX II—cont.

Statistics relating to Industrial Schools for 1927-28—cont.

District and name of the Institution.	Boys or girls.	Number on rolls on 31st March 1928.	Receipts.					Public funds.	Management contribution.	Total receipts (equal expenditure).	
			Miscellaneous receipts including sale-proceeds of manufactured articles.	Fees.	Teaching and special grants.	Building grants.	Equipment grants.				
AIDED INSTITUTIONS—cont.											
Madras—			RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	
C.S.M. Industrial School, Dindigul.	Boys.	26	8,400 0 0	..	850 0 0	..	487 0 0	2,78 4 7	12,525 4 7		
Perambur Industrial School, Perambur.	Do.	78	3,061 6 0	..	..	..	..	..	* 3,061 6 0		
St. Aloysius' Supplementary Industrial classes, Viśāpatam.	Do.	30	..	..	413 0 0	..	..	413 0 0	826 0 0		
Guntur—											
U.L.C.M. Law Rural School, Guntur.	Do.	29	626 0 0	..	800 0 0	..	..	2,662 0 0	4,087 0 0		
Coimbatore—											
P.S.G. and Sons Charity Industrial Institute, Peelamedu.	..	..	..	..	..	25,000 0 0	..	35,000 0 0	60,000 0 0		
Total ..	..	2,587	14,403 6 4	18,570 10 1	78,629 0 0	77,462 0 0	12,974 0 0	2,693 11 0	9,75,566 1 5		
Chingleput—											
U.P.C.M. Lace School, Chingleput.	Girls.	62	1,352 0 0	..	500 0 0	..	..	780 0 0	2,632 0 0		
Madras—											
C.S.M. Girls' Industrial School, Kilpauk.	Do.	75	1,741 15 3	..	1,080 0 0	..	135 0 0	279 9 7	3,216 8 10		
South Arcot—											
D.M. Girls' Industrial School, Keelur.	Do.	33	4,734 12 4	..	400 0 0	..	100 0 0	1,681 15 1	6,916 11 5		
Trichinopoly—											
Wesleyan Mission Lace School, Karur.	Do.	21	772 6 1	..	250 0 0	..	..	508 0 0	1,530 6 1		
Madras—											
St. Joseph's Convent Girls' Industrial School, Madras.	Do.	123	7,179 4 0	..	700 0 0	15,000 0 0	180 0 0	16,970 15 0	40,010 3 0		
Tinnevely—											
S.P.G. Lace School, Idaiyangudi.	Do.	16	516 8 0	..	250 0 0	..	..	220 0 0	986 8 0		
S.P.G. Lace School, Kudangulam.	Do.	22	849 0 0	..	300 0 0	..	..	315 0 0	1,464 0 0		
Bellary—											
St. Joseph's Girls' Industrial School, Bellary.	Do.	85	930 0 0	..	600 0 0	4,500 0 0	90 0 0	4,889 10 0	11,009 10 0		
Tinnevely—											
R.C. Lace School, Vadamangulam.	Do.	76	570 12 0	..	600 0 0	..	..	519 12 2	1,690 8 2		
Hindu Girls' Industrial School, Kudangulam.	Do.	33	312 0 0	..	300 0 0	..	45 0 0	390 0 0	1,047 0 0		
Holy Cross Convent Industrial School, Tuticorin.	Do.	67	1,793 4 0	..	400 0 0	..	200 0 0	1,117 0 0	3,510 4 0		
Anjengo—											
Beared Heart Convent Girls' Industrial School, Anjengo.	Do.	23	360 0 0	..	300 0 0	1,700 0 0	..	2,455 9 4	4,815 9 4		
Chingleput—											
Wesleyan Mission Industrial School, Ikkaadu.	Do.	97	19,766 10 6	..	1,120 0 0	..	650 0 0	..	21,536 10 6		
Malabar—											
Commonwealth Embroidery School, Calicut.	Do.	51	7,084 0 0	..	800 0 0	..	11 12 0	2,100 0 0	9,995 12 0		
Trichinopoly—											
Holy Cross Convent Industrial School, Trichinopoly.	Do.	55	2,578 0 0	..	600 0 0	..	99 0 0	4,082 0 0	7,309 0 0		
Guntur—											
A.B.M. Girls' Industrial School, Ongole.	Do.	20	650 0 0	..	300 0 0	..	..	1,194 0 0	2,144 0 0		

* Expenditure met from the Labour Department Budget.

APPENDIX II—cont. Statistics relating to Industrial Schools for 1927-28—cont.

District and name of the Institution.	Boys or girls.	Number on rolls on 31st March 1928.	Receipts.							Public funds.	Management contribution.	Total receipts (equal expenditure).		
			Miscellaneous receipts including sale-proceeds of manufactured articles.	Fees.	Teaching and special grants.	Building grants.	Equipment grants.							
ES.	A.	P.	ES.	A.	P.	ES.	A.	P.	ES.	A.	P.	ES.	A.	P.
AIDED INSTITUTIONS—cont.														
Tanjore— Leipzig Mission Women's Industrial School, Mayavaram.	Girls.	42	4,180 0 0	..	400 0 0	..	60 0 0	..	2,020 0 0	6,660 0 0				
Nellore— O.E.L.M. Girls' Industrial School, Gudur.	Do.	46	1,167 3 0	267 4 0	400 0 0	..	..	..	1,200 0 0	3,064 7 0				
Chittoor— A.A.M. Women's Industrial Home, Palamaner.	Do.	54	2,960 14 0	66 0 0	750 0 0	..	250 0 0	..	848 0 1	4,872 14 1				
Coimbatore— L.M. Girls' Industrial School, Erode.	Do.	50	1,609 14 8	..	400 0 0	..	..	..	600 0 0	5,209 14 8				
Madras— Women's Home of Service, Mylapore.	Do.	70	2,100 0 0	..	700 0 0	..	100 0 0	..	3,200 0 0	6,100 0 0				
Guntur— St. Joseph's Orphanage Girls' Industrial School, Guntur.	Do.	26	480 10 0	..	400 0 0	..	115 0 0	..	869 12 6	1,865 6 6				
Nellore— Girls' Industrial School, Nellore.	Do.	34	..	..	..	..	..	..	..	..				
South Arcot— D.M. Lave School, Cuddalore.	Do.	30	1,300 0 0	..	500 0 0	..	..	..	1,188 0 0	2,988 0 0				
Total ..	..	1,211	64,909 1 10	333 4 0	12,030 0 0	21,200 0 0	2,015 12 0	..	47,377 3 9	1,47,865 5 7				
Grand Total ..	..	6,096	6,29,417 7 2	18,903 14 1	90,069 0 0	98,661 0 0	14,889 12 0	3,02,933 18 11	3,00,805 10 9	14,31,670 11 11				

* Expenditure met from the Labour Department budget.

APPENDIX III. Statistics relating to recognized Industrial Schools for the year 1927-28.

Serial number and name of institution.	(1)	Subjects in which instruction is provided.	(2)	Number of students who passed out in each subject.	(3)	Particulars as to the after career of passed students.	(4)	Approximate total annual value of work turned out.	(5)	Sale-proceeds of school manufactures.	(6)	Remarks.
1. St. Joseph Industrial School, Trichinopoly.		Metal work and cabinet-making.		Metal work 3; cabinet-making 2.		Four employed temporarily in the school and two are on the look-out for suitable employment elsewhere.		45,295 1 11		Rs. A. P. 42,899 0 11		
2. C.N.T. Institute, Vepery, Madras.		Cabinet-making, mechanical engineering and metal work, weaving, oil-engine and motor-car driving, electrical engineering and wiring.		Cabinet-making 26; mechanical engineering and metal work 47; oil-engine and motor-car driving 30; electrical engineering and wiring 19; weaving 19. Cabinet-making 8 ..		Most of them are employed in private firms, mills and workshops.		12,450 0 0		11,084 0 0		
3. Wesleyan Mission Industrial School, Karur.		Cabinet-making, weaving, rattan work and blacksmithy.		Cabinet-making 8 ..		Two are employed as teachers and the rest are employed as carpenters in their own villages.		..		25,729 4 11		
4. St. Joseph Industrial School, Tindivanam.		Cabinet-making, weaving and tailoring.		Cabinet-making 9 ..		One is a carpenter and the rest are teachers.		17,306 9 6		17,306 9 6		
5. Anjuman Industrial School, Madras.		Cabinet making and motor-car driving.		..		..		10,773 9 9		10,773 9 9		
6. A.A.M. Industrial School, Katpadi.		Cabinet-making and fitters work.		Cabinet-making 14; fitters work 7.		Employed in Mettur project and in Railway workshops.		96,933 8 0		96,933 8 0		
7. St. Joseph Industrial School, Coimbatore.		Cabinet-making and weaving.		Cabinet-making 1; weaving 4.		Employed as teachers.		1,00,000 0 0		94,825 8 9		
8. St. Francis Xavier's Industrial School, Tanjore.		Cabinet-making and weaving.		Cabinet-making 1; weaving 4.		Employed as teachers.		24,400 0 0		24,148 11 8		

Figures in respect of columns (3) and (4) not available.

APPENDIX III—cont. Statistics relating to recognized Industrial Schools for the year 1927-28—cont.

(1) Serial number and name of institution.	(2) Subjects in which instruction is provided.	(3) Number of students who passed out in each subject.	(4) Particulars as to the career of passed students.	Approximate total annual value of work turned out.	(6) Sale-proceeds of school manufactures.	(7) Remarks.
9. S.P.G. Art Industrial School, Nazareth.	Cabinet-making, weaving and blacksmithy.	Cabinet-making 14; weaving 10; blacksmithy 3.	Employed in villages or in organized workshops.	Rs. A. P. 22,929 0 0	Rs. A. P. 22,791 0 0	
10. St. Aloysius' Industrial School, Vizagapatam.	Fitters work ..	Fitters work 5	Employed in the school and elsewhere.	5,400 0 0	5,400 0 0	This figure relates to work of apprentices only.
11. Coles Vocational Middle School, Kurnool.	Weaving and agriculture and allied trades.	Weaving 2 ..	Employed as teachers.	4,600 0 0	2,555 12 5	
12. All Saints Boys Industrial School, Puthur.	Cabinet-making and blacksmithy.	....	....	9,000 0 0	8,423 3 6	Figures in respect of columns (3) and (4) not available.
13. St. Mary's Industrial School, Kumbakonam.	Do.	Cabinet-making 9; blacksmithy 1.	Employed as carpenters and teachers.	34,905 5 2	36,112 12 2	
14. Anjuman Industrial School, Vellore.	Cabinet-making ..	Cabinet-making 2 ..	Employed as teachers.	4,800 0 0	4,185 6 10	
15. U.F.C.M. Agricultural School, Melrosapuram.	Agriculture and allied trades.	Agriculture and allied trades 8.	Employed as agriculturists.	3,000 0 0	2,900 0 0	
16. Danish Mission Industrial School, Panruti.	Cabinet-making and weaving.	Cabinet-making 2; weaving 9.	Some are employed as teachers and some follow the trades learnt.	9,995 8 1	9,995 8 1	
17. A.A.M. Industrial School, Saidapet.	Cabinet-making, motor-driving and printing.	Cabinet-making 3; motor-driving 5; printing 3.	Employed as cabinet-makers, motor-car drivers, etc.	14,937 8 0	14,937 8 0	
18. Anjuman Industrial School, Melvisharam.	Cabinet-making ..	Cabinet-making 8 ..	Employed as carpenters in various places.	2,650 5 6	2,626 4 9	
19. Raja's Industrial School, Parlakimedi.	Do.	Cabinet-making 3 ..	Employed in the Bengal and Nagpur Railway workshops.	2,454 6 5	2,454 6 5	

20. Urr Assisted Industrial School, Madras.	Scientific instrument making.	....	....	..	..	Figures for columns (3) and (4) not available; the classes being works classes there are no receipts.
21. St. Joseph Industrial School, Adikalapuram.	Cabinet-making and weaving.	Cabinet-making 4; weaving 6.	Employed in the factory section of the school.	1,556 10 6	1,556 10 6	
22. Commonwealth Trust Engineering Works Classes, Mangalore.	Fitters work ..	Nil.	....	..	..	The classes being works classes there are no receipts.
23. Pasumalai Trades School, Pasumalai.	Cabinet-making, printing, fitter's work and blacksmithy.	Printing 3; fitter's work 1.	Employed in Madura municipality and in local printing presses.	21,000 0 0	18,963 9* 3	
24. Board Panchama School, Yamangaur.	Boot and shoe-making.	Nil.	....	20 0 0	16 4 0	
25. C.M.S. Industrial School for Blind, Palamcottah.	Weaving and rattan work.	Nil.	....	6,507 0 9	6,507 0 9	
26. Ramakrishna Students Home Industrial School, Mysapore.	Cabinet-making and metal work.	Nil.	....	488 0 0	256 5 0	The passed blind pupils are not discharged from the school.
27. Sree Ram Motor School, Madras.	Motor-car driving ..	Motor-car driving 65.	Employed as drivers or owners of small repair shops.	3,000 0 0	3,000 0 0	The school has been started only two years ago.
28. St. Joseph Industrial School, Gunudala.	Cabinet-making ..	Nil.	....	5,900 0 0	5,582 4 0	The school has been started only about two years ago.
29. Borstal School, Tanjore ..	Cabinet-making, weaving and tailoring.	....	....	29,869 0 0	30,861 0 0	The inmates are discharged as and when they complete their term of detention.
30. C.B.M. Industrial School, Cocanada.	Cabinet-making and motor-car work.	Nil.	....	1,600 0 0	1,600 0 0	The school has been started only two years ago.
31. L.M. Weaving School, Erode.	Weaving ..	Nil.	....	4,875 0 0	..	Do.
32. The Madras Penitentiary Carpentry Classes, Madras.	Cabinet-making ..	Nil.	....	12,001 14 4	15,736 13 11	Do.

APPENDIX III—cont.

Statistics relating to recognized Industrial Schools for the year 1927-28—cont.

Serial number and name of 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 annual value of work turned out.	Sale-proceeds of school manufactures.	Remarks.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
33. Sri Krishna Parimaralaya Industrial School, Cowtharam.	Cabinet-making ..	Carpentry 6	Employed as carpenters in villages.	Rs. A. P. 1,200 0 0	Rs. A. P. 1,042 0 0	
34. Y.M.C.A. Industrial School, Areakode.	Weaving; cabinet-making.	Weaving 3	One has joined a weaving factory and the other two are employed as teachers.	860 0 0	657 11 7	
35. C.S.M. Industrial School, Dindigul.	Cabinet-making; metal work.	Nil.	....	9,000 0 0	8,400 0 0	The school has been started only two years ago.
36. Perambur Industrial School, Perambur.	Cabinet-making; tailoring; rattan work.	Carpentry 12; tailoring 8 and rattan work 6.	Particulars as to after-career not traceable; believed to be employed in their own villages.	3,164 6 0	3,061 5 0	
37. St. Aloysius Supplementary Industrial Classes, Viragapatam.	Drawing and mechanical Engineering subjects.	Nil.	....	..	..	The classes being works classes there are no receipts. The classes have been started only two years ago.
38. U.L.C.M. Iam Rural School, Guntur.	Agriculture ..	Nil.	....	700 0 0	625 0 0	The school has been started only two years ago.
39. P.S.G.S. Sons Charity Industrial Institute, Pedanadu.	Mechanical Engineering, etc.	....	....	..	..	The Institute has not yet commenced work.
40. U.F.C.M. Lace School, Chingleput.	Lace-making ..	Lace-making 7	Six are employed as home workers and one died.	1,600 0 0	1,352 0 0	

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41. C.S.M. Girls Industrial School, Kilpauk.	Lace-making and embroidery.	Lace-making and embroidery 4.	Four are employed as teachers and two as home workers.	2,500 0 0	1,741 15 3	
42. Danish Mission Girls Industrial School, Keelur.	Embroidery ..	Embroidery 8	Employed as home workers in their own villages.	5,000 0 0	4,734 12 4	
43. Wesleyan Mission Industrial School, Karur.	Lace-making	Lace-making 5	Employed in the factory section of the school.	852 14 11	772 6 1	
44. St. Joseph Convent Girls Industrial School, Madura.	Embroidery ..	Embroidery 15	Employed in the factory section of the school and as home workers in their own villages.	9,432 6 0	7,179 4 0	
45. S.P.G. Lace School, Idyanagudi.	Lace-making	Lace-making 4	Employed as home workers.	600 0 0	516 0 0	
46. S.P.G. Lace School, Kudangulam.	Do.	Lace-making 7	Do.	900 0 0	849 0 0	
47. St. Joseph Girls Industrial School, Bellary.	Lace-making; embroidery and general needle crafts.	Lace-making 2; embroidery 4; general needle crafts 1.	Employed as teachers and home workers.	1,100 0 0	930 0 0	
48. R.C. Lace School, Vadamangulam.	Lace-making	Lace-making 2	One is working in the factory section and the other returned to her village.	850 0 0	570 12 0	
49. Hindu Girls Industrial School, Kudangulam.	Do.	Lace-making 7	Employed in the factory section.	613 0 0	312 0 0	
50. Holy Cross Convent Industrial School, Tuticorin.	Do.	Nil.	....	1,800 0 0	1,793 4 0	The school has been recognized only two years ago.
51. Sacred Heart Convent Girls Industrial School, Anjengo.	Embroidery and general needle crafts.	Embroidery and general needle crafts 14.	Employed as home workers.	400 0 0	360 0 0	
52. Wesleyan Mission Industrial School, Ikkanadu.	Lace-making; embroidery and weaving.	Lace-making 6; embroidery 2; weaving 8	Do.	28,000 0 0	19,756 10 6	
53. Commonwealth Embroidery School, Calicut.	Embroidery and drawn thread work.	Embroidery and drawn thread work 11.	Employed in the factory section.	7,391 0 0	7,084 0 0	
54. Holy Cross Convent Industrial School, Trishnopoly.	Embroidery and general needle crafts.	Nil.		2,600 0 0	2,578 0 0	The school has been recognized only two years ago.

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Statistics relating to recognized Industrial Schools for the year 1927-28—cont.

Serial number and name of institution.	(1)	Subjects in which instruction is provided.	(2)	Number of students who passed out in each subject.	(3)	Particulars as to the after career of passed students.	(4)	Approximate total annual value of work turned out.	(5)	Sale-proceeds of school manufactures.	(6)	Remarks.	(7)
55. A.B.M. Girls Industrial School, Ongole.		Lace-making and embroidery.		Lace-making 2; embroidery 4.		Two are employed as teachers and four are supplementing their family income by working at home.		RS. A. P. 900 0 0		RS. A. P. 650 0 0			
56. Leipzig Mission Women's Industrial School, Mayavaram.		Weaving and mat-making.		Weaving 1; mat-making 2.		All the three married and are working in their own homes.		5,000 0 0		4,180 0 0			
57. O.E.L.M. Girls Industrial School, Gudur.		Lace-making		Lace-making 3		Supplementing their family income by working at home.		2,000 0 0		1,187 3 0			
58. A.A.M. Women's Industrial Home, Palamaner.		Lace-making, embroidery and general needle crafts.		Embroidery and general needle crafts 4.		Do.		3,000 0 0		2,960 14 0			
59. Luther Mission Girls Industrial School, Erode.		Basket-making and mat-weaving.		Basket-making and mat-weaving 7.		Do.		1,600 0 0		1,509 14 8			
60. Women's Home of Service, Mysapore.		Weaving, lace-making, embroidery and rattan work.		....		....		2,500 0 0		2,100 0 0		Figures for columns and (4) not available.	
61. St. Joseph's Orphanage Girls Industrial School, Guntur.		Dress-making and general needle crafts.		Dress-making and general needle crafts 12.		Employed as teachers and private workers.		500 0 0		480 10 0			
62. Girls Industrial School, Nellore.		Embroidery and general needle crafts.		....		....		..		..		Figures for column (3) to (6) not available.	
63. Danish Mission Lace School, Cuddalore.		Lace-making		....		....		2,000 0 0		1,300 0 0		Newly recognised	

APPENDIX IV.

Statement showing the Receipts and Charges of the Department of Industries for the year 1927-28.

[illegible]

DEVELOPMENT DEPARTMENT.

G.O. No. 1812, 25th October 1928

Industries—Administration report—1927-28—Recorded.

READ—the following paper :—

From the Director of Industries, No. 398-E/28, dated 18th August 1928.

Order—No. 1812, Development, 25th October 1928.

Recorded.

2. A reference was made in paragraph 5 of the review on the administration report of the Department for 1924-25 to the proposal then under consideration for the conduct of experiments in coir retting in the Godavari delta. The experiments have since been conducted but the results have not been encouraging. The Director has suggested the continuance of the experiment in the Tanjore district.

3. In reviewing the position of the oil milling industry, the Director draws attention to the growing habit in Malabár of smoke drying coconut which leads to the deterioration of the quality of copra. The Government will be glad if the Director takes immediate steps to advise those engaged in the industry of the loss resulting from the practice.

4. The attention of the Director of Agriculture is invited to the remarks in paragraph 62 of the Report regarding the desirability of improving the tobacco leaf.

5. The Government observe that there has been a great loss in the working of the Government Industrial Institute, Madras. The loss during the year was chiefly due to the loss of usual indents from the Superintendent of Stationery. Sufficient advertisement does not also appear to have been given to the products of the Institute during the year. So long as there are no standards by which to judge the quality of the products of different manufacturers, inks prepared by the Institute on scientific lines cannot stand competition from those produced under rule of thumb methods. The Institute has however sufficiently demonstrated that good quality inks can be manufactured at competitive prices and the Government have decided to transfer the Ink Factory to private enterprise and invited tenders for its purchase.

6. The Textile Institute is fast developing and, with the equipment of the additional machinery and plant already ordered, the Institute will, it is hoped, rank as a model institution for the Presidency. The instruction imparted in the Institute seems to be appreciated and it would be useful if definite information could be recorded in future reports regarding the aftercareer of the students leaving the Institute.

Apart from the development of the Textile Institute, the textile section continued its district work on the usual lines. No great headway towards the amelioration of the condition of the weavers is possible under present economic and social conditions and it is hoped that with the contemplated organization of weavers' co-operative societies with special reference to the marketing of their produce, the main difficulties now confronting the weavers' problem will be overcome. The question of the best method of spreading the use of improved appliances is also under consideration.

7. The supply of silk cocoons has been retarded by the failure of the Coonoor farm which continued to suffer from the attack of the fungus disease referred to in the previous year's report. The question of selecting a new farm on a more suitable site is still under consideration.

The record of sericulture work in the districts would have been more interesting if the success attending private plantations had been explained in some detail and information furnished as to the additional area newly brought under mulberry cultivation from time to time, and to the extent to which silk worm rearing has been introduced in the new tracts.

8. The Government are glad to note that increasingly useful work has been done by the Industrial Engineering section. The equipment of drills and pumping sets in the possession of the department has been increased and the fees for the advice rendered and the machines lent have been reduced. It is hoped that these measures will further stimulate the activities of the section and confer greater benefit on the agricultural population. The Director is requested to furnish in his next report information regarding the number of applications and the amount of fees received in the Pumping and Boring section for a period of one year before and for one year subsequent to the introduction of the revised rates of fees.

The figures towards the end of paragraph 106 of the Report represent the area brought or to be brought under cultivation as a result of the pumping plants erected by the Department during the year. Separate figures as to the actual area brought under cultivation from year to year would also be interesting

9. The policy of Government towards industrial education remained unchanged. There has been no increase in the number of Government Institutes and the proposal to start schools at Bellary, Calicut and Mangalore is likely to be given effect to early in 1929. The Madras Trades School continued to be popular while there was no change in the condition of the Leather Trades Institute. It is satisfactory to note that the Government Industrial Institute, Madura, is receiving better patronage from the public which will, it is hoped, enable the workshop to provide continuous practical work for all the students and tend to reduce the present high cost of its maintenance.

10. Five new aided institutions were recognized by the Department and the recognition of one withdrawn. The number of these institutions thus stood at 63 at the end of the year. The grants made to them for maintenance, equipment and building were as shown below :—

Year.	Maintenance.	Equipment.	Building.	Total.
1923-24 ..	69,035	..	..	69,035
1924-25 ..	70,391	14,873	21,395	1,06,659
1925-26 ..	82,750	15,214	40,600	1,38,564
1926-27 ..	83,690	14,921	56,585	1,55,596
1927-28 ..	89,699	14,890	98,661	2,03,250

11. The expenditure on the department has increased during the last two years. The purchase of additional pumping and boring sets and power drills for the Industrial Engineering Branch, the increased grant for aided industrial schools and the initiation of a survey of cottage industries have largely contributed to the increase. An experimental survey of sub-soil supplies has also been undertaken. These measures are of considerable importance to the agricultural and industrial interests of the Presidency and much credit is due to the Director, Khan Bahadur Muhammad Bazl-ul-lah Sahib Bhadur, for the expansion and successful administration of these activities during this period.

(By order of the Government, Ministry of Development)

A. McG. C. TAMPORE,
Secretary to Government.

To the Director of Industries.
" " of Agriculture.
" Registrar of Co-operative Societies.
" Public Department.
" Government of India, Department of Industries and Labour with, C.I.
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