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Dept. of Industries.

Annual Admin report

1926-27

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Government of Madras

DEVELOPMENT DEPARTMENT

G.O. No. 1472, 16th September 1927

Industries—Annual Administration Report, 1926-27—Recorded with remarks.

ADMINISTRATION REPORT OF THE DEPARTMENT OF INDUSTRIES FOR THE YEAR ENDED 31st MARCH 1927.

PERSONNEL.

Direction.—Mr. L. B. Green was in charge of the Department until 7th April 1926 when he was relieved by Sir T. Vijayaraghava Acharya who held the post of Director until 14th July 1926 when he proceeded on leave out of India after handing over charge to Mr. Green. I assumed charge of the post of Director on 12th August 1926. Mr. Green was Deputy Director throughout the year.

2. *Director's Tours.*—Sir T. Vijayaraghava Acharya was on tour for 39 days during the year, exclusive of a stay of 24 days at Ootacamund. I was on tour for 64 days. Our tours covered most of the industrial centres in the Presidency.

EXHIBITIONS.

3. The Department participated during the year in a number of industrial and agricultural exhibitions in various places in the Presidency, e.g., Madras, Kumbakonam, Anantapur, Tiruppur, Avadam, Battuvaripalli, Arkonam, Kallakurichi, Tinnevely, Kuppam and Rasipuram. A representative range of soaps and inks manufactured in the Kerala Soap Institute and the Government Industrial Institute, Madras, and specimens of finished leather from the Leather Trades Institute were displayed in these exhibitions and, wherever feasible, the working of the pumping and boring machinery was demonstrated for the benefit of the agriculturists. As in the previous year, the Department participated in the Exhibition held in Madras in December 1926 by the South Indian Athletic Association, in conjunction with the Park Fair. The display of a model hydro-electric scheme by the Madras Trades School, the practical demonstration of the cold

50581

67

process of soap manufacture, and the working of a silk reeling machine, a hand-sizing machine and various pumping and boring machines were the special features. The display was on the whole very successful and attracted considerable attention from the public. Not a little of the success was due to the zeal and energy of the Secretary of the Association, Mr. Rajamanikkam Nayudu, the Vice-Principal of the Leather Trades Institute. The Department participated in two other Exhibitions in Madras which were organized, respectively, by the Madras Provincial Co-operative Union, Limited, Royapettah, and the Second Madras Youth Conference. In the latter exhibition, some models of railway engine and carriages prepared by the students of the Madras Trades School were shown, and the Inspector of Industrial Schools acted as a co-opted member of the Judging Committee. In the exhibition held at Bhattuvaripalli, the demonstration of silkworm rearing constituted a special feature.

4. *British Industries Fair, 1927*.—It was proposed to participate in the Fair and an expenditure of Rs. 25,000 was voted by the Legislative Council. Owing, however, to the poor response from manufacturers and producers, the idea of participation had to be abandoned.

COMMITTEES.

5. *Railway Local Advisory Committees*.—The Director of Industries served as the Government representative on the Local Advisory Committees of the South Indian and the Madras and Southern Mahratta Railway Companies. Four meetings of the South Indian Railway Advisory Committee were held during the year, of which one was attended by Sir T. Vijayaraghava Acharya, and another by me. Six meetings of the Madras and Southern Mahratta Railway Advisory Committee were held, of which two were attended by me.

6. *Royal Commission on Agriculture*.—I gave evidence, both written and oral, before the Commission when it visited Madras in November 1926.

7. *Hydro-electric Schemes Committee*.—In G.O. No. 2048 W., dated 23rd December 1926, a committee, with myself as President, was appointed to carry out a survey of the probable demand for electric power from the proposed Pykara, Pinjikavi and Papanasam hydro-electric schemes. The Committee met five times and submitted a report to Government who accepted generally the Committee's conclusions.

8. *Unemployment Committee*.—In G.O. Mis. No. 330, Law (General), dated the 4th February 1926, Government constituted a committee to investigate the question of unemployment among the educated middle classes and appointed the Director of Industries as one of its members. Six meetings of the Committee were held during

the year, out of which Sir T. Vijayaraghava Acharya attended two meetings, and I attended the rest. Several officers of the Department tendered evidence, and the Inspector of Industrial Schools was examined orally.

MADRAS STATE AID TO INDUSTRIES ACT.

9. *Statutory Board of Industries*.—On the 31st March 1926, the composition of the Board constituted under section 3 (1) (a) of the Madras State Aid to Industries Act, 1922 (Act V of 1923), was as noted below :—

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| (1) Director of Industries, <i>Chairman</i> , | |
| (2) Secretary to Government, Finance Department, | |
| (3) Chief Conservator of Forests, Madras. | |
| (4) W. O. Wright, Esq., O.B.E., elected by the Madras Chamber of Commerce, | |
| (5) S. J. Green, Esq., elected by the Madras Trades Association. | |
| (6) M.R.Ry. Narayan Doss Girdhar Doss Avargal, elected by the South Indian Chamber of Commerce, | |
| (7) " Diwan Bahadur K. Suryanarayanamurthi Nayudu Garu, M.L.C., elected by the Madras Legislative Council, | |
| (8) " Sami Venkatachalam Chetti Avargal, M.L.C., elected by the Madras Legislative Council. | |
| (9) " Rao Bahadur A.M.M. Murugappa Chettiyar Avargal, M.L.C., | Non-officials appointed by Government under section 3 (2) of the Act, |
| (10) " Rao Sahib K. V. Ramachariar Avargal, B.A., M.L.C., | |
| (11) " C. V. Venkataramana Ayyangar Avargal, B.A., B.L., M.L.C., | |
| (12) M. Muhammad Ismail Sahib Bahadur, | |

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

The personnel of the Board underwent a complete change during the year. Rao Sahib K. V. Ramachariar died; Mr. W. O. Wright and M.R.Ry. Rao Bahadur A. M. M. Murugappa Chettiyar resigned their membership. The Chief Conservator of Forests, Messrs. Narayan Doss Girdhar Doss, K. Suryanarayanamurthi Nayudu, Sami Venkatachalam Chetti and C. V. Venkataramana Ayyangar vacated their seats by efflux of time under rule 5 of the rules framed under the Act. Mr. Narayan Doss Girdhar Doss was re-elected as member by the South Indian Chamber of Commerce while Mr. D. Stephens was elected by the Madras Chamber of Commerce; and Messrs. J. A. Saldanha and P. C. Ethirajulu Nayudu were elected by the Madras Legislative Council. Government nominated (1) Rao Bahadur M. K. Venkatachariar, Retired Joint Registrar of Co-operative Societies, (2) Dewan Bahadur G. Narayanaswami Chettiyar, (3) the Registrar of Co-operative Societies, and (4) Mr. Nagan Gowda as members of the Board. Mr. S. J. Green left for England on the 26th March 1927, and, as he is not expected to

return to India before October, he ceased to be a member under rule 6 of the rules. Arrangements to fill up his place by fresh election have been made.

10. Of the three applications for aid under the Act to which reference was made in the administration report of the preceding year, it was already stated that in the case of the application from the Carnatic Paper Mills for a loan of Rs. 50,000, Government were pleased to sanction a loan of Rs. 30,000 only in the first instance, with a view to enable the Company to meet its liabilities on account of the pay of the staff and to maintain the mortgaged property in a satisfactory condition, pending the issue of final orders on their application for further aid. This amount enabled them to carry on up to 31st March 1926. On the application of the Company, two further interim loans of Rs. 20,000 and 9,000 were sanctioned by Government for the same purpose, and these were disbursed on the 24th June 1926 and 29th March 1927. The Company was further guaranteed in August 1926 an overdraft of Rs. 1,34,469-3-4 with the Imperial Bank of India. The Company's main application for a loan of Rs. 3½ lakhs and the application of Mr. L. S. Krishnan were pending with Government at the close of the year. Government were unable to sanction the loan applied for by Mr. Singaram as the security offered by him was not considered adequate.

11. At a meeting of the Board of Industries held on the 28th October 1926, the following applications for aid under the Act were considered :—

(1) Application from Mr. N. Abdul Wahab Sahib, Valathoor, North Arcot district, for a loan of Rs. 20,000 for developing his tannery.

(2) Application from Messrs. Seela Veerabadrudu & Bror., Managing Agents, the Godavari Spinning and Weaving Mills, Limited, Pandalapaka, for a loan of Rs. 50,000 for developing their concern.

(3) Application from Mr. S. V. Devarajan, Managing Director, the Salem Dye Works Syndicate, Limited, Salem, for a loan of Rs. 10,000 for developing the dye works.

12. The Board of Industries resolved by a unanimous vote that they were unable to recommend the first two applications, viz., those from Mr. Abdul Wahab Sahib and Messrs. Seela Veerabadrudu & Bror., as they would not come within the scope of section 5 (1) of the Act. Government were accordingly precluded under section 8 (5) of the Act from granting the loans applied for. In the case of the application from the Salem Dye Works Syndicate, the Board adjourned the consideration of the application pending the results of further enquiries on certain specific points. The results of the further

enquiries instituted were placed before the Board at its meeting held on the 11th April 1927 when the Board recommended the grant of the loan applied for. The orders of Government on this recommendation are awaited.

13. In the previous year's report, reference was made to an application from a match factory in Bellary for a loan of Rs. 20,000 under the provisions of the Act. The question of timber supplies for the factory was investigated in detail in consultation with the Forest department and in the result it was found that the concern could count upon deriving its requirements of wood from the Chelama forests of Kurnool South division. The application was considered by the Board of Industries soon after the close of the official year and was recommended to Government for sanction. The loan, if granted, is likely to place the concern on a sound working basis.

Out of the allotment of Rs. 4 lakhs provided in the budget for the year 1926-27 under the head 'Loans and Advances by Provincial Government—(f) Advances under special laws—State Aid to Industries', two loans aggregating Rs. 29,000 were disbursed during the period under review and the balance was resumed by Government.

14. At the aforesaid meeting of the Board, the following subjects were also considered :—

(i) The interpretation to be put on the term 'cost' used in the expression 'cost of research' and 'cost of machinery' occurring in section 16 of the State Aid to Industries Act, and the question of the payment of subsidy.

(ii) Resolution moved by Rao Bahadur M. K. Venkatachariar that the Government be requested to delegate to the Board of Industries under section 7 of the Act, its powers to grant State aid up to the value of Rs. 5,000 to any one industrial business or enterprise.

As regards (1) the Department considered that the term 'cost of research' should be taken to refer to the net cost of research as distinct from the gross cost thereof, although it would be reasonable to include in the scheme of cost, personal remuneration to the party conducting the research, the amount of such remuneration admissible in each case being determined on its merits by Government on the advice of the Board of Industries. The inclusion in the 'cost of research' of other items of nominal expenditure should, similarly, it was considered, be determined by the Board on the circumstances of each case. And lastly, in view of the fact that the total net cost of a scheme of research on which the amount of subsidy should be based would be difficult to determine at the outset and also in view of the desirability of safeguarding Government interests, it was thought that it would be expedient to adopt a system of payment of subsidy in instalments wherever feasible, the instalments being progressively paid with reference to the data and results that become available as the research proceeds. In regard to the expression 'cost of machinery'

this should, it was considered, include besides the purchase cost of the machinery, freight to the place where it is to be installed and the cost of erection or setting up at site.

The Board unanimously approved the above interpretation of the term 'cost' used in the expression 'cost of research' and 'cost of machinery' occurring in section 16 of the Act and agreed generally with the views of the department on the question of the payment of subsidy. Government accepted these recommendations and directed that the expression 'cost of research' should be interpreted with reference to the circumstances of each case, that the subsidy may be paid in instalments when such a course is desirable, such instalments being paid with reference to the data and results that become available as the research proceeds and that the term 'cost of machinery' should be taken to include freight to the site and installation charges.

As regards (ii), the Board deferred consideration of the resolution moved by Rao Bahadur M. K. Venkatachariar, pending a survey of the cottage industries of the Presidency.

15. It was stated in the administration report of the previous year that the question of amending the explanation to rule 1 of the Special Loan Rules framed by Government under the Land Improvements Loans Act, 1883, and the Agriculturists Loans Act, 1884, and of the consequential modification of section 20 of the State Aid to Industries Act was under the consideration of Government. The object of the proposed amendment was to make it possible to assist a person installing pumping machinery to set up an engine of such power as would suffice not only for irrigation purposes but also for auxiliary industrial operations, such as rice-hulling, cotton-ginning, groundnut-decorticating, oil-seed crushing, etc., in cases where the latter can advantageously be combined with the main pumping project. Government in the Revenue Department did not, however, approve the proposed amendment as it was contrary to the avowed objects of the Loans Acts.

16. The Carnatic Paper Mills, Limited, which has so far received Rs. 4,59,000 in the shape of loans and which has also been guaranteed an overdraft of Rs. 1,34,469-3-4 is by far the most important concern hitherto aided under the Act. It was stated in last year's report that the future of the Company with reference to its indebtedness to Government and its application for further assistance was under the consideration of Government at the close of the year. Since then, the position and prospects of the Company were, under the orders of Government, carefully examined during the year and a comprehensive report was submitted. The conclusion arrived at was that the conditions necessary for the successful working of a paper mill exist at Rajahmundry. The question of the supply of bamboos for the use of the mills was also carefully investigated by

the Forest Department and the results of the special survey of the bamboo areas carried out by Mr. Master go to show that a sufficient quantity of raw material is likely to be available at a reasonable price. If, therefore, the difficulties of finance and management can be overcome, there should be a promising future for the Company. The question in all its bearings was engaging the attention of Government at the close of the year under review.

17. Messrs. Muppana Somaraju and Veerraju, Peddapuram, who were granted a loan of Rs. 50,000 in December 1924 did not maintain accounts in proper form during the year under review but from the particulars available, it is observed that operations in the year 1925 were on a slightly larger scale than in the year 1924.

18. The Canara Rice and Saw Mills, Limited, Coondapoor, who were granted a loan of Rs. 9,600 sustained during the year 1925-26 a loss of Rs. 3,659-11-8. This is attributed chiefly to the general slackness in trade and lack of sufficient supplies of timber for sawing. The net assets of the business at the close of the year amounted to Rs. 31,042-4-1. There appears, however, no reason why the firm should not experience a reasonably prosperous future, provided the problem of timber supplies is settled satisfactorily and the difficulties of finance are overcome, since the mill appears to possess considerable potentialities and Coondapoor is unquestionably an ideal situation for a saw mill.

19. The Andal Mills, Gudiyattam, who were granted a loan of Rs. 5,000 sustained a loss of Rs. 1,588-5-5 in the year ended 31st March 1926, but they earned a net profit of Rs. 2,402-6-11 in the year under review. The net assets of the concern at the close of the two years stood at Rs. 9,484-11-10 and Rs. 10,448-8-9.

20. The Kallakurichi Co-operative Agricultural and Industrial Society worked satisfactorily during the year ending 30th June 1926. In the year 1924-25 the Society started work with only one branch, i.e., the one at Sankarapuram, besides the main factory. Encouraged by the success achieved, two more branches were started at Rishivandiyam and Mudiyanur. In every one of the branches there is provision for milling paddy and decorticating groundnuts while in the main factory at Kallakurichi and the Mudiyanur branch, sugarcane-crushing and jaggery manufacture are also undertaken. There is a growing demand in the area for further facilities for sugarcane-crushing since the cultivation of the improved variety of sugarcane is gradually extending. The paid-up share capital of the Society rose from Rs. 35,778-7-6 in the previous year to Rs. 40,895-4-9 in the year ending 30th June 1926 and the Society earned a net profit of Rs. 3,370-11-3 out of which one-fourth was carried to the reserve fund. The balance will enable the management to declare a dividend of about 6½ per cent.

21. The State Aid to Industries Act came into operation from the 27th December 1923 and although from the fact that only five loans of an aggregate amount of Rs. 5,47,200 have been sanctioned up to date, the bulk of which (Rs. 4,64,000) is accounted for by the Carnatic Paper Mills, Limited, alone, the results cannot be said to have fulfilled expectations, the period during which the Act has been in force has been too short to justify a definite expression of opinion as to whether the Act is likely to realize its object, namely, accelerating the industrial development of the Presidency. It is, however, extremely doubtful whether the facilities afforded by the Act will be availed of to any very large extent by cottage and other small scale industries which, in the majority of cases, will not be able to maintain accounts on the lines required by section 11 of the Act and rules 16 and 17 of the Rules framed under the Act. A cottage worker applying for a small loan cannot reasonably be expected to incur the expense of employing a clerk or accountant to maintain the registers and accounts required or to incur the expense involved in the audit of such accounts by approved and certified auditors, and in such cases it should be open to the Director of Industries to exempt the concern from the operation of the section or to prescribe such simple accounts and returns as he may deem necessary in each case, the audit of such accounts being conducted by the department periodically. Moreover, the provisions of section 9 of the Act do not permit the grant of aid towards the establishment of new industries which can have no assets at their inception and unless the section is suitably amended, full advantage cannot be taken by such industrialists of the facilities afforded by the Act.

GENERAL ASSISTANCE TO TRADE AND INDUSTRY.

22. *Supply of Commercial and Industrial information*—This work, which is carried on in the Bureau of Industrial and Commercial Intelligence, has been steadily growing in extent and importance and the public are becoming increasingly cognisant of the fact that the department is always ready to place at their disposal such information and advice on industrial and commercial questions as it is able to give. To commercial men, the information furnished in response to enquiries regarding sources of supply of commodities and the markets therefor should be of great assistance, while to the prospective and actual industrialist, information supplied regarding machinery and processes should likewise prove of considerable benefit. A fair proportion of the enquiries were received from Government departments, e.g., Jails and Stationery. The introduction of firms to overseas importers continued to be a prominent feature of the work of the Bureau. Reports were, as previously, furnished to the Chief Controller of Stores, Indian Stores Department, Government of India,

in regard to local manufacturing firms who were desirous to be included in the list of approved contractors for supply of stores required by that department. Exchange of information with the several Trade Commissioners and Consuls in India, as also with departments in other provinces, is a standing feature of the Bureau's activities.

During the year, the Deputy Director continued to furnish the Director-General of Commercial Intelligence and Statistics with a weekly review of trade and market conditions in respect of the main classes of Madras produce.

23. The undermentioned instances will serve to illustrate the wide range of assistance rendered by the department in connexion with the supply of commercial and industrial information:—

(1) An enquirer in Madras was supplied with information about the candle factories in India, their capacity, output, etc.

(2) A list of tanners, able to supply tanned sheep and goat skins, was furnished to a Government department.

(3) A tile factory in Malabar which had started the manufacture of mosaic cement floorings of different colours and designs and artificial marble slabs of various colours, sizes and styles, was put in touch with a consuming Government department and after an inspection of the works, a technical report was furnished to that department.

(4) Information was furnished to an enquirer from Bezwada in regard to the sources of supply of vacuum drying machinery for the conversion of eggs into powder.

(5) A Government department was furnished with a list of importers and exporters of cloves in this Presidency.

(6) Information about dealers in artificial diamonds in Germany was obtained and furnished to a local enquirer.

(7) A firm in Ceylon was put in touch with likely purchasers of satin wood in the Presidency.

(8) A Government department was supplied with information in regard to manufacturers of light and heavy chemicals and the quantity of sulphuric acid produced in the Presidency.

(9) A local enquirer who contemplated the manufacture of Chinese crackers was furnished with information as to the rules in force regulating the importation of machinery, their installation, necessary licences, etc.

(10) A Government department in another province was furnished with a list of manufacturers of silverware, e.g., chackram ware, insects, swami silverware, etc.

(11) A local enquirer was furnished with the names of manufacturers of automatic lighters in the United Kingdom and Germany.

(12) An enquirer, who contemplated the starting of a picture frame factory, was furnished with information in regard to the value of picture mouldings imported into the Presidency and the countries from which the imports were derived.

(13) A firm in Calcutta was furnished with the names of the principal importers in Madras of rice, dholl, oils and spices from Calcutta.

(14) A firm in Madras was supplied with the names of growers of sunnhemp in the Presidency.

(15) A department of the Government of India was furnished with information regarding the economic disposal of spent tan.

(16) A firm in Bombay was furnished with the names of groundnut-decorticating factories in the Presidency and also with the names of castor-seed growers.

(17) A party in Aruppukottai was furnished with detailed information in regard to the manufacture of groundnut oil, export of seeds and the uses to which the oil, cake and shells could be put.

(18) An enquirer from Malabar was furnished with statistics of the production and consumption of calcium carbide, nitric acid and nitrates in this Presidency.

(19) A tea estate in the Coimbatore district was placed in touch with jails manufacturing whipcord and sacks therefrom.

(20) A party in Salem was given a list of principal importers of raw silk from China.

(21) The Director of Industries and Commerce in a Native State was furnished with information about the laundry industry and the machinery therefor.

(22) A party in Bellary was furnished with details of the process of match manufacture.

(23) A party in Madras was furnished with information in regard to the occurrence of china clay (kaolin) in this Presidency.

(24) An enquirer in Cocanada was furnished with a list of suppliers of cutch in this Presidency and in Rangoon.

24. A number of chemical and other miscellaneous enquiries were dealt with by the specialist staff of the department and the following are a few instances illustrative of the work done :—

(1) The Sri Meenakshi Mills, Madura, forwarded a sample of water for chemical analysis with a view to ascertaining its suitability for use as boiler feed. The sample was analysed at the laboratory attached to the Leather Trades Institute and the results communicated to the Mills.

(2) A local enquirer was furnished with information in regard to the manufacture of soaps by the cold process and the sources of supply of soap presses and synthetic perfumes.

(3) A manufacturer of jaggery in the Tinnevely district was, in consultation with the Secretary, Sugar Bureau, Pusa, advised as to the process of preserving the hardness of gur and as to how a light coloured gur can be obtained.

(4) A party in Chingleput district was furnished with technical opinion in regard to his device for illuminating cycles through power derived from their motion.

(5) A party in Guntur was furnished with advice in regard to the removal of rancid smell from gingelly and coconut oils and also as to the refining and bleaching of tallow.

(6) A party in Malabar was furnished with information in regard to the process of fruit preservation.

(7) Samples of ochre obtained from Thirumangalam in the Chingleput district were analysed and their commercial value determined.

25. *Statistics.*—The department continued to compile statistics relating to industries, including statements of cotton, jute, paper and woollen mills, mines and minerals (including an annual report on the working of the Mines Act) and planting products as also the fortnightly returns of wholesale prices of certain basic commodities at selected marts in certain districts of the Presidency.

26. *Lace and Embroidery Industry.*—Reference was made in last year's report to the attempts made by the department for improving and developing the lace and embroidery industry in South India. The reports submitted by Miss B. M. Tweddle on the subject were published for general information and after a careful consideration of the comments and suggestions received on the recommendations made by her, a report was submitted to Government, reviewing the recommendations. The report was under the consideration of Government at the close of the year.

27. *Coir Industry on the East Coast.*—Reference was made in last year's report to the proposal for conducting an experiment in coir retting on the East Coast according to methods followed on the West Coast. As a suitable site could not be obtained free of charge for conducting the experiment, the permission of the Superintending Engineer was obtained for sinking pits on the banks of the Kausika drain at Ambajipet in the Godavari district. The required quantity of husks was obtained and soaked in several trial pits. Similar experiments were undertaken at Ichapuram in Ganjam district where land was available. The services of a maistry conversant with the

processes of coir retting and spinning were secured with the help of the Director of Industries, Travancore. As the practice on the West Coast is to soak the husks for a period of eight or nine months, the results of these experiments, which could not be initiated sufficiently early in the year, are not yet available.

28. *Decortication of Groundnuts.*—The trade in groundnuts is of increasing economic importance to Madras, the annual exports overseas in the last three years having averaged nearly 920 lakhs of rupees or an average of about 23 per cent of the total foreign export trade of the Presidency, and about 93 per cent of the total foreign exports of oil seeds. The condition in which the kernels are shipped, however, leaves much to be desired and if an improvement in this respect could be effected, the economic benefit which would accrue to the Presidency would be very great. Groundnuts from the Coromandel Coast and to a lesser extent from other parts of the Presidency arrive at Marseilles in a heated condition and this is ascribable to the fact that the nuts are generally damped before shelling and are not subsequently properly dried, with the result that when they are trodden down in the hold of the vessel, they very often heat, sometimes so badly as to become charred. In the process of hand shelling, the shells are almost invariably damped and the practice is adopted in machine shelling also, since it has the effect of reducing the breakage of the kernels. The result is that the kernels become black and rancid and the oil produced from such kernels contains from 15 to 25 per cent free fatty acid, is rancid and bitter and is classed as inedible. A practice has also recently grown up in the Ceded Districts, of watering unshelled nuts prior to decortication with the object of increasing the weight. This practice, for which the middlemen are primarily responsible, must result in a marked deterioration of the quality to the ultimate disadvantage of the cultivator. As regards decortication, machine shelling involves less breakage of kernels, so that the producer by adopting this method is able to get a better price for his produce and the export merchant secures kernels which are not so badly damaged and at the same time are dry and comparatively free from stones and dirt. It will therefore be advantageous to all parties if machine shelling is adopted. The points referred to above were investigated by the department and arrangements have been made to issue a bulletin on the subject in English, Tamil and Telugu. Experiments are also being conducted to remedy as far as possible the defects in the decorticating machines in use at present.

29. *Sugarcane Crushing.*—After the transfer of the Pallapalayam Sugar Factory to a co-operative society, enquiries have been instituted in regard to other large cane-growing centres where the success and economy of power crushing could advantageously be demonstrated and it is under contemplation to set up in suitable areas

crushing plants of the Pallapalayam type with the object of encouraging the cultivation of sugarcane. As a preliminary to the establishment of central sugar factories in India, it is necessary to improve the varieties of cane and the yield per acre and by cheapening the cost of making jaggery, to centralise and expand sugarcane cultivation. With an improved five-roller mill such as that installed at Pallapalayam, a much greater percentage of extraction can be obtained than with the ordinary country mill and the cost of producing jaggery correspondingly reduced. The setting up of more power crushing mills by the department or preferably by co-operative societies assisted financially under the provisions of the State Aid to Industries Act, should therefore have the effect of increasing the area under sugarcane cultivation.

30. *Standardization of jail-made Articles.*—In last year's report, reference was made to the orders of Government on the report of the Jail Industries Committee and to the question of standardization of articles required by the consuming departments of Government. The requirements of the various departments under the heads of Textiles, Furniture and Leather goods were ascertained and a conference was held at which representatives of consuming departments as well as of the Jail department and also the specialist officers of this department were present and the subject of standardization was fully discussed. The standardization of textiles was considered in detail and specifications of cloths and other textile articles were standardized with reference to the requirements of the consuming departments. It is intended that these specifications should, henceforth, govern the supply of textiles to the consuming departments and that the purchase from jails of the articles standardized should be obligatory on consuming departments, subject to the safeguards as to quality, price and delivery mentioned in the Government Order referred to above. The list of standardized articles was circulated to the Jail department and to the consuming departments. The standardization of furniture was referred for detailed consideration to a sub-committee with the Inspector of Industrial Schools as Secretary. A set of designs with specifications was drawn up at the instance of the sub-committee and circulated to the several departments for remarks, but the final consideration and settlement of the designs were not completed before the close of the official year and likewise the standardization of leather goods.

31. *General.*—A good deal of useful, though perhaps not spectacular, work is now being done by the Department of Industries, and with increased funds made available, it will be possible to extend the department's varied activities, inaugurate new schemes of industrial expansion and show considerable progress during the next few years.

32. The question of organizing and developing cottage or rural industries which are suitable as subsidiary occupations for the agriculturists during the slack season is at present engaging attention and as a preliminary, M.R.Ry. D. Narayana Rao Pantulu Garu, Deputy Collector, has been appointed Special Officer to carry out a survey of cottage industries—existing as well as potential—in the Presidency. This officer entered upon his duties soon after the close of the year and has already completed the survey of the cottage industries of the Cuddapah district and submitted his preliminary report which is being published for the information of the public. It is hoped that the results of this survey will afford a basis for the revival and extension of rural industries on an economic footing and for the organization on an increased scale of subsidiary occupations for the agriculturists. The question of financial assistance to such cottage industries will doubtless receive consideration in connexion with the proposals for their development.

33. As Madras is primarily an agricultural province, the development of industries is likely to be chiefly in the direction of converting and working up into manufactured or semi-manufactured form the agricultural and forest products of the province and there is great scope for the establishment of industrial co-operative societies for the purpose. The formation of co-operative societies of this character should enable the ryot to obtain a better price for his produce and close collaboration between the Departments of Industries and Co-operation will, it is hoped, result during the next few years in the starting of a number of these societies. There is another direction in which the Department of Industries can be of more assistance in regard to the development of agricultural industries than at present and that is in experimenting with a view to the evolution of improved machinery for the preparation of agricultural produce. The volume of mechanical research work carried out by the department during the last few years has been very restricted. The Industrial Engineer is fully employed on work connected with boring operations, the maintenance of power installations and industrial machinery already at work and the erection of new installations. Besides giving technical advice on all questions of engineering importance, he has to investigate and scrutinize loan applications under the Agriculturists' Loans Act and the State Aid to Industries Act. He is also responsible for the condition of the machinery in industrial installations managed by this department as well as by other departments of Government, e.g., Jails and Fisheries. He has not heretofore the necessary time for carrying out experimental or research work on any considerable scale. Successful mechanical research work postulates concentration on the particular problem which it is desired to solve to the exclusion of all else and it is unlikely that any appreciable progress in the evolution of improved

machinery for the preparation of agricultural produce and in other directions will be achieved unless a whole-time Industrial Research Engineer is appointed who will be free from the trammels of other work. Proposals have accordingly been submitted to Government for the employment of a separate Industrial Research Engineer.

GENERAL CONDITION OF THE IMPORTANT INDUSTRIES IN THE PRESIDENCY.

34. As directed in G.O. Mis. No. 918, Development, dated the 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 the different Chambers of Commerce and several private firms for their co-operation in furnishing much useful information at very short notice.

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

				ACRES.
Twenty-five P.L. for prospecting for	Mica	over an area of		815
Four	do.	Barytes	do.	231
Six	do.	Manganese	do.	5,188
Three	do.	Asbestos	do.	1,033
Two	do.	Diamond	do.	436
Nineteen M.L. for working	Mica	do.		1,121
One	do.	Manganese	do.	4
One	do.	Gold	do.	1,604*
One	do.	Iron ore	do.	55
One	do.	Iron, Chromite and Manganese.	do.	1,220

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

36. *Manganese.*—The mining of manganese was carried on in the districts of Vizagapatam and Bellary and the total quantity mined was 30,040 tons against 32,334 tons in the year 1925. The fall in the output is attributable to the falling off in demand from the United Kingdom consequent on the prolonged coal strike. The value of the quantity exported fell from 1.56 lakhs to Rs. 0.69 lakh. France and Belgium were the chief importers.

37. *Magnesite.*—The deposits of magnesite mined in the Salem district are reputed to be of exceptional quality and the calcined material is considered to be about the best in the world for magnesite composite floorings and other similar uses in the building

* This lease though granted last year was executed only this year.

industry. The mining operations are conducted by only one firm, though in connexion with the exploitation of the Kanjamalai iron ores, 729 tons of magnesite are reported to have been discovered. The output during the year decreased by nearly 1,000 tons due to the considerable slackening in the general demand for calcined magnesite, as a result of increasing competition from the deposits in Europe and America, especially the latter.

Though almost unlimited quantities of crude magnesite of a very fine grade can be supplied, it has not been possible so far to increase the demand for the material. The industry moreover is handicapped by heavy rail and sea freight, affecting both export to foreign markets and possible business in India.

38. *Gold and Silver*.—The mining of gold and silver was carried on in the Anantapur district and the output of both showed an increase over that of the previous year. The North Anantapur Gold Mines Limited, which had suspended operations for some time, restarted work in August 1926 and installed a 10-head stamp battery and a small cyanide plant during the year. 4,960 tons of gold-bearing ore were crushed and treated by the cyanide process producing 2,187·89 ounces of fine gold to the value of Rs. 1,25,525. The Company appears to have worked successfully during the year.

39. *Barytes*.—This is mined in the Kurnool district. There has been a gradual decline in the output from the year 1923 when the production amounted to 1,751 tons. Only two mines worked throughout the year and the output was only 350 tons. The decline is chiefly attributable to adverse trade conditions. Eight mining leases were granted in the years 1919 and 1921 to Mr. Ghose for mining Barytes in the Dhone and Koilkuntla taluks of Kurnool district but these had to be cancelled owing to the party's failure to maintain regular working.

In the Corundum mines in the Namakkal and Tiruchengode taluks, 17½ tons of the mineral valued at Rs. 4,333 were extracted.

40. *Mica*.—Mica mining is chiefly carried on in the districts of Nellore and the Nilgiris and to a very slight extent in the Madura district. During the year 1926, the output decreased by about 220 tons, the total output of the year amounting to 675 tons. The decrease is attributed to the discontinuance of mining in many of the shrotriya mines in the Nellore district which were worked in the previous year without prospecting licences or agreements. In the Nilgiris, though there were ten mines working about the beginning of the year, seven of them were closed subsequently, only three working throughout the year. The industry is reported to have had a set back since the beginning of the year 1926. Owing to the coal

strike principally, conditions of trade in Great Britain have not been satisfactory and the demand for mica has been small, the only enquiries being for the best qualities. The major portion of the mica produced being what is known as 'slightly and heavily spotted' mica, the mines have had to curtail their output. At present the outlook does not show any sign of improvement.

41. *New Industrial Undertakings*.—As in the previous year, there were fewer new flotations and several companies failed. This is ascribable to the continued depression in trade and the unsatisfactory state of the money market. Of the new registrations, 50 per cent were trading and industrial concerns, 30 per cent Banking and Loan Companies, and the remaining 20 per cent other miscellaneous companies. There was only one cotton mill registered during the year, i.e., the Saradha Cotton Mill Company, Limited, Cuddalore. The Chittivalsah Jute Mills Company, Limited, an off-spring of the South India Industrials, Limited, was newly floated with an authorized capital of Rs. 15,05,000. The latter firm was wound up last year under the orders of the High Court consequent on the application of the Company's creditors and the scheme for the formation of the Chittivalsah Jute Mills Company, Limited, was sanctioned and the proceedings in liquidation of the South India Industrials were ordered to be permanently stayed. Among other companies newly registered were one Hosiery Mill, one Running Light Railway Company, and one Dye Works. The Hanuman Textiles Factory and Piece-Goods Depot, Limited, the Pioneer Biscuit and Flour Mills, Limited, and the Godavari Spinning and Weaving Mills, Limited, went into voluntary liquidation, while the Somasundaram Mills, Limited, was wound up on the application of the Official Assignee. The Saradha Cotton Mills Company, Limited, referred to above, likewise became defunct consequent on the Managing Agent purchasing a new cotton mill at Pondicherry. The Sri Briganayaki Match Factory, Limited, Cuddalore, which was registered last year, had not commenced commercial operations during the year under review.

TEXTILE INDUSTRY.

42. *Cotton Mills*.—There are at present 18 mills in the Presidency, three in Madras, five in Coimbatore, three each in Madura and Tinnevely districts, one each in Bezwada, Calicut and Cannanore, besides several smaller weaving establishments. The number of spindles and of looms in these mills was about 600,000 and 4,400 respectively. Considering however the quantity of cotton grown in the Presidency and actually exported and the imports of manufactured cotton goods into the Presidency, there is scope for the establishment of additional mills in the Presidency.

Notwithstanding the general depression in the cotton textile industry and the competition of cheap Japanese goods, the majority of the mills appear to have worked successfully during the year. The Bezwada Spinning and Weaving Mills, Limited, the Sree Minakshi Mills, Limited, and the Pandyan Mills, Limited, have, it is understood, started manufacturing operations.

43. *Jute Mills*.—There are four jute mills in the Presidency situated at Nellimarla, Chittivalsa, Ellore and Guntur. The number of looms and of spindles in them was 753 and 17,684. The Bimlipatam jute (*Hibiscus cannabinus*) is said to be inferior in quality to that grown in Bengal (corchorus variety) which is accordingly preferred by the millowners, although it contains a certain amount of moisture which means some slight loss in dryage. The recent reduction by the Bengal-Nagpur Railway of the freight rates on jute from Shalimar was a favourable circumstance and on the whole, the jute mills appear to have worked successfully.

44. *Hosiery Industry*.—There are seven large hosiery factories in the Presidency of which two are in Salem, and one each in Madras, Mangalore, Ellore, Bezwada and Karur. Two kinds of hosiery goods are manufactured (a) India Gauze and (b) net work. Imports of India Gauze from Japan have for several years cut the indigenous manufacturer out of the trade, the local product being unable to compete in cheap inferior qualities. As regards net work, the year has been an exceedingly difficult one, yarns of the right quality and of suitable varieties being difficult to obtain at competitive rates and the labour obtainable being somewhat inefficient.

45. *Lace and Embroidery*.—This industry is carried on chiefly in the districts of Kistna, Godavari and Tinnevely and on the West Coast. Pillow lace in a variety of styles is manufactured more generally in the south, while crochet lace is made in the Kistna and Godavari districts. Darned net is chiefly made at Dummagudem. Embroidery is more extensively made and finds a relatively wider market. The organization of the industry is chiefly in the hands of Indian merchants and Christian missionaries. During the last few years, there has been a considerable depression in the industry, and as a result of difficulties in finding a market, there has been large accumulation of stocks.

46. *Madras Handkerchiefs*.—On the whole, the trade in Madras handkerchiefs was dull. But it must be borne in mind that the trade is subject to sudden fluctuations, the demand for the product disappearing as quickly as it springs up. The unsteadiness of yarn values in the bazaar is a disturbing factor which may at any time upset indications of good business.

47. *The Tanning Industry*.—Vizianagaram, Bezwada, Ellore, Rajahmundry, the suburbs of Madras, Ambur, Vaniambadi, Ranipet, Vellore, Pernampet, Trichinopoly, Dindigul, Erode and Coimbatore are the principal centres of this industry. The majority of the tanneries are only small concerns, the number of factories coming under the operation of the Factories Act being only 7. As a rule, the tanneries in the northern parts of the Presidency work on hides, whilst those on the south work almost entirely on skins. The tanneries in the central districts, viz., Madras, Chingleput, North Arcot, and Chittoor, work on both hides and skins.

The exports of tanned hides and skins during the year amounted to 15,840 tons valued at Rs. 637.87 lakhs, which represents 17 per cent of the total export trade of the Presidency. The United Kingdom takes practically the entire quantity of the Madras tanned cow-hides, the exports of which amounted during the year to over 8,500 tons valued at over 190 lakhs of rupees.

48. *Oil Industry*.—There are 13 oil mills in the Presidency coming under the operation of the Factories Act, five in Madras, three in the Guntur district and one each in Timmencherla in Anantapur district, Kasaragod in South Kanara district, Dronachalam in Kurnool district, Calicut and Vizianagaram. Besides the above, there are several small scale mills in different parts of the Presidency. Oil is expressed from groundnut, castor, cocoanut and gingelly seeds and finds a sale in the country itself although to some small extent it is also exported to foreign countries.

The difficulties of developing the industry on a large scale are not inconsiderable. It is of course economically unsound to export oil seeds in large quantities instead of manufacturing oil and oil cake in the province itself, for not only does it take from the country much useful material in the form of cattle food and manure but it also gives the manufacture to other countries. The extraction of oil on a commercial scale is not impossible, but the difficulties in the way are greater than is commonly believed. Marseilles and other places in Europe have already an established position in the world's markets for the different classes of oils in which they are protected by high tariffs. Oils lend themselves very readily to adulteration and it would require a long period of good work for Indian mills to obtain a reputation such as the Marseilles factories now possess. If an adequate market could be obtained in India for all the products of a number of mills, the position would be different, but at present, the disposal of the oil and oil cake presents difficulties. If it is intended to export oil on any large scale, the difficult question of packing has to be tackled. The cost of packing, whether the oil is contained in barrels, drums or tins is heavy; indeed it is round this

question of packing and shipment that the general problem of oil pressing in India really turns. The shipment of seed is comparatively easy and freights are relatively low. On oil, the freights are higher and if the oil is packed in drums or barrels, there is a considerable risk of leakage, loss or damage. Finally, there is the difficulty of overcoming the high protective tariffs which are in force in the chief industrial countries. It must be recognized therefore that for many years there is likely to be considerable difficulty in disposing of the products of any large mills that may be established whether the oil and cake are destined for export or for consumption in the country. The cake obtained from the extraction of vegetable oils is no doubt a highly nutritive food for cattle, besides possessing considerable value as a fertilizer, and its production should prove an advantageous addition to the agricultural resources of the country. But at present the demand for the oil cake is more or less limited and until the ryot has been educated to the advantages of using the cake for cattle food and manurial purposes, the greater part of the production of any large oil mill established in this Presidency will have to be exported. There is a considerable internal consumption of vegetable oils, particularly groundnut, in the Madras Presidency and there is probably scope in some districts for the establishment of small oil mills with the primary object of meeting the internal demand for oil, although here again it would be difficult to find a market for the cake until the ryots became more educated to its use.

Exports of animal oils, principally fish oil from the West Coast, fell from 95,449 gallons valued at 1.01 lakhs in the previous year to 8,180 gallons valued at 0.07 lakh in the year under report, due chiefly to smaller catches of fish on the West Coast.

The chief essential oils produced in the Presidency are sandalwood oil, lemon grass oil, eucalyptus oil and ginger grass oil. Sandalwood oil is almost exclusively produced in Kuppam in North Arcot district. The position and prospects of this industry are unfortunately in a somewhat parlous condition for want of an adequate or assured supply of sandalwood. Lemon grass oil is chiefly produced on the West Coast and in the Nilgiris, and ginger grass oil in the central districts, but the methods of extraction adopted are rather crude. Eucalyptus oil is chiefly produced in the Coimbatore district and in the Nilgiris.

49. *Sugar and Jaggery Industries.*—There are ten sugar refineries in the Presidency and they are situated in the Ganjam, Godavari East, Kistna, South Arcot, Coimbatore and Tinnvelly districts. The success of the industry depends almost entirely on the world prices of sugar which during the past year have been comparatively low. India, as is well known, largely depends at present on foreign

sugar and the value of the imports during last year into the Presidency itself was over 132 lakhs which represents about 6.25 per cent of the total import trade of the Presidency. The several refineries have experienced difficulties in obtaining the requisite raw materials, e.g., palmyra jaggery and sugarcane, though it is occasionally possible to import unrefined sugar from Java, Mauritius, the Philippines and Cuba at rates which yield a profit on refining. Although with the number of palmyra trees in existence in the Presidency, the amount of jaggery available should be much greater than that actually refined, several reasons, chiefly the sporadic occurrence of the trees except in a few limited areas and the difficulty of securing tappers, have contributed to the shortage of supplies. Further a large portion of the jaggery produced goes into direct consumption with the result that supplies for the factories are not sufficient.

The prices of local jaggery have of late ruled high and as a consequence, the refineries could not refine the usual quantity and meet the local demand for sugar. The imports of refined sugar showed therefore an increase during the year by 20,068 tons in quantity and 53.17 lakhs in value.

50. *Tile Industry.*—There are about 50 tile factories in the Presidency coming under the operation of the Indian Factories Act, of which 32 are in the South Kanara district, 15 in Malabar and one each in Coimbatore, Bellary and Talapudi in the Godavari West district. The industry is at present suffering from over-production due to severe competition and several factories have had to close down.

At the instance of the department, the South Indian Railway agreed in 1924 to a reduction in the freight rates on tiles without imposing any restrictions as to quantity. But the concession has not been able to save the industry from depression. The question of employing a ceramic expert to conduct an intensive survey of the tile industry with a view to investigate its condition, the causes of its decline and the steps necessary to rehabilitate it and incidentally to examine the commercial possibility of manufacturing other ceramic products (e.g.) glazed pottery, jars and the like is at present under the consideration of the department.

51. *Chemical Industries.*—There is only one privately owned factory manufacturing chemicals in the Presidency and the competition from Europe is so keen that the scope for extension is not very great. The demand for chemicals in a country is an index of the condition of its industrial development and though judged by this standard, the Presidency cannot be said to have made any real headway in regard to its industrial position, the figures of import and of production of chemicals go to show that progress has been

well maintained. The value of imports of articles comprised under the head 'chemicals' rose from Rs. 26 lakhs in the previous year to Rs. 27.21 lakhs.

52. *The Manure Industry.*—There are in the Presidency five manure works coming under the operation of the Factories Act and during the year under review there was an increased demand for all kinds of manure, notably those required for tea and coffee plantations. The planters with good markets for their produce are in a better position to appreciate the utility of fertilizers and extend their fertilizing programmes, although the demand for manures is to a great extent regulated by the prices realized on the sales of tea and coffee and also by the yield of the two crops. There was keen competition among the manufacturers with the result that prices have of late been considerably reduced with a consequential reduction in profits. Imported fertilizers amounting to Rs. 10.21 lakhs in value were obtained during the year at much lower prices and there is evidence of the probability of this condition of affairs continuing for some more time. Ryots have of late begun to appreciate the advantages of scientific manuring and it is a welcome feature that some cultivators are themselves purchasing oil cake and grinding it up for their own use. But much has yet to be done to develop their knowledge and aptitude in this direction. The last season was practically a failure in regard to the supplies and manufacture of fish manures and fish guano owing to the absence of shoals of sardines on the West Coast as in the two previous years.

A difficulty in regard to the fertilizer industry appears to be the present rates of freight which are considered high. It is understood that representations from Chambers of Commerce and other bodies have been made to the railway authorities and that the matter is receiving consideration.

53. *Match Industry.*—This industry has been coming into prominence during recent years, although it cannot be said that the technical difficulties of manufacture have been satisfactorily overcome. Over 20 concerns have sprung up in various parts of the province, the enhanced duty on imported matches in force from 1922 having acted as a stimulus. With a few exceptions, all the concerns are hand driven and operate on a comparatively small scale. Generally speaking, the products of these factories command local sale, but they cannot be said to have made any appreciable impression on the market as against imported matches, the value of which still exceeds 12 lakhs of rupees. Some of the small concerns, it may be noticed, derive supplies of ready made splints and veneers from the major factories in Malabar and apparently confine their operations to finishing them into complete matches and match boxes.

The question of supply of suitable wood at economic rates is of vital importance and some ill-conceived concerns have, it is understood, had to close down owing to the difficulty of obtaining adequate supplies of suitable wood.

54. *The Aluminium Industry.*—Aluminium ware is chiefly manufactured in Madras and in the Godavari and Kistna districts. The industry has been suffering from over-production. During the years 1919—21, several factories were started in Bombay, Calcutta and Benares and they flooded the market with a very badly finished article at cheap prices. As time went on, more competition ensued, the firms vying with one another in reducing prices with the result that several firms in Bombay had to close down. The import of foreign ware also affected the condition and prospects of the industry considerably. These goods, although of a high finish, are made of extremely thin sheet and are therefore not sufficiently durable. During the last year, there was a slight increase in the demand and provided too much thin ware is not put on the market, it is possible that the demand will increase further. It is perhaps noteworthy that the duty on imported aluminium ware is calculated at the same rate as the duty on sheets and ingots, the raw material of the industry.

55. *Tobacco Industry.*—Tobacco is grown chiefly in the districts of Guntur, Madura, Trichinopoly, Godavari, Kistna, Coimbatore and Salem. There are several small scale factories in the Presidency making cigars and cigarettes, but the only factories that come under the operation of the Factories Act are in Guntur and Madura districts. There is considerable export of leaf tobacco from the Presidency, the exports last year amounting to 13.69 million lb. valued at Rs. 49.66 lakhs. Exports of cigars and cigarettes during the year amounted to 67,141 and 216,509 lb. There was an increase in the imports of foreign cigarettes owing mainly to a drastic reduction in the prices of British cigarettes made with a view to stimulate demand.

One difficulty which the cigar industry in South India is reported to suffer from is the heavy import duty imposed on cigars shipped to Great Britain. This is assessed on the basis of weight and the system is said to operate unfairly in the case of Indian made cigars when compared with the more expensive and very much lighter Havana and Manilla brands.

56. *Pencil Industry.*—The Madras Pencil Factory which has now been in existence for about nine years is reported to be working not very successfully on account of adverse conditions in regard to supply of raw materials and competition of imported cheap Japanese and German pencils.

The wood best suited for pencil manufacture is expensive to import from Africa and the cost of transporting even the indigenous wood to the factory is reported to be prohibitive.

Graphite is obtained from Ceylon but since the whole production in the island is bought by foreign manufacturers, it is difficult to buy even a small quantity from this source at remunerative rates.

57. *Saw Mills.*—There are eight saw mills coming under the operation of the Factories Act in the Presidency—five in Malabar including the Government Saw Mills at Olavakot and one each in Russelkonda, Motpad in Vizagapatam district and Coondapoor in South Kanara district. The industry was more or less depressed during the year, particularly in Malabar where the partial failure of the south-west monsoon resulted in a very short floating season with a consequent shortage of supplies of suitable timber for sawing.

58. *Soap Factories.*—Soap manufacture is carried on chiefly in the districts of Malabar, Chittoor, North Arcot, Coimbatore, Trichinopoly, Tanjore and Chingleput on a small scale and the products are not of sufficiently good quality to be able to compete with imported soaps. It will be seen from the following figures that the imports of soap have been steadily increasing during the last few years :—

	Value.
	LAKHS.
1923-24	11.36
1924-25	13.03
1925-26	16.49
1926-27	19.56

59. *Management of manufacturing concerns owned by Government.*—The Kerala Soap Institute, Calicut, and the Government Industrial Institute, Madras, were the only Government manufacturing concerns under the control of the department.

KERALA SOAP INSTITUTE.

60. *Staff.*—Mr. A. K. Menon was in charge of the Institute throughout the year except for a period of 22 days in May when he was on leave and Mr. P. S. Srinivasa Ayyar, the first assistant, was in charge of the Institute.

In G.O. No. 140, Development, dated the 29th January 1927, Government considered that an attempt should be made to train apprentices in the art of soap-making before a decision was taken

as to the future of the Institute. They accordingly sanctioned the retention of the Institute till 31st March 1929. The Institute will continue to be conducted as a commercial concern, but its principal object will hereafter be to provide training in the art of soap-making. The position of the Institute will be reconsidered at the end of 1928-29 with reference to the results of its working as an instructional centre.

61. *Production and Accounts.*—Trade conditions during the year were unsatisfactory due to several causes, the chief being the tightness of the money market. There was a considerable decrease in the profits earned by manufacturing industries in general and the soap industry in particular. The profits made by Lever Bros.—the premier soap traders of England—were so low that no dividend was declared. Notwithstanding such adverse trade conditions, the volume of business transacted by the Institute though smaller than in the previous year may be regarded as fairly satisfactory. The year opened with a stock of 69 tons 1 cwt. 52 lb. of soaps and during the year 358 tons 13 cwt. 82 lb. of all classes of soaps valued at Rs. 1,65,306-1-0 were manufactured against 458 tons 19 cwt. 45 lb. valued at Rs. 1,92,540-11-6 in the previous year. The sales also decreased from Rs. 2,76,415 in 1925-26 to Rupees 2,44,338. The accounts of the year have not yet been audited. But it is expected that there will be a net profit of about Rs. 900 after providing for audit, leave and pensionary contribution and direction charges and the amount necessary to meet the interest of Rupees 18,668-1-2 on the invested capital. A sum of Rs. 2,047 assessed by the Calicut municipality for tax on buildings from 1st April 1923 was also charged to the year's account. Severe competition and a slight falling off in the orders from the Military Department rendered it necessary to cut down prices to the irreducible minimum and the results obtained in spite of the unfavourable conditions were only made possible by a careful and judicious purchase of raw materials, and the exercise of the strictest economy in manufacturing operations.

62. In this connexion, it may be noted that a Government department as a trader occupies a disadvantageous position in that it is severely limited in the initiative it is allowed to exercise in trying to make the concern a success or to restrict the loss to the smallest dimensions. A soap factory in common with most other commercial concerns is in the best position to compete in the market if it manufactures on a large scale. Small concerns are a disadvantage as compared with the larger ones partly because they cannot afford to employ expert salesmen to dispose of their products and partly because their overheads are spread over a very restricted output. The only way in which the Institute could improve its financial

position is to manufacture up to the limit of its full capacity as the overheads would then be spread over a larger output and the prices could be further reduced. But our present organization is not capable of absorbing any large increase in output. An increased offtake might reasonably be expected to result from a general reduction in the prices of the soaps, but this could develop only gradually and in the meantime stocks would be accumulating and deteriorating and considerable additional finance would be required. We are thus faced with the problem how to reduce the prices of our soaps without having at the same time to increase our output. The only way at present of securing this end to some small extent is to decentralize the present agencies as far as possible and to extend the system of stockists by entering into direct trade relations with firms and merchants in all important centres in the Presidency and steps are being taken in this direction.

63. *Varieties of soaps manufactured.*—The quality of the Institute's products was maintained at a high level. There was an appreciable increase in the sale of toilet soaps, particularly vegetol. Imitations of vegetol referred to in previous reports are gradually falling out of the market as people have begun to realize the injurious nature of these imitations.

The increase in the sales of toilet soaps may be regarded as a sign of the public's appreciation of their quality. With proper advertisement, and more attractive packing, in which directions steps have been taken, it is hoped to still further develop this side of the Institute's activities.

64. *Sales Organization.*—Mr. R. C. Dalal continued to act as agent for South Kanara, Malabar, Coimbatore, the Nilgiris and the Indian State of Mysore, including Bangalore. The amount of business done by this agent during the year was considerably less than in the previous year and proposals are now under consideration for reducing his jurisdiction. The Deccan General Trading Company, Secunderabad, were appointed agents for the Nizam's dominions. Their orders in the beginning were satisfactory, but of late owing to the continued absence of the agents from Secunderabad from unavoidable causes, sales suffered to some extent. Mr. G. Palaniyappa Mudaliyar, Madura, who was only a stockist at the commencement of the year, was later appointed as agent for Madura district, excluding Kodaikānal. Mr. Adam Hajee Mahomed Sait, the Madras stockist, did fairly good business during the year, but there is scope for further enlarging the sales in his jurisdiction and his responsibility for securing much better results during the current year has been brought home to him. Mr. K. Raghavendra Rao, Kumbakonam,

the Kodaikānal Co-operative Society, Kodaikānal, Messrs. T. C. Ramudu Jetty and Sons, Tanjore, Mr. P. Gomez, Tuticorin, and Messrs. Majety Veerabhadra Rao & Co., Ellore, served as stockists, but their work was not altogether satisfactory and steps are being taken to replace them. The agency of Bombay was terminated during the year as the business transacted was found to be unsatisfactory. Attempts were made to sell the soaps direct to merchants in Bombay, Dharwar and Hubli with some degree of success. Proposals for advertising in some of the Bombay papers and for deputing the Superintendent to Bombay to investigate the possible outlets for the products of the Institute are under consideration and it is hoped that during the current year more satisfactory business will be done in the Bombay market. Arrangements for the appointment of a suitable agent for Ceylon are nearing completion and it is expected that during the current year a firm of standing and influence in Colombo will introduce our goods and develop our business in the Ceylon market. The Government recently accepted my recommendation that the Superintendent of the Institute should be allowed to visit important consuming centres in the Presidency and the adjoining Indian States and it should now be possible for him to study local markets and submit proposals for the appointment of more stockists where necessary and thus develop the sales side of the business.

65. *Training of Apprentices.*—The preliminaries connected with the opening of classes for apprentices were completed and the classes were opened on 1st May 1927.

66. *Glycerine Manufacture.*—Owing to the low output of boiled soaps during the year, there has been a fall in the quantity of crude glycerine produced. The drought prevailing in Malabar after the failure of the north-east monsoon left the Institute wells almost dry and the insufficiency of water required for condensing the vapours prevented the concentration of all the available dilute glycerine lyes. Solar evaporation was employed successfully which saved the situation to some extent. Notwithstanding these drawbacks, a quantity of crude glycerine was made, the amount sold being valued at Rs. 2,320. To obtain the full benefit out of the glycerine plant, it is necessary that the manufacture of boiled soap should be considerably increased, but for reasons already stated, the factory cannot work at its full capacity.

67. *Laboratory.*—In order to maintain the standard of the Institute's products at a uniformly high level, a careful examination of the raw materials and of the finished products in different stages of manufacture is necessary and 600 analyses were carried out in the laboratory during the year. Besides these routine tests, about 120 detailed analyses of various soaps made by other factories were made

and reports furnished. A few brands of borax soap made in India and in Australia, medicated soaps, shaving soaps and special soap like "Margo soap," "Shavex" and "Uzit," etc., were also tested with a view primarily to find out their ingredients and to utilize this knowledge to improve the Institute's products. Essential oils like sandalwood oil, vetiver oil, citronella oil and geranium rose oil, all used largely in the Institute, were tested for adulteration. A number of enquiries for recipes and processes of manufacture of soaps, face creams, candles, edible oils, etc., received from firms and private individuals during the year were suitably answered. The Madras Presidency offers a wide range of vegetable and fish oils suitable for the manufacture of soaps and allied products and the Institute could form a convenient centre for carrying out experiments in regard to the utilization and working up of various vegetable oils. There is also considerable scope for the carrying out of experiments with a view to the more efficient preparation for export of various essential oils. The prospects of candle manufacture, however, do not appear to be particularly hopeful as the market is a declining one.

68. There were as usual a number of distinguished visitors to the Institute during the year, including the Right Hon'ble Mr. V. S. Srinivasa Sastri, the Hon'ble Mr. T. E. Moir, Finance Member, and the Hon'ble Mr. A. Ranganatha Mudaliyar, Minister for Development. The Hon'ble the Finance Member made the following remarks in the visitors book :—

"Mr. Menon kindly showed me over the Institute this afternoon. I was most interested in what is going on and in what has been achieved so far. Various problems have arisen as regards the way in which the Institute may most fully serve the objects underlying its activities and I hope to have further opportunity of discussing these with Mr. Menon and those concerned."

A number of students from educational institutions in Calicut and other parts of Malabar and a batch of five students from the Cawnpore Technological Institute with their lecturer on oil technology also visited the Institute and were shown all the processes of soap manufacture and recovery of bye-products.

GOVERNMENT INDUSTRIAL INSTITUTE, MADRAS.

69. *Staff*.—Mr. S. Venkatarama Ayyar continued to be Superintendent of the Institute throughout the year.

70. *Varieties of inks manufactured*.—The quality of the different varieties of inks manufactured in the Institute, viz., blue black record ink, writing ink, fountain pen ink, scarlet ink, green ink, blue ink, violet ink and red, blue, black and green rubber and metal stamping inks as also ink powders and ink tablets, was still

further improved during the year. Four hundred and twenty-five lb. of a special kind of blue black ink powder were manufactured to suit the requirements of the indenter. Ink for postage cancellation was also made and tested and the results are encouraging.

Production and Accounts.—The output during the year amounted to 2,461 gallons of various classes of fluid inks, 131,134 tins of ink powders and 15,424 packets of ink tablets, besides a special variety of ink powder to the extent of 425 lb. The sales amounted to 2,725 gallons of fluid ink, 130,448 tins of ink powders and 15,240 packets of ink tablets. The value of the sales effected amounted to Rs. 28,786-14-7 as against Rs. 21,519-13-10 in the previous year. Of the total sales, inks, etc., valued at Rs. 19,943-5-0 were sold to the Superintendent of Stationery and the balance to the Madras Corporation, Madras and Southern Mahratta Railway and several municipalities, district boards and taluk boards, etc. The percentage of sales to the Superintendent of Stationery in relation to the total factory sales increased from 54.84 per cent in 1925-26 to 69.2 per cent in the year under review. The accounts as audited by the Assistant Director of Commercial Audit showed a net profit of Rs. 1,487-10-10 on the year's working after allowing for direction, audit and other overhead charges. The agency of Messrs. Taylor & Co. terminated in November 1926 and Messrs. Narayana Doss Girdhar Doss of Madras have since been appointed sole agents for the Institute for a period of two years from 1st June 1927.

71. *Printers Ink Experiments*.—After the encouraging results obtained in the line of news ink and jobbing ink, a series of further experiments were undertaken with a view to utilize a more economical material, viz., pitch for news ink. If found suitable, it will not only impart the required consistency to the ink but also a part of its black colour thereby making it possible to effect a saving in the cost of lamp black. Experiments were also made to find out the conditions suitable for the use of pigments in coloured inks. Each pigment has distinct individual characteristics and the working methods have also to be distinctive. Arrangements were in progress about the close of the year for the commencement of investigations in regard to the manufacture of superior quality inks with the aid of machines recently received from England.

TEXTILE SECTION.

72. The activities of the Textile section of the department cover not only the hand-loom weaving industry but also cognate subjects such as hosiery, lace and embroidery, dyeing and printing, and textile education, in addition to Sericulture and Silk filature reeling.

73. *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 and was in charge of the Government Silk Farm, Coonoor.

74. *Peripatetic Weaving Parties*.—The work and scope of the Peripatetic Weaving Parties have been fully explained in previous reports. The efforts of the parties are now directed chiefly to the improvement of preparatory processes, the demonstration of the departmental hand-sizing machine and the distribution of power-sized warps. There were five parties at work during the year, operating in the districts of Godavari, Anantapur, North Arcot, Madura, Salem and Madras. The practical working of the hand-driven sizing machines was demonstrated at Kadiri, Tiruppattur, Madura, Tiruchengodu and Malabar. Efforts were also made with a certain measure of success to induce weavers to adopt for use on their country looms weavers' beams without which long machine-sized warps cannot be utilized with advantage. The economic advances of using power-sized long warps were also explained to the weavers. In all 20 weavers' beams, 12 slays, 124 dobbies, 1 sizing machine and 5,344 yards of power-sized warps valued at Rs. 2,060-5-0 were introduced through the medium of the several parties.

75. *Textile Institute*.—The Textile Institute continued its career of usefulness throughout the year. The men turned out by the Institute have found no difficulty in securing suitable work. A number of part-time weaving schools intended for the benefit of weavers' children were provided during the year with properly trained teachers from the Textile Institute. Although instruction is given free, the majority of the weavers are found unwilling to send their adult sons to the Institute for full-time training at their own cost and Government have accordingly been pleased to provide 12 scholarships of the value of Rs. 20 per mensem, tenable in the Institute by selected pupils. The Institute proper continued to be located in rented premises in Mukernallamuthu Street, Georgetown, while the warp preparation section remained at Washermanpet. The following is a brief account of the working of the different sections of the Institute during the year :—

(a) *Technical Training*.—There were 49 students on the rolls at the beginning of the year, 16 undergoing training in the Supervisors' course, and 33 in the Artisan course. As a majority of the students in the present Artisan's course of six months were found, when examined, to be deficient in practical work, it is proposed to extend the course to a period of one year.

Manufacture and Distribution of Appliances.—Orders for improved appliances are transferred to local contractors who are

however required to despatch the appliances only after inspection by the Institute staff.

Research and Experiment.—An automatic beaming arrangement was devised which enables the hand-sizing machine to be worked by one person instead of two. A specially designed fly shuttle loom suitable for weaving jute and a complicated device for preparing jute warps for this improved loom was made and supplied to the Vizagapatam Jail.

Warp Preparation Section.—The additional steam chests ordered from England for the power-dresser sizing machine arrived only in November 1926 and although there was some difficulty and delay in fitting up the additional steam chests, 5,880 yards of sized yarn were produced during the year of which 5,530 yards were sold.

The plant has demonstrated to the weaver the economy of using power-sized warps. In sanctioning the purchase of the power-dresser sizing plant, Government recognized that the success of the scheme depended upon co-operative effort and it was their intention to ultimately hand over the plant to some co-operative organization. No such organization has so far come forward to adopt the plant, although the department has successfully demonstrated its capacity to save the time of the weaver. Every endeavour is being made to promote the formation of weavers' co-operative societies in the districts, but there are practical difficulties in the way and I fear it would take some considerable time for the necessary organization to come into being.

76. The general adoption of the fly shuttle slay has not in itself improved the economic condition of the weaver to any very great extent, but the fly shuttle slay in combination with a long sized warp wound suitably on a beam and prepared on a dresser sizing machine yields very satisfactory results and should, provided the hand-loom weaving industry is properly organized, enable it to hold its own against the competition of power mills. The success or failure of the experiment to accustom the weaver to the use of power-sized warps will depend in the long run upon whether it is found possible to organize a sufficient number of co-operative societies to set up power-dresser sizing machines, distribute the sized warps to the members and arrange for the disposal of the cloths turned out by them. An experienced officer of the Inspector's grade in the Co-operative Department was attached to the Department of Industries for the purpose of organizing new and reorganizing the existing co-operative societies with the object of getting them to work co-operatively on the lines the department advocates. The Special Officer entered upon his duties on 10th May 1926 and concentrated his attention on the distribution of sized warps among the existing co-operative societies

and investigating the possibilities of starting new societies. The success of his efforts can be gauged only from the annual reports of the working of these societies that will become available after the close of the year. It must however be borne in mind that the task of ameliorating the condition of the weaver is an uphill one and requires unremitting attention if any results worth the name are to be achieved.

77. The question of the establishment of more weaving schools in the Presidency received consideration during the year. The experience of the department however showed conclusively that the best way of convincing the adult weavers of the efficiency of any new methods or appliances was by demonstrating to them their advantages at their very doors. The weaver is not a person who travels far from his native village or town and is not very receptive of new ideas, and any attempt to improve his lot must be made in his own place. Full-time weaving schools cannot by the very nature of their organization serve the same purpose as the P.W. Party which moves from village to village and from town to town in a district and concentrates on the improvement of the methods in force with reference to the special needs of the locality. What is chiefly wanted is the demonstration of improved methods and appliances and so long as the P.W. Parties are engaged on such instructional work, they are in effect moving schools which provide training for both the adult and junior weavers in their own homes. The force of the argument that the instruction of members of the weaving community can best be carried on in their own homes will be evident from the fact that the P.W. Parties started in this Province many years ago have since been copied by nearly all the other Provinces as affording the best possible way of tackling the problem. While the adult weavers are thus instructed by the P.W. Parties, the needs of the children of the weavers are attended to by the various full-time industrial schools, aided by this department and the vocational schools started by the Department of Public Instruction. There are 15 aided industrial schools under the supervision of this department affording a reasonably complete form of instruction in weaving, whilst the vocational schools started under the auspices of the Department of Public Instruction and certain local bodies provide elementary training for the children of the weavers. There is probably scope for a further extension of the activities of these institutions, but it would be better, at any rate for the present, to concentrate on the development and extension of the Textile Institute, Madras, into a model institution of its kind, before attempting to reproduce it in other parts of the Presidency.

78. As a civil officer acting as a Public Works Disburser, the Industrial Engineer in collaboration with the Textile Expert, was

entrusted with the purchase and installation of a woollen spinning plant and a willow machine at the Central Jail, Bellary. The sanctioned estimate for the work is Rs. 17,680 and up to the end of the 31st March 1927 a sum of Rs. 14,340 was spent. The entire sum provided in the budget for the purpose could not be utilized during the year under report, owing to the late receipt of orders sanctioning a revised estimate providing for the purchase of an oil-engine to generate power and a willow machine. The work has, however, since been completed and the plant handed over to the Superintendent of the jail in working condition.

SERICULTURE.

79. Sericulture offers considerable scope for development as a cottage industry in several rural areas of the Presidency and since the close of the year the scope of the Sericultural Assistant's duties has been widened so as to permit of his touring periodically in the districts with a view to supervising more closely the work of the practical sericulturists and stimulating mulberry cultivation and the departmental sericultural operations generally.

80. *Coonoor Silk Farm.*—It was mentioned in last year's report that owing to a white powdery fungus which affected the mulberry leaves, the work of the Coonoor farm was considerably retarded. After the pruning and spraying operations conducted in October 1925, there was no recrudescence of the disease till the middle of May 1926, and two rearings were completed. The disease however reappeared in a mild form about the second week of May 1926, and five rearings conducted were only partially successful. As advised by the Government Mycologist, the processes of pruning and spraying with a mixture of sulphur and lime were continued under the supervision of two Assistant Mycologists in November and December 1926 and the plants began to yield disease-free leaves from February 1927 and the disease had not reappeared up to the close of the year.

Since the close of the year, however, the disease has recrudesced in a violent form and as the Mycologists' efforts to eradicate it have proved ineffective, the original proposal to construct a permanent rearing house on the plateau has been kept in abeyance and the advisability of closing the Coonoor farm altogether and opening one at Hosur is being considered.

16,245 layings of disease-free seeds were supplied to Kollegal rearers and to a few others in other parts of the Presidency. The work of hybridisation was successfully continued.

81. *Peripatetic Silk Rearing Party.*—The party continued to operate chiefly in Kamakarai village of the Kollegal taluk, where the rearers are gradually taking more and more interest in having their seeds tested with the departmental microscopes.

The party tested 18,534 moths belonging to various rearers of Kamakarai and 13,270 moths in the surrounding villages of Singanallur, Mangalam, Doddindwadi, Budabal and Anapuram. Nearly 8 per cent of the moths tested were rejected as being affected with pebrine. The party also helped the rearers in obtaining and distributing tested seeds as far as it was possible to obtain these from the Government Silk Farm, Coonoor. The working of an Italian domestic reeling machine was demonstrated at Kamakarai for the benefit of the reelers, as the production of raw silk of a better quality commanding a better price requires the establishment of silk filatures of a modern type in compact cocoon-producing areas.

82. *District Sericultural Work.*—Owing to the failure of the monsoon, the area under mulberry cultivation did not increase. But considerable propaganda work was done in several places in the Nilgiris district, in Ramanathapuram in Coimbatore district, in Yercaud and in Pullampet in the Cuddapah district. A practical Sericulturist has been posted to the Tinnevely district to conduct a preliminary survey of suitable places in that area.

INDUSTRIAL ENGINEERING.

83. The work of this branch consists mainly of the erection of new installations, the maintenance of pumping installations 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 application for loans under the State Aid to Industries Act and the Agriculturists' Loans Act.

84. *Staff.*—Mr. L. S. Pinto held the appointment of Industrial Engineer throughout the year. M.R.Ry. P. K. S. Ramanujam Pillai and M.R.Ry. S. Rajagopal Nayudu were in charge of the Tanjore and Coimbatore divisions respectively throughout the year. M.R.Ry. A. V. Varadaraja Mudaliyar was in charge of the Bezwada division except for the period from 2nd April 1926 to 26th October 1926 when he was on leave and M.R.Ry. K. G. Menon, Supervisor, first grade, acted for him. M.R.Ry. N. Ayyakannu Achari continued to be the Headquarters Assistant Industrial Engineer and was in charge of the departmental engineering workshops throughout the year, except for the short period from 30th November 1926 to 21st December 1926 when he was on leave and M.R.Ry. K. Govinda Menon acted for him.

85. The following table shows the territorial jurisdiction of the executive staff as it stood on the 31st March 1927 :—

District comprising the division.	Name of sub-division in charge of supervisor.	Headquarters of subdivision.	Supervisors.	Mechanics.	Boring maistris.	Apprentice maistris.	Surveyors.	Remarks.
Industrial Engineering Workshop.	Madras ..	Madras ..	3	..	..	..	..	..
Drawing Branch ..	Do. ..	Do. ..	..	1	..	..	..	..
<i>Tanjore Division.</i>								
South Arcot	Cuddalore ..	Cuddalore ..	1	3	9	..	..	..
Tanjore	Tanjore ..	Tanjore ..	1	3	4	2	..	..
Trichinopoly and Madura.	Trichinopoly ..	Trichinopoly ..	1	2	2	..	..	..
Ramnad and Tinnevely ..	Tinnevely ..	Tinnevely ..	1	1	5	1	1	..
<i>Coimbatore Division.</i>								
Malabar, South Kanara and Anjengo.	Calicut ..	Calicut ..	..	2	4	..	..	..
Coimbatore, Nilgiris and Salem.	Coimbatore ..	Coimbatore ..	2	5	6	2	1	..
North Arcot and Chittoor.	Vellore ..	Vellore ..	1	2	6	..	..	..
<i>Bezwada Division.</i>								
Ganjam, Vizagapatam and Godavari (East).	Vizagapatam ..	Vizagapatam ..	1	4	14	1	..	..
Kistna and West Godavari.	Fezwada ..	Bezwada ..	1	1	9	1	..	..
Guntur and Nellore ..	Nellore ..	Nellore ..	..	3	8	..	..	..
Bellary and Kurnool ..	Bellary ..	Bellary ..	1	1	4	..	..	..
Cuddapah and Anantapur.	Cuddapah ..	Cuddapah ..	1	2	4	1	..	..
<i>Madras Subdivision.</i>								
Madras and Chingleput (under the control of the Industrial Engineer).	Madras ..	Madras ..	1	2	28	5	..	..

86. *Information and Advice.*—General information and advice on engineering questions is given free provided no local inspection is involved. In cases where a local inspection is necessary, a fee of Rs. 15 is payable, 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. No fees are, however, levied for services rendered or supplies made to other departments of Government except to commercial departments or to Government

commercial undertakings. The following table shows the number of applications for investigation and advice received and disposed of during the year :—

Division.	Pending on 1st April 1926.	Received during the year.	Disposed of during the year.	Pending on 31st March 1927.
Tanjore	6	66	65	7
Coimbatore	19	33	40	12
Bezwada	2	44	42	4
Madras	4	19	17	6
Total	31	162	164	29

87. *New erections.*—The erection of machinery and plant continued to be undertaken for a nominal fee of $2\frac{1}{2}$ per cent on the capital cost of the machinery installed. The following table shows the number of plants erected during the year in the various divisions :—

Divisions.	Application pending on 1st April 1926.	Received during the year.	Erected during the year.	Pending on 31st March 1927.	Remarks.
Tanjore	4	21	23(a)	2	(a) 19 industrial and 4 pumping.
Coimbatore	..	26	26(b)	..	(b) 12 industrial, 12 pumping and 2 combined.
Bezwada	3	15	12(c)	6	(c) 6 industrial, 5 pumping and 1 combined.
Madras	..	8	7(d)	1	(d) 2 industrial, 4 pumping and 1 combined.

The capital invested in the above plants, including the cost of buildings connected with the scheme, amounts to Rs. 4,50,977-8-0, the largest and the smallest plant erected during the year in each of the divisions being as follows :—

Divisions.	Largest plant.	Smallest plant
Tanjore	60 h.p.	$3\frac{1}{2}$ h.p.
Coimbatore	60 "	10 "
Bezwada	25 "	10 "
Madras	20 "	10 "

The area brought or proposed to be brought under irrigation as a result of the pumping plants erected during the year was as follows :—

Division.	Area brought or to be brought under irrigation.
	ACS.
Tanjore	212
Coimbatore	344
Bezwada	68
Madras	73

88. *Compounding System.*—Under this system, for a fixed fee of Rs. 15 per annum, owners of private installations can have their plants inspected and overhauled three times a year and also at other times by special requisition, for which however extra fees are charged. The number of compounded plants working under the supervision of the department during the year increased to 454 from 414 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	113	39	35	187
Coimbatore	63	51	8	122
Bezwada	59	36	4	99
Madras	11	30	5	46
Total	246	156	52	454

The largest and the smallest plant compounded in each division was as follows :—

Name of the division	Largest size of plant.	Smallest size of plant.
Tanjore	150 h.p.	3 h.p.
Coimbatore	124 "	3 "
Bezwada	105 "	$1\frac{1}{4}$ "
Madras	53 "	$2\frac{1}{2}$ "

The total approximate h.p. of engines compounded during the year in the various divisions is furnished below :—

Tanjore	3,701
Coimbatore	2,565
Bezwada	2,475
Madras	655
Total	9,396

89. *Loans sanctioned during the year.*—Loans under the Land, Improvement and the Agriculturists' Loans Acts are granted by Government on favourable conditions to ryots for the installation of pumping machinery. Nine loans of an aggregate amount of Rs. 47,000 were sanctioned during the year. The amount actually disbursed was Rs. 58,692-2-0, Rs. 44,628-13-0 relating to loans sanctioned during the year and the balance representing loans sanctioned but not disbursed during the previous year. Of the nine loans sanctioned during the year, five were in the Coimbatore division two in the Madras sub division and one each in the Bezvada and Tanjore divisions. The amounts disbursed in the three previous years were—

			RS.	A.	P.	
1923-24	..	..	74,000	0	0	11 applicants.
1924-25	..	..	97,500	0	0	25 „
1925-26	..	..	42,506	13	4	5 „

90. *Boring.*—During the year under review, the department maintained in operation nine power drills, including the three new drills recently purchased, and fifty-four hand drills. On account of the prevailing drought, the demand for boring sets was greater than in any previous year and proposals are now before Government for a large increase in the number of boring appliances.

The total depth bored during the year was 37,517 feet as against 27,087 feet in the previous year. The following table exhibits the territorial distribution of the applications received for hand and power boring, the number of feet bored in each division and other relevant particulars :—

Divisions.	Applications pending on 1st April 1926.	Applications received or registered during 1926-27.	Applications disposed during the year.	Pending disposal on 1st April 1927.	Total number of feet bored through.	Number of borings put down.	Number of successful borings.	Number of unsuccessful borings.
Tanjore	22	81	85	18	8,832	197	167	40
Coimbatore	17	90	78	29	4,570	158	104	54
Bezvada	57	216	193	80	20,140	313	251	62
Madras	8	63	58	13	3,975	100	72	28
Total	104	450	414	140	37,517	768	684	184

The deepest boring put down during the year was 530 feet 6 inches. In a boring put down to a depth of 258 feet at Vungutur in West Godavari district, an artesian spring was tapped. The water thrown up from the borehole gives a discharge of 120 gallons per minute at ground level and 50 gallons per minute at 14½ feet above ground level. A self-contained water-supply scheme, consisting of six boreholes fitted with pumps and pipes, was designed and installed for the Department of Fisheries at the Pearl Fishery Camp, Tuticorin. The total quantity of water supplied per day from these boreholes amounts to 80,000 gallons. To ensure the purity of the supply, the boreholes are completely covered and lined.

91. *Mapping of underground water-supplies.*—As stated in the report of the previous year, two surveyors have been employed since 1914 on the work of connecting the levels of boreholes put down by the department with mean sea-level. During the year under report, one of them was working in Tinnevely district and took levels for a distance of 171 miles and connected 71 borings with mean sea-level. The other surveyor was working in the Coimbatore district and he took levels for a distance of 266 miles and connected 56 borings. This surveyor was also deputed to take six special series of levels in connexion with the pumping schemes of (1) the Peelamedu union, (2) Mr. Sethurama Ayyar of Pollachi, (3) the Madras Forest College, Coimbatore, (4) Mr. Koodalur Brahmadathan Namboodripad and (5) Mr. Pattanikot Govinda Nayar, Kalladikod, and in connexion with certain irrigation schemes for the shrotriyamdars of Vandalur in Nellore district. These two surveyors have so far been able to connect the levels of 3,077 out of 6,744 boreholes put down by the department in the various districts of the Presidency. It is only in the Chingleput and Kistna districts that any appreciable progress has been made, but even in these districts many more borings will have to be put down before it would be possible to prepare a map of the underground water currents. The department cannot bore in any place unless an application is received and a fee is paid according to the prescribed rules. If the data obtained are to be of any practical value in locating the underground supplies, it will be necessary to have at least one borehole for every quarter of a square mile of area. It will thus be apparent that, at the present rate of progress, many more years must elapse before a sufficient number of boreholes are put down to enable the preparation of a map for the whole Presidency. To put down borings at Government cost at the rate of one for every quarter of a square mile throughout the Presidency would involve enormous expenditure, for which there would be no justification unless it is known for certain that such a survey is likely to be really effective in locating underground currents. This subject came up for discussion at the recent Collectors'

Conference and it has been decided that as an experiment an intensive survey of underground water should be made in a firka or smaller area of some district liable to drought, advantage being taken, if possible, of the services of a practical water diviner to minimise the number of unsuccessful borings.

92. *Pumping Sets.*—The department maintains a number of pumping plants 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 for the purpose of (1) demonstrating to the ryots the advantage of lifting water by mechanical power and (2) watering crops to save them from withering pending the repair of an existing installation. The second type of plant is used in connexion with the construction and sinking of wells. The twelve pumping sets indented for were fitted on trolleys and sent out for work during the year. The following table shows the number of applications for pumping sets registered and disposed of during the year :—

Division.	Number of applications pending on 1st April 1926.	Number of applications registered during the year.	Number disposed of during the year.	Number pending on 1st April 1927.
Tanjore	2	24	24	2
Coimbatore	2	21	18	5
Bezwada	2	23	22	3
Madras	3	27	27	3
Total	9	95	91	13

93. *Blasting.*—The torpedoing sets possessed by the department are used for blasting boreholes in rocky strata with the object of exposing water sources in the fissures caused by the explosion. Torpedoing is resorted to only 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 1926.	Registered during the year.	Disposed of during the year.	Number pending on 1st April 1927.
Tanjore	2	4	3	3
Coimbatore	4	6	9	1
Bezwada	..	1	..	1
Madras	..	..	..	..
	6	11	12	5

94. When giving evidence before the Agricultural Commission, I had expressed my opinion that the existing scale of fees stood in the way of an extended use of the power drills and pumps of the department and that a reduction in fees was desirable. Government accordingly directed an examination of the scale with due regard to the variations made since 1909 and the effect they had on the demand for machinery, as well as to the possibility of any loss in income consequent on a reduction in the rates being made up by an increased demand for the machinery in use. The matter was examined in detail and as a result, proposals have been submitted to Government for reduction in the rates of fees charged at present and the orders of Government are awaited.

95. *Industrial Engineering Workshops.*—In the departmental workshops, the machinery employed by the department is maintained and repaired, whilst repair work is also executed for private installation owners and other Government and quasi Government departments. Experimental work is also conducted and tests are carried out of new departmental plants manufactured or repaired at the workshops and also of pumping plants sent by local agents of manufacturers. During the year the following pumping plants sent by local agents of manufacturers were tested in order to determine their efficiency under local working conditions :—

1. Tunham oil engines.
2. McDowell's kerosene pumping plant.
3. National pumping plant.

The workshops also serve as a training ground for boring maistris, drivers and mechanics.

96. During the year under review the workshops turned out work to the value of Rs. 1,09,260-8-11 as against Rs. 88,499-9-5 in the previous year and the operations yielded a net profit of Rupees 7,723-3-7. The number of work orders executed during the year was 512. The following table exhibits the number of jobs undertaken and executed for each department :—

Serial number and details of work done.	Number of jobs.	Amount.		
		RS.	A.	P.
1. Pumping and boring	306	79,385	12	5
2. Inter-departments	42	1,167	12	3
3. Other departments	11	1,517	0	10
4. Private parties	128	22,864	4	8
5. Workshop maintenance	25	4,325	10	9
Total	512	1,09,260	8	11

97. *Receipts and Charges.*—The total receipts of the Engineering section of the department, exclusive of fees for services rendered and work done for other departments, amounted to Rs. 80,441 against Rs. 63,590 while the charges amounted to Rs. 2,71,081 against Rs. 2,22,116. The increase in expenditure is due to the adjustment during the year of an expenditure of about Rs. 11,000 incurred in 1925-26 and also to the employment of additional staff of drillers and boring maistris. The following statement shows the value of services rendered to other departments of Government during the year :—

Division.						Value of services rendered.		
						RS.	A.	P.
Tanjore	..	..	..	..	..	2,305	0	0
Coimbatore	..	..	..	..	..	1,669	0	0
Bezwada	..	..	..	..	..	1,905	8	0
Madras	..	..	..	..	..	562	8	0

INDUSTRIAL EDUCATION.

98. *General.*—Mr. W. Fyfe continued as Inspector of Industrial Schools throughout the year. In addition to inspecting the aided industrial schools, the Madura Industrial Institute and the industrial classes in the Reformatory at Chingleput, he visited during the course of his tours several of the principal jails in the Presidency and at the request of the Agent to the Governor-General, Madras States, he paid a special visit to Banganapalle to advise the Durbar on matters appertaining to industrial education in the State. He 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.

99. *State Technical Scholarships.*—The two vacant State Technical Scholarships referred to in the last year's report were awarded for a period of two years in each case to Messrs. K. Tyagaraja Pillai and A. R. Ethiraja for the study of Hydro-electrical Engineering and Heavy Traction and the Manufacture of Sugar, respectively. These candidates appeared to be well qualified for the study of their respective subjects. The former had after graduation in Physical Science undergone a three years' course in the Electrical Technology Department of the Indian Institute of Science, Bangalore, while the latter had taken the B.Sc. degree of the National University, Adyar, and undergone a course of training extending over two years in the General and Organic Chemistry Department of the Indian Institute of Science, Bangalore.

An additional scholarship was also awarded during the year to Mr. T. R. Seshadri for a period of two years for the study of Chemistry and Manufacture of Drugs. He had passed the M.A. degree

examination with Chemistry as optional subject and had done research work for three years under the Madras University and published several papers. He proposed to do advanced post-graduate research leading to the Ph.D. degree in Chemistry in Manchester University and to attend the School of Pharmacy attached to that University.

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.	K. Venkataraman ..	Textile Chemistry with particular reference to bleaching and finishing cotton and silk fabrics.
2.	V. Subrahmanyam ..	Manufacture of standard food products.
3.	S. Raja ..	Practice and Chemistry of Leather Manufacture.
4.	C. K. Menon ..	Electro-metallurgy, i.e., electro-plating, electro-refining, etc.
5.	A. R. Sahasranam ..	Dyeing and Colour Chemistry.
6.	P. T. Koman Nayar ..	Saw Milling.
7.	K. Tyagaraja Pillai ..	Hydro-electrical Engineering and Heavy Traction.
8.	A. R. Ethiraja ..	Manufacture of Sugar.
9.	T. R. Seshadri ..	Chemistry and Manufacture of Drugs.

The scholarship of No. 1 which was extended up to September 1926 was further extended on the recommendation of the High Commissioner for India for a fourth year of study. Similarly the scholarships of Nos. 2, 3 and 4 which expired during the year were all extended for a third year of study in each case.

Shortly after the close of the year, Government reconstituted the Board for the selection of scholars. The reconstituted Board will function for three years from 1st April 1927.

The question of revising the rules governing the award of these scholarships with a view to bringing them more up to date was taken up during the year, and a draft set of rules was submitted to Government for consideration and approval in consultation with the High Commissioner for India.

100. *Post-graduate Scholarships.*—Five new scholarships tenable at the Indian Institute of Science, Bangalore, were awarded during the year. Though there were in the Institute the full complement of fourteen scholars at the commencement of the session in July, the number actually under training at the close of the year was only nine, the rest having relinquished their scholarships to take up suitable appointments. Of these nine, five were in the first, two in

the second and two in the third year of study. Although these scholarships are ordinarily granted to graduates of merit, an exception was made in the case of Mr. A. V. Ramaswami, one of the best candidates turned out by the Madras Trades School. The Professor of Electrical Technology at the Indian Institute of Science considered the preliminary training Mr. Ramaswami had received at the school sufficient to enable him to prosecute higher studies at the institute. He was accordingly granted a scholarship. He has since amply justified the selection and has been able to secure the post of Electrical Engineer to the Bellary Municipality on a starting salary of Rs. 300 per mensem. This is bound to have an encouraging effect on the other students attending the Madras Trades School.

The scholarship tenable at the Leather Trades Institute was awarded with the sanction of Government to C. T. Krishnaswami who had completed the course at the institute.

101. *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 Textile Manufacture. A sum of Rs. 3,800 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. The scholars sent in 1923 completed their course of study at the institute, two in Textile Manufacture, one in Technical and Applied Chemistry and one in Sanitary Engineering and Plumbing. The number of scholars undergoing training at the end of the year was fifteen distributed as follows:—

Department of Textile Manufacture	7
Do. Technical and Applied Chemistry	4
Do. Sanitary Engineering and Plumbing.	3
Do. Electrical Engineering	1
	—
	15
	--

102. *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 1926 to pupils learning a trade in the various recognized industrial schools and work classes. In accordance with the provisions of Chapter IX of the Code of Regulations for Industrial Schools, a bonus of Rs. 38 each was granted to those pupils who had satisfactorily completed their course of study during the year.

GOVERNMENT TRADES SCHOOL.

103. *Staff.*—Mr. N. M. Adyanthayya continued as Principal of the school. Messrs. A. C. Elder and T. K. Narayana Ayyangar were appointed as visiting lecturers in place of Messrs. H. Evans and W. J. Davis, respectively. In G.O. Mis. No. 1106, Development, dated 31st July 1926, the Principal was made the disbursing officer in respect of the Trades School and all accounts were consequently transferred to his office.

104. *Equipment.*—A portion of the mechanical equipment such as the steam engine, turbine, etc., to which reference was made in my last report has not yet been permanently installed for want of a separate building to house them. The construction of this building was sanctioned in February last and it is hoped that it will be completed during the current year.

105. *Admission and number on the rolls.*—The number of fresh admissions to the school was 242 of which 27 took the Mechanical Engineering course and 31 the Minor Electrical Engineering course. In order to restrict the strength of the Mechanical and Electrical classes to reasonable limits and to test the general educational qualifications of students, an entrance examination was introduced and those who failed to come up to the requisite standard were not admitted.

The school suffered somewhat during the year by the closing down of the Reliance Engineering Works, whose apprentices have been thrown out of employment. The total strength of the school on 31st March 1927 was 408.

106. *Examiners.*—The annual examinations were conducted by outside examiners, viz., Messrs. C. G. S. Caroline, Electrical Engineer, Madras Port Trust, M. K. Ranganatham, Superintendent, Public Works Department Workshops and Rao Sahib P. S. Krishnaswami Ayyar, Retired Executive Engineer, Development Trust, Bombay. At these examinations 60 students appeared and 55 passed. The Electric Wiring examination for the grant of competency certificates was conducted by Messrs. C. E. Cutting, Manager, General Electric Company, and C. V. Krishnaswami Chetti, Electrical Engineer, Corporation of Madras. At this examination, 46 candidates appeared and 30 passed. Out of the 30 candidates who passed and obtained competency certificates, 17 were from the school and 13 from outside.

The school was this year also a centre for the examinations of the City and Guilds of London Institute. Seventy-four candidates appeared for these examinations from all parts of the Presidency and 35 passed and were awarded certificates.

107. *Printing Class.*—The printing classes which were started last year in accordance with G.O. No. 1248, Development, dated 26th August 1925, were continued this year. The strength of these classes increased from 16 to 27. On the appointment of a new lecturer, the syllabus was recast to suit the general qualification of the students. These classes are becoming increasingly popular with the employees of printing establishments.

108. *Careers of Ex-students.*—The school helped as far as possible, to secure suitable appointments to several of its students. Out of 15 students who obtained full Technological Certificates in Mechanical and Electrical Engineering during the year, 12 have secured jobs; the whereabouts of the remaining are not known and it is presumed that they have obtained suitable jobs. The average salary of the posts secured by the twelve students works out at Rs. 93 per mensem.

109. *Exhibition.*—The school participated in the annual Park Fair Exhibition at which a working model of a typical hydro-electric power scheme, with a water turbine, dynamo and an electric railway, was actually constructed and demonstrated to the public. A model motor cycle engine constructed by the students was also exhibited.

110. *Perambur Railway School.*—The school attached to the Madras and Southern Mahratta Railway Workshops was continued as a branch of the Madras Government Trades School. The number of fresh admissions was 45. The total strength of the school on 31st March 1927 was 230. The annual examinations were conducted by railway officers at which 35 students appeared and 31 passed and were awarded certificates. It is gratifying to note that almost all the students who complete their course are absorbed by the railway and continue to work there. The vernacular courses intended for workmen continued to be popular. Further development in this line is not at present possible owing to restricted accommodation. It is expected that when the new Perambur Workshops extension scheme which has already been taken on hand, fully matures, increased accommodation will be available for further development of this branch school.

111. *Preparatory Trades School.*—The preparatory classes attached to this school were started on 18th October 1926 in accordance with G.O. No. 508, Development, dated 30th March 1926. The classes commenced with eight boys on the rolls but subsequently this number increased and on 31st March 1927 the average daily attendance was 27. At present, instruction is given partly in English and partly in the vernacular. The subjects taught are English, Arithmetic, Elementary Science, Drawing and Carpentry. For these subjects elementary text-books have been prescribed and are followed as far as possible.

MADURA INDUSTRIAL INSTITUTE.

112. *Staff.*—M.R.Ry. Rao Sahib C. S. Ramachandra Ayyar continued as Superintendent. During the year Government sanctioned two new posts of lecturer and Assistant Superintendent, Motor section. Mr. A. R. Duraiswami Ayyar, from the College of Engineering, Bangalore, was appointed lecturer and Mr. V. Venuswami Ayyangar as Assistant Superintendent, Motor section.

113. *Admissions.*—Thirty-seven pupils applied for admission to the probationary class and 24 were admitted. Of these 17 were admitted into the first-year class on the result of an examination held in December 1926. Another apprentice was admitted in March last into the first-year class without serving a probationary period as he appeared to be suitable for admission. The strength of the institute is now as follows:—

	Metal work.		Wood work.		Total.	
	1st April 1926.	12th May 1927.	1st April 1926.	12th May 1927.	1st April 1926.	12th May 1927.
Probationers	4	12	5	6	16	18
First year	11	10	5	5	20	15
Second year	9	11	4	4	13	15
Third year	11	8	4	3	15	11
Fourth year	9	10	3	3	12	13
Fifth year	..	..	..	..	15	8
Short course	..	..	..	..	..	..

The second batch of long-term apprentices, twelve in number, completed their five-year course in December 1926.

114. *Board of Visitors and Examiners.*—The Board of Visitors met twice during the year and discussed several important subjects concerning the institute. Apprentices were tested by the members of the Board of Examiners in December 1926 and eighty were found qualified for promotion. Three were not promoted.

115. *Workshop.*—The number of orders booked during the year was 839 of which 55 were carried over to the present financial year. As usual the volume of work available in the first-half of the year was comparatively small but in the second-half of the year the work was fairly evenly distributed, though in March there was the usual rush. Though it is somewhat premature to forecast the result of my appeal to several Government departments for larger orders, the prospect for future years seems more encouraging owing to the increasing interest taken by several Government officials in the southern districts and by the general public. Many members of the public and some Government officials seem to be under the

impression that the workshop attached to the institute is purely a cabinet-making concern. As it becomes known that facilities exist in these workshops for handling large Engineering jobs, the institute may reasonably be expected to considerably extend its sphere of usefulness to the public.

116. The following statement shows a fairly steady growth in the value of the output during the last six years :—

—	Government department.	Municipalities and District Boards.	Private firms and individuals.	Total.
	RS.	RS.	RS.	RS.
1921-22	8,450	4,000	13,650	26,100
1922-23	5,900	2,000	12,300	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	9,897	21,344	37,364
1926-27	3,788	16,466	22,048	42,302

In the year under report the entire output of the workshop amounted to about Rs. 42,500, of which about Rs. 11,000 represented orders for furniture. Orders for about a lakh of rupees in the metal work section and about Rs. 10,000 to 15,000 in the woodwork section are required every year to provide work for adequate instruction for the students.

The institute received orders from its former customers as well as from a number of new customers. The Municipal Council, Madura, the District Board of Ramnad, the General Hospital, Madura, the Meenakshi Mills, Madura, and the Rajas of Sivaganga and Ramnad contributed in no small measure to the output of the year.

The motor section was completely overhauled in deference to the observations of the Board of Visitors that the motor drivers trained at the institute should be of a reliable standard and that the certified drivers should be able to correctly note and remedy minor troubles of cars driven by them.

117. *Accounts.*—The accounts relating to the workshop of the institute were under the orders of Government brought under Chapter II of the Account Code with effect from 1st April 1925. The Director of Commercial Audit visited the institute last year and on his recommendations, the accounts relating to the instructional side of the institute was also brought under the same rules with effect from 1st April 1926 so that the institute and the workshop might work as a combined commercial undertaking. With a view to enable the combined undertaking to work on a self-supporting basis, an annual subsidy of Rs. 60,000 has been sanctioned.

118. *Equipment.*—A new oil-engine of 16 H.P. was installed during the year with a view to storing energy in electric accumulators in addition to driving the machinery of the workshop. A planing and thicknessing machine was ordered, but the Director-General of Stores was unable to arrange delivery during the year.

In the last quarter of the year the apprentices of the Institute had opportunities of attending a series of lectures on electric wiring delivered by the Electrical Engineer of the Madura Municipality. These lectures were supplementary to the ordinary work of the Institute and were attended by a few selected apprentices from each class. This will qualify them to undertake electric wiring work at Madura when the new electrical plant is put in commission.

The question of insuring the buildings of the Institute against fire was examined during the year and it was considered sufficient for the present to provide a large equipment of fire extinguishers.

LEATHER TRADES INSTITUTE.

119. *Staff.*—Mr. A. Guthrie, M.B.E., and M.R.Ry. P. K. Rajamanikkam Nayudu continued to hold the appointments of Principal and Vice-Principal, respectively, throughout the year. M.R.Ry. K. Seshachalam Nayudu, M.A., held the post of Leather Research Chemist throughout the period.

120. *Buildings.*—The new buildings were equipped with laboratory and electric fittings and water connexions and the research and students laboratories were shifted there.

121. *Number of Students on the Rolls.*—I have referred in the last year's report to the decline in recent years in the number of applications for admission to the Institute. There was no improvement in this direction during the year under review. The number of students on the rolls during the year was ten, only five new students having joined the Institution when the new session opened. Out of these five, four discontinued their studies so that by the end of the year there were only six students on the rolls. In addition to these there was one special student receiving instructions in tanning processes. A series of special lectures on Madras methods of tanning for professional tanners and others interested in the trade was delivered by the Principal in the Hall of the South Indian Hides and Skin Merchants Association and lectures in the vernacular for maistris on the methods and operations employed in modern tannery practice were delivered by the Vice-Principal at Pallavaram. The attendance at both the lecture classes was very satisfactory which indicates that these lectures meet a real need.

Past students.—Of the two students who left the Institute in March 1926, one has secured employment in a tannery at Cawnpore and the other is dealing in lizard skins in large quantities.

Examinations.—As there were only two students in the final year class, no outside examiner was engaged, but papers were set and valued by the Principal and his assistants. Three students of the Institute sat for the City and Guilds Examinations held in June 1926, of whom one obtained a first class and two a second class pass.

122. *Manufacturing Operations.*—The Institute undertook this year also the supply of russet and bark tanned sole leather to the boot department of the Vellore Central Jail. The receipts from the leather produced and sold during the year amounted to Rs. 14,306 and were the largest the Institute realized since its commencement.

123. *Analyses for the Trade.*—The facilities afforded by the Institute in the matter of carrying out analyses of various descriptions for tanners such as bark, leather, water, chrome, etc., are proving very popular, and likewise the analyses of skins and hides in which adulteration by excessive use of epsom salts and other dopes with the object of giving the hides or skins additional weight is suspected. Sixty-eight analyses were carried out during the year, of which 31 were of water, six of chromium salts, six of bark and 24 of leather.

124. *Chemical research.*—The Leather Research Chemist, Mr. Seshachalam Nayudu, was engaged in answering enquiries of a chemical nature addressed to the Director of Industries and on research work in connexion with the fermentation of Divi Divi liquor.

In G. O. No. 1394, Development, dated the 24th September 1926, Government desired that systematic tests on samples of myrabolams from different districts should be carried out in the Research Laboratory. Accordingly samples from different districts were obtained from the Forest Utilization Officer and the work on those samples is nearing completion.

125. *Publications.*—A bulletin entitled 'Wattle Bark, its use and cultivation in South India' and another bulletin entitled 'The retanning of Dhori hides for sole leather' were published during the year.

126. *Visitors.*—Mr. Briggs of Leicester, one of the biggest consumers of East India Tanned Kips, visited the Institute during the year and has remarked in the visitor's work that the Institute is the best of its kind in India.

Since the close of the year, the question whether in the present state of the leather trade and the marked decline in the number of

students under training there is any justification for the maintenance of the Institute on its present scale has been examined and a report submitted to Government on the future of the Institute.

SCHOOL OF ARTS AND CRAFTS.

127. *Staff.*—Mr. W. S. Hadaway and Rao Sahib N. R. Balakrishna Mudaliyar held the appointments of Superintendent and Assistant Superintendent, respectively, throughout the year except for the period from 1st July 1926 to 6th October 1926 when Mr. Hadaway was on leave and M.R.Ry. Rao Sahib N. R. Balakrishna Mudaliyar, Assistant Superintendent, acted for him attending at the same time to his own duties.

128. *Strength and attendance.*—The number of pupils on the rolls on the 31st March 1927 was 494, of whom 13 were females. The average attendance during the year was 281 and the average number on the rolls for the three previous years were—

Year.	Average number on the rolls.	Average attendance.
1923-24	337	240
1924-25	443	235
1925-26	494	265

It will be observed that the school again increased considerably in numbers during the year.

129. The percentage of artisans under training increased from 49 per cent in the previous year to 55 per cent during the year under review. This is very satisfactory as it indicates a greater appreciation by the artizan castes of the usefulness of the instruction imparted in the school. The work turned out in the various departments does not call for any special comment. Twelve students were awarded certificates during the year and all of them secured employment.

130. *Financial Statement.*—The expenditure for the year amounted to Rs. 60,409-9-6 as against Rs. 66,795 in the previous year. The receipts from sales showed an increase as compared with the previous year. The following statement shows the receipts from sales for the last three years:—

Year.	Receipts.		
	RS.	A.	P.
1924-25	6,480	3	0
1925-26	9,329	13	0
1926-27	9,880	11	6

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

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131. *Library and Museum.*—Thirty-four new books were added to the library during the year and 24 articles were added to the Museum. Steps were taken to advertise the existence of the Museum with a view to attracting visitors and increasing sales.

132. *Examinations.*—The results of the various Government Technical Examinations are compared below with those of the previous two years:—

Year.					Number appeared.	Number passed.	Percent- age.
1924-25	..	..	..	..	104	72	70
1925-26	..	..	..	..	85	60	70
1926-27	..	..	..	..	107	79	74

The number of candidates for the Government Technical Examinations considerably increased during the year and likewise the percentage of passes in the higher grade examinations which was 74 per cent against 50 per cent in the previous year.

133. *Board of Visitors.*—The school was visited during the year by only two of the official visitors appointed by Government.

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

- (1) The Holy Cross Convent Industrial School, Tuticorin.
- (2) The C.S.M. Industrial School, Dindigul.
- (3) The Y.M.C.A. Industrial School, Areakode.
- (4) The St. Aloysius' Supplementary Industrial Classes, Vizagapatam.
- (5) The Sree Krishna Parisaramalayam Industrial School, Cowtharam.
- (6) The Madras Penitentiary Carpentry Classes.
- (7) The Salvation Army Boys' Industrial School, Perambur.

The total number of schools recognized by the department on 31st March 1927 was 59, of which all except four were in receipt of grants-in-aid. At the close of the year there were 3,591 pupils under training, of whom 1,783 were Indian Christians, 735 Non-Brahman Hindus, 353 Muhammadans, 330 Depressed class pupils, 144 Brahmans, 87 Europeans and Anglo-Indians and 159 Criminal Tribes boys. A sum of Rs. 84,958 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 amount of Rs. 14,971 was distributed as half grants for the purchase of equipment. Rupees 58,885 was provided for building grants to some of these institutions.

In G.O. Mis. No. 1545, Development, dated 20th October 1925, Government sanctioned a sum of Rs. 4,000 as building grant for the erection of a weaving section in the Raja's Industrial School, Parlakimedi, but as the management closed this section the grant was not utilized.

135. A brief account of the institutions newly recognized during the year is given below.

(a) *Holy Cross Convent Industrial School, Tuticorin.*—This institution provides instruction in lace work, embroidery, drawn thread work, dress-making and needlework generally. There are on the average about 60 women and girls in attendance. They are paid wages for the work they do. The school also serves as a centre for a well organized cottage industry in the neighbourhood. It is maintained from Mission Funds assisted by a small Government grant.

(b) *C.S.M. Industrial School, Dindigul.*—The services of a specialist from Sweden have been secured with a view to start industrial education in the Mission area. It was originally proposed to start this school in Madura, but in consideration of the fact that Industrial Schools in the Presidency are not evenly distributed and that there are already three institutions providing facilities for industrial education in or near Madura, Dindigul was chosen for the location of the school. The school was recognized late in the year. Work has been commenced in two temporary buildings which are suitable for the present. A good start has been made in cabinet making with a well qualified teacher. The work in hand is well executed and accurate and the course of instruction adopted is that laid down in the departmental bulletin No. 17. Blacksmithy associated with lock-making is taught to a few boys. This work necessitates a good deal of accurate fitting and should provide a good practical training.

(c) *The Y.M.C.A. Industrial School, Areakode.*—This school was, as stated in the previous year's report, opened for the benefit of the Mappillas of the rebel area and provides instruction in weaving, rattan work and sericulture for such of the local Mappilla youths as care to take advantage of the training. The school was recognized under the provisions of the Code of Regulations for industrial schools with effect from 1st July 1926 as an institution fitted to impart instruction in weaving and rattan work. A separate class has since been added in cabinet-making.

(d) *The St. Aloysius' Supplementary Industrial Classes, Vizagapatam,* are a set of evening continuation classes in Mechanical and Engineering subjects for the benefit of the young workmen and apprentices employed in the local mechanical and motor engineering

workshops. Instruction is imparted in mathematics and mechanical engineering theory for the benefit of such of the apprentices as have the requisite general education to profit by the instruction and is at present limited to two hours a week for each of the two classes. The classes have with the sanction of Government been recently recognized and it is hoped that in course of time they will develop into a large school on the lines of the Madras Trades School.

(e) *The Sree Krishna Parisramalayam Industrial School at Cowtharam*, a village on the Bezwada-Masulipatam line, is a small Hindu school of cabinet-making managed by a young man who was trained at the Cabinet-making Teacher's Training section attached to the St. Joseph Industrial School, Tindivanam. He is assisted by another young man, the holder of a Secondary School-Leaving Certificate, who teaches literary subjects. The school is very popular in the locality. It is conducted in a shed which is suitable for the present.

(f) *The Madras Penitentiary Carpentry classes* provide training in cabinet-making in a five years' course for about 40 selected long term convicts, who will eventually be distributed among other jails of the Presidency to serve as instructors or workmen in the cabinet-making shops attached thereto. These classes have made a very good start under a competent staff which consists of one head instructor and three assistant instructors. On the request of the Inspector-General of Prisons, the classes have been recognized under the Code of Regulations for Industrial Schools for purposes of inspection by the Inspector of Industrial Schools in order to enable the latter to be in close touch with the instruction imparted and to offer advice whenever necessary.

(g) *The Salvation Army Boys' Industrial School, Perambur*, is a school for boys of criminal tribes. It is managed on behalf of Government in the Labour Department by the Salvation Army and provides instruction in wood-working, rattan work and tailoring. The school is worked on half time lines, the boys spending half the day in practical work and half the day in literary study. The practical work section is inspected by the Inspector of Industrial Schools and the school is recognized for inspection and issue of industrial school-leaving certificates under Article 17 of the Code of Regulations for Industrial Schools.

136. *P. S. G. & Sons' proposed Charity Industrial Institute, Peelamedu*.—Messrs. P. S. G. & Sons, Bankers, Mill-owners and landholders of the abovementioned village, which is about three miles from Coimbatore, have made a charitable endowment of Rs. 2 lakhs for the establishment of an industrial institute in the village, having already donated about half a lakh of rupees for the establishment in the same place of a high school conducted under their

management. The site selected for the location of the Industrial Institute is opposite that of the high school on the Coimbatore-Madras Road. It is situated within easy reach of the various mills and ginning factories in the neighbourhood and the foundation stone was laid in June 1926 by Sir T. Vijayaraghava Acharya. It is proposed ultimately to provide instruction in the Institute in the undermentioned subjects :—

- (1) Mechanical Engineering.
- (2) Carpentry and Cabinet-making.
- (3) Textile manufacture.
- (4) Tailoring and Shoe-making.
- (5) Electric wiring.
- (6) Printing.

It is the intention of the promoters of the scheme to construct the Institute in sections and to begin with the construction of a Mechanical Engineering section and complete the scheme gradually in a period of about five years. They have already drawn up the necessary plans and estimates in consultation with the officers of this department and the documents have since been approved by the Public Works Department. The total cost of construction is estimated at Rs. 2,48,500 and the work is proposed to be spread over a period of about five years. The promoters have approached the department for a suitable grant-in-aid and the whole scheme has been placed before Government for orders which are awaited.

137. The Committee on Industrial and Technical Education, which was appointed in 1922, in paragraphs 19-27 of their report, recommended that the Government Establishment of Government Schools.

should, as funds permit, set up a number of model industrial institutions where aided institutions are few and far between, and suggested that three model schools should be started as early as possible, one in the Ceded districts, one in the Northern Circars and one on the West Coast. The Government agreed with the Committee, but were unwilling to commit themselves to any large expenditure on these schools until experimental work on a small scale had shown that these were likely to satisfy a real need and to be popular among the people for whose benefit they were intended. They accordingly called for definite proposals for opening a trial school in the Northern Circars.

In the meantime the Brothers of St. Gabriel proposed to establish an industrial school on the outskirts of Bezwada on the lines of the one now successfully managed by them at Tindivanam and, in view of this proposal, it was suggested that the proposal to start a

Government Industrial School in the Northern Circars be deferred till it was known whether the school proposed to be established by the St. Gabriel Fraternity could not meet adequately the requirements of that part of the Presidency.

Government accepted this suggestion but considered that the question of establishing a school in some other suitable centre in the Presidency should be taken up, and accordingly called for proposals for the establishment of a school on the West Coast. This question as well as that of the establishment of an Industrial School for Ceded districts were under investigation at the close of the year.

138. The receipts and expenditure of the department during the years 1925-26 and 1926-27 are compared below. Details are given in Appendix III :—

Item.	1925-26.	1926-27.	Difference.	
	RS.	RS.	RS.	
Expenditure ..	10,53,819	10,90,167	36,348	Increase.
Receipts	1,33,315	1,04,704	28,611	Decrease.
Net cost	9,20,504	9,85,463	64,959	Increase.

There was an increase in expenditure and a decrease in receipts and a consequent increase in the net cost of the department. The decrease in receipts is mainly due to the sale of the sugarcane-crushing plant at Pallapalayam, the commercialisation from 1st April 1926 of the instructional side of the Government Industrial Institute, Madura, and the closure of the Fruit Preserving Institute, Coonoor. The increase in expenditure was chiefly under (ii) District Engineering, (iii) Grants-in-aid, (v) Government Industrial Institute, Madura and (vi) Madras Trades School. Although the Fruit Preserving Institute, Coonoor, was closed from 1st April 1926, some expenditure was incurred in connexion with the disposal of the machinery and unsold products of the institute.

139. *Programme of Work for 1927-28.*—The following items of special work are proposed to be undertaken during 1927-28 subject to Government sanction, where necessary :—

Industrial Engineering.—(i) Manufacture of 30 handboring sets and the training of men to operate them.

(ii) Trials with a compressed air drill for deepening wells in rocky strata with a view to determining its suitability to local needs and conditions and the training of men to work it.

(iii) Carrying out an experimental survey of the subsoil water over an extent of about 100 sq. miles in the Bellary taluk.

(iv) Experiments with oil expellers with a view to determining their capacity and efficiency under local conditions and their suitability for the different kinds of oil seeds grown in the Presidency.

(v) Design, manufacture and testing of a wooden chekku or country oil mill to be driven by power.

(vi) Experiments with decorticators with a view to evolving machines that will minimise the breakage of kernels.

(vii) Design and manufacture of a cheap hot air drying arrangements with a wooden hand sizing machine.

(viii) Demonstration of the efficiency and economy of power crushing of sugarcane in Bellary district and other sugarcane growing areas.

Textile Section.—Erection of a silk throwing plant and introduction of a wool spinning plant similar to the one in the Bellary Central Jail.

Industrial Education.—(i) Establishment of industrial schools at Calicut, Mangalore and Bellary.

(ii) Starting of third year printing classes and the second year course in the Preparatory Trades School.

(iii) Institution of a series of lectures and demonstration in Oxo Acetelene welding.

Commercial concerns—Kerala Soap Institute, Calicut.—(i) Experimental work on perfume yielding materials and other substances useful in soap manufacture ;

(ii) Refining of oils and fats ;

(iii) Hydrogenation of oils and fats ;

(iv) Preparation of rosin and turpentine, manufacture of boot polishes and cream ; paints and varnishes, lubricating oils and greases, insecticides, fungicides and weed killers.

Government Industrial Institute, Madras.—(i) Experiments with a view to improving the different kinds of inks, ink powders and tablets at present manufactured and to evolving a coloured ink of a durable character required for Government departments.

(ii) Experiments on carbon paper, marking inks and book ink.

(iii) Printing ink experiments.

Cottage industries.—Establishment of a central emporium for advertising the products of cottage industries.

APPENDIX I.

Statistics relating to Industrial Schools for 1926-27.

Statistics relating to Industrial Schools for 1926-27.																				
District.	Name of the institution.	Boys or girls.	Number on rolls on 31st March		Drawing.		Mechanical Engineering.				Civil Engineering.	Carpentry and cabinet-making and general work.	Metal work.	Weaving.		Needle crafts.			Agriculture and allied trades.	Oil-engine driving.
			1926.	1927.	Freehand Outline.	Technical.	Miller's work.	Blacksmith's work.	Other branches.	Carpet.				Lace-making.	Embroidery.	Other branches.				
																	(3)	(4)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
	GOVERNMENT INSTITUTIONS.																			
Madura	Government Industrial Institute, Madura.	Boys.	88	86								22	59							
Madras	Leather Trades Institute, Madras.	Do.	5	6																
Do.	School of Arts and Crafts, Madras.	Boys and girls.	494	494	12				6			167	18		2					
Do.	Government Trades School, Madras.	Boys.	705	638	93				83											
Do.	Government Textile Institute, Madras.	Do.	21	34																
	Total ..		1,313	1,258	105				89			189	77	34	2					
	AIDED INSTITUTIONS.																			
Coimbatore	St. Joseph's Industrial School, Coimbatore.	Boys.	130	150		32														
Madras	C.N.T. Institute, Vepery, Madras.	Do.	216	372	148	34			87		118									
Trichinopoly.	Wesleyan Mission Industrial School, Karur.	Do.	59	73				4			23		28							8
North Arcot ..	St. Joseph's Industrial School, Tindivanam.	Do.	76	77				2			42		18							

APPENDIX I—cont.

Statistics relating to Industrial Schools for 1926-27—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 and engineering.	Railway apprentices.	Engraving.	General education.	Scientific instrument-making.	Goldsmith's work.	Lacquer work.	Special printing.	Painting and allied trades.	Boot and shoe-making.	Electrical engineering.	Probationer's course.	Preparatory School course.
		(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)
Madura	GOVERNMENT INSTITUTIONS.																			
Madras	Government Industrial Institute, Madras.			5																
Do.	Leather Trades Institute, Madras.					6														
Do.	School of Arts and Crafts, Madras.									124										
Do.	Government Trades School, Madras.		21					157	230											
Do.	Government Textile Institute, Madras.																			
	Total ..		21	5		6		157	230	124			15	109	41	27				27
Coimbatore	AIDED INSTITUTIONS.																			
Madras	St. Joseph's Industrial School, Coimbatore.																			
Trichinopoly ..	C.N.T. Institute, Vepery, Madras.				16			18												
South Arcot ..	Wesleyan Mission Industrial School, Karur.	9																		
	St. Joseph's Industrial School, Tindivanam.																			

APPENDIX I—cont.
Statistics relating to Industrial Schools for 1926-27—cont.

District.	Name of the Institution.	Boys or girls.	Number on rolls on 31st March.		Draw- ing.	Mechanical engi- neering.			(11) (11)	(12) (12)	(13) (13)	(14) (14)	Weav- ing.		Needle crafts.			(21) (21)
			1926.	1927.	(6) (6)	(7) (7)	(8) (8)	(9) (9)					(15) (15)	(16) (16)	(17) (17)	(18) (18)	(19) (19)	
Madras	Aided Institutions—cont.																	
North Arcot	The Anjuman Industrial School, Madras.	..	86	90	..	..	..	..	..	..	77	..	..	..	..	..	..	..
Trichinopoly	A.A.M. Industrial School, Karpadi.	..	109	127	..	..	20	..	..	..	107	..	13	..	..	..	..	..
Tanjore	St. Joseph's Industrial School, Trichinopoly.	..	35	52	..	..	15	..	3	..	34	..	..	..	..	..	..	..
Tinnevely	St. Francis Xavier's Indus- trial School, Tanjore.	..	70	81	..	..	..	..	..	..	33	..	..	..	..	..	..	..
Vizagapatam	S.P.G. Art Industrial School, Nazareth.	..	95	94	..	..	..	..	..	..	69	..	..	..	..	..	..	..
Kurnool	St. Aloysius Industrial School, Vizagapatam.	..	20	24	..	..	..	5	..	..	..	20	..	..	..	..	..	..
Trichinopoly	Coles Vocational Middle School, Kurnool.	..	53	60	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tanjore	All Saints Industrial School, Puthur.	..	26	34	..	..	..	..	..	..	25	7	..	..	..	..	28	..
North Arcot	St. Mary's Industrial School, Kumbakonam.	..	60	74	..	4	..	..	1	..	34	..	..	..	..	..	..	..
Chingleput	The Anjuman Industrial School, Vellore.	..	47	54	..	..	..	..	..	69	..	..	..	..	..	..	..	..
South Arcot	U.F.C.M. Agricultural School, Chingleput.	..	49	48	..	..	..	..	..	54	..	..	..	..	..	..	..	..
	Danish Mission Industrial School, Panruti.	..	104	82	..	..	..	..	..	..	40	42	..	..	..	..	48	..

APPENDIX I—cont.
Statistics relating to Industrial Schools for 1926-27—cont.

District.	Name of the Institution.	(22) (22)	(23) (23)	(24) (24)	(25) (25)	(26) (26)	(27) (27)	(28) (28)	(29) (29)	(30) (30)	(31) (31)	(32) (32)	(33) (33)	(34) (34)	(35) (35)	(36) (36)	(37) (37)	(38) (38)	(39) (39)	(40) (40)
Madras	Aided Institutions—cont.																			
North Arcot	The Anjuman Industrial School, Madras.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Trichinopoly	A.A.M. Industrial School, Katpadi.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tanjore	St. Joseph's Industrial School, Trichinopoly.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tinnevely	St. Francis Xavier's Industrial School, Tanjore.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Vizagapatam	S.P.G. Art Industrial School, Nazareth.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Kurnool	St. Aloysius Industrial School, Vizagapatam.	..	..	24	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Trichinopoly	Cole's Vocational Middle School, Kurnool.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tanjore	All Saints Industrial School, Puthur.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
North Arcot	St. Mary's Industrial School, Kumbakonam.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Chingleput	The Anjuman Industrial School, Vellore.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
South Arcot	U.F.C.M. Agricultural School, Chingleput.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	D.M. Industrial School, Panruti.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

Statistics relating to Industrial Schools for 1926-27—cont.

District.	Name of the Institution.	Boys or girls.	Number on rolls on 31st March		Draw- ing.		Mechanical engi- neering.			(11)	(12)	(13)	(14)	Weav- ing.		Needle crafts.			(20)	(21)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
			1926.	1927.	Freehand Out- line.	Technical.	Filter's work.	Blacksmith's work.	Other bran- ches.					(10)	(9)	(8)	(7)	(6)			(5)	(4)	(3)	(2)	(1)	(15)	(16)	(17)	(18)	(19)	(20)	(21)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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APPENDIX I—cont.
Statistics relating to Industrial Schools for 1926-27—cont.

District.	Name of the institution.	Rattan work.		Plumbing and minor sanitary science.		Motor-car driving and repairs work.		Mat-making.		Basket-making.		Chemistry of leather manufacture.		Electric wiring and engineering.		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)	(41)	(42)	(43)	(44)	(45)	(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)		
	AIDED INSTITUTIONS -cont.																																						
Chingleput ..	A.A.M. Industrial School, Saidapet.	..	..	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
North Arcot ..	Anjuman Industrial School, Melvisharam.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Ganjam ..	Rajah's Industrial School, Parlakumedi.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Tinnevely ..	The Weaving Institute, Alwarthirunagari.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Madras ..	The Orr Assisted Industries School, Madras.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Tinnevely ..	The St. Joseph's Industrial School, Adakalapuram.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
South Kanara.	The Commonwealth Trust Engineer Works classes, Mangalore.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Madura ..	The Pasumalai Trades School, Pasumalai.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Bellary ..	The Board Panchama School, Yenniganur.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Tinnevely ..	C.M.S. Industrial School for Blind, Palacottah.	..	20	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Madras ..	Ramakrishna Students' Home Industrial School, Mylapore.	..	..	76	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	

APPENDIX I—cont.
Statistics relating to Industrial Schools for 1926-27—cont.

(1) District.	(2) Name of the institution.	(3) Boys or girls.	Number on rolls on 31st March		Drawing.		Mechanical engineering.			(11) (Civil engineering.	(12) (Draughtsman course.	Carpentry and cabinet-making and general work.		Metal work.		Weaving.		Needle crafts.			(20) (Agriculture and allied trades.	(21) (Oil-engine driving.
			1926.	1927.	Freehand Outline.	Technical.	Fitter's work.	Blacksmith's work.	Other branches.							Cotton.	Carpet.	Lace-making.	Embroidery.	Other branches.		
Madras	AIDED INSTITUTIONS—cont. Sri Rama Motor School, Madras.	Boys.	80	76	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Kistna	St. Joseph's Industrial School, Gunadala.	Do.	7	20	..	..	..	..	..	..	..	20	..	..	..	..	..	..	..	..	..	..
Tanjore	The Borsal School, Tanjore.	Do.	207	216	..	..	..	..	..	..	..	95	..	..	..	86	..	..	..	35	..	..
Godavari	C.B.M. Industrial School, Coanada.	Do.	18	33	..	..	..	..	..	..	..	28	..	..	..	..	..	..	..	..	..	..
Coimbatore	L.M.Wg. School, Erode.	Do.	52	73	..	..	..	..	..	..	..	43	..	..	..	73	..	..	..	..	..	..
Madras	Carpentry class, Madras Penitentiary.	Do.	Newly recognized.	43	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
K'etna	Sri Krishna Parissamalaiyam Industrial School, Cowtharam.	Do.	Do.	16	..	..	..	..	..	..	..	16	..	..	..	..	..	..	..	..	..	..
Malabar	Y.M.C.A. Industrial School, Areacode.	Do.	Do.	30	..	..	..	..	..	..	..	10	..	..	10	..	..	..	..	..	..	..
Madura	C.S.M. Industrial School, Dindigul.	Do.	Do.	17	..	..	..	3	..	..	..	14	..	..	..	..	..	..	..	..	..	..
Madras	The Salvation Army Boys' Industrial School, Perambur.	Do.	Do.	105	..	..	..	..	..	..	..	46	..	..	..	..	..	..	31	..	..	..
Vizagapatam..	St. Aloysius Supplementary Industrial classes, Vizagapatam.	Do.	Do.	24	..	..	..	..	24	..	..	..	..	..	..	..	..	..	..	..	..	..
	Total ..	..	1,946	2,499	..	148	110	18	131	..	..	1,234	..	406	13	..	..	..	..	66	76	13

• APPENDIX I—cont.
Statistics relating to Industrial Schools for 1926-27—cont.

District.	Name of the institution.	AIDED INSTITUTIONS—cont.																			
		(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	
Madras	Sri Rama Motor. School, Madras.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Kistna	St. Joseph's Industrial School, Gunadala.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Tanjore	The Borsal School, Tanjore.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Godavari	C.B.M. Industrial School, Cocanada.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Coimbatore	L.M.Wg. School, Erode.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Madras	Carpentry class, Madras Penitentiary.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Kistna	Sri Krishna Parissamalaiyam Industrial School, Cowtharam.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Malabar	Y.M.C.A. Industrial School, Areaacode.	10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Madura	C.S.M. Industrial School, Dindigul.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Madras	The Salvation Army Boys' Industrial School, Perambur.	28	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Vizagapatam.	St. Aloysius' Supplementary Industrial classes, Visagapatam.	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
	Total ..	67	..	112	16	..	..	18	..	..	..	..	..	..	..	..	..	..	..	43	

APPENDIX I—cont.
Statistics relating to Industrial Schools for 1926-27—cont.

District.	Name of the institution.	Boys or girls.	Number on rolls on 31st March		Draw- ing.		Mechanical engi- neering.			Civil engineering.	Draughtsman course.	(Arpentry and cabinet making and general work.	(14)	Weav- ing.		Needle crafts.			(20)	(21)
			1926.	1927.	Freehand out- line.	Technical.	(8) Fitter's work.	(9) Blacksmith's work.	(10) Other bran- ches.					(15) Cotton.	(16) Carpet.	(17) Lace-making.	(18) Embroidery.	(19) 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.	50	53												53				
Madras ..	C.S.M. Girls' Industrial School, Kilpank.	Do.	77	83												29	54			
South Arcot ..	D.M. Girls' Industrial School, Keelur.	Do.	45	42												17	25			
Trichinopoly ..	Wesleyan Mission Lace School, Karur.	Do.	1	23												23				
Madura ..	St. Joseph's Convent Indus- trial School, Madura.	Do.	94	103												78		25		
Tinnevely ..	S.P.G. Lace School, Idayan- gudi.	Do.	26	18												18				
Do. ..	S.P.G. Lace School, Kudan- gulam.	Do.	22	25												25				
Bellary ..	St. Joseph's Girls' Industrial School, Bellary.	Do.	69	71												15		93		
Tinnevely ..	R.C. Lace School, Vadukan- gulam.	Do.	90	84												84				
Do. ..	Hindu Girls' Lace School, Kudangulam.	Do.	29	29												29				
Do. ..	Holy Cross Convent Indus- trial School, Tuticorin.	Do.	Newly recog- nized.	64												64				

APPENDIX I—cont.
Statistics relating to Industrial Schools for 1926-27—cont.

District.	Name of the institution.	Rattan work.	Plumbing and minor sanitary science.	Motor-car driving and repairs work.	Mat-making.	Basket-making.	Chemistry of leather manufacture.	Electric wiring and engineering.	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.																			
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 Lace School, Karur.																			
Madura ..	St. Joseph's Convent Indus- trial School, Madura.																			
Tinnevely ..	S.P.G. Lace School, Idayan- gudi.																			
Do. ..	S.P.G. Lace School, Kudan- gulam.																			
Bellary ..	St. Joseph's Girls' Industrial School, Bellary.																			
Tinnevely ..	R.C. Lace School, Vadakan- gulam.																			
Do. ..	Hindu Girls' Lace School, Kadangulam.																			
Do. ..	Holy Cross Convent Indus- trial School, Tuticorin.																			

Statistics relating to Industrial Schools for 1926-27—*cont.*

STATISTICS RELATING TO INDUSTRIAL SCHOOLS FOR 1926-27.

District.	Name of the institution.	Boys or girls.	Number on rolls on 31st March		Draw- ing.		Mechanical engi- neering.			Civil engineering.	Druggistsman course.	Carpentry and cabinet work.	Metal work.	Weav- ing.		Needle crafts.				Agriculture and allied trades.	Oil-engine driving.
			1926.	1927.	Free hand out-line.	Technical.	Fitter's work.	Blacksmith's work.	Other bran-					Lace-making.	Embroidery.	Other bran-					
																	(4)	(5)	(6)		
	AIDED INSTITUTIONS—cont.																				
Anjengo ..	The Sacred Heart Con- vent Industrial School, Anjengo.	Girls.	21	21	..	..	..	..	..	..	..	..	..	..	..	..	21	..	..	..	..
Chingleput ..	Wesleyan Mission Industrial School, Ikikadu.	Do.	94	100	..	..	..	..	..	..	..	..	..	6	..	94	..	..	..	..	..
Malabar ..	The Commonwealth Embroi- dery School, Calicut.	Do.	67	68	..	..	..	..	..	..	..	..	..	..	..	68	..	..	..	..	..
Trichinopoly ..	Holy Cross Convent Indus- trial School, Trichinopoly.	Do.	66	70	..	..	..	..	..	..	..	..	..	..	..	..	..	36	..	..	..
Guntur ..	A.B.M. Girls' Industrial School, Ongole.	Do.	16	18	..	..	..	..	..	..	..	..	..	..	..	18	..	..	..	..	..
Tanjore ..	Leipzig Mission Women's Industrial School, Maya- varam.	Do.	54	32	..	..	..	..	..	..	..	27	..	..	..	..	..	..	..	..	..
Nellore ..	O.E.L.M. Girls' Industrial School, Gudur.	Do.	26	34	..	..	..	..	..	..	..	..	..	..	..	34	..	..	..	..	..
Chittoor ..	A.A.M. Industrial School, Palmaner.	Do.	36	42	..	..	..	..	..	..	..	..	..	..	..	19	23	..	..	..	..
Coimbatore ..	L.M. Girls' Industrial School, Erode.	Do.	49	47	..	..	..	..	..	..	..	13	..	..	..	..	..	..	..	..	..
Madras ..	Women's Home of Service, Mylapore.	Do.	50	65	..	..	..	..	..	..	..	15	..	..	..	..	..	..	..	..	..
	Total ..		997	1,092	..	..	..	..	..	..	..	55	..	6	..	687	140	115	..	..	..
	Grand Total ..		4,256	4,849	..	253	110	18	220	..	..	1,478	77	446	15	687	140	181	76	13	..

APPENDIX I—cont.

Statistics relating to Industrial Schools for 1926-27—*cont.*

[illegible]

APPENDIX II.

Statistics relating to Industrial Schools for 1926-27.

District and name of the institution.	Boys or girls.	Number on rolls on 31st March 1927.	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.				
GOVERNMENT INSTITUTIONS.											
Madura— Government Industrial Institute, Madura.	Boys.	86	..	..	..	..	..	ES. A. P.	ES. A. P.	ES. A. P.	ES. A. P.
Madras— Leather Trades Institute, Madras.	..	6	..	..	..	..	..	..	71,614 14 8	..	71,614 14 8
Madras— Government Trades School, (including Trades School branch).	..	638	..	..	..	..	..	..	58,300 0 2	..	58,300 0 2
Madras— School of Arts and Crafts.	Boys and Girls.	494	..	..	..	..	..	..	58,642 8 6	..	58,642 8 6
Government Textile Institute, Madras.	Boys.	34	..	..	..	..	..	..	59,250 8 6	..	59,250 8 6
Total ..	..	1,258	..	..	..	..	..	..	8,855 11 2	..	28,855 11 2
ANNE INSTITUTIONS.											
Coimbatore— St. Joseph's Industrial School, Coimbatore.	Boys.	150	83,423 8 2	219 8 0	3,200 0 0	1,500 0 0	500 0 0	..	2,76,663 11 0	..	2,76,663 11 0
Madras— C.N.T. Institute, Vepery, Madras.	Do.	372	11,179 4 7	10,009 12 0	9,000 0 0	..	1,500 0 0	..	4,500 0 0	93,343 0 2	14,311 14 646,000 15 1

Trichinopoly— Wesleyan Mission Industrial School, Karur.	Do.	73	4,165 1 3	..	3,414 0 0	1,000 0 0	..	..	1,000 0 0	9,609 1 3	..
South Arcot— St. Joseph's Industrial School, Tindivanam.	Do.	77	15,792 4 9	..	5,200 0 0	5,940 8 0	650 0 0	..	8,817 11 8	36,400 8 5	..
Madras— Anjuman-i-Ahla-i-Islam, Madras.	Do.	90	11,500 0 0	..	5,000 0 0	6,266 0 0	700 0 0	..	9,336 0 0	32,802 0 0	..
North Arcot— A.A.M. Industrial School, Katpadi.	Do.	127	2,22,263 13 0	..	4,200 0 0	..	993 0 0	..	7,555 1 0	2,35,011 14 0	..
Trichinopoly— St. Joseph's Industrial School, Trichinopoly.	Do.	52	48,067 15 5	..	1,500 0 0	2,000 0 0	1,000 0 0	..	10,004 3 5	62,572 2 10	..
Tanjore— St. Francis Xavier's Industrial School, Tanjore.	Do.	81	21,150 10 11	..	3,000 0 0	14,000 0 0	100 0 0	..	16,505 0 1	54,755 11 0	..
Tinnevely— S.P.G. Art Industrial School, Nazareth.	Do.	94	19,260 11 10	..	4,000 0 0	..	750 0 0	..	5,341 10 6	29,352 6 4	..
Vizagapatnam— St. Aloysius' Industrial School, Vizagapatnam.	Do.	24	75,100 0 0	..	3,000 0 0	..	..	..	..	78,100 0 0	..
Karnool— Coles' Vocational Middle School, Karnool.	Do.	60	7,000 0 0	218 0 0	3,000 0 0	2,000 0 0	..	..	17,500 0 0	29,718 0 0	..
Trichinopoly— All Saints' Industrial School, Puttur.	Do.	34	5,858 1 9	..	2,000 0 0	1,000 0 0	..	..	3,156 6 5	12,014 8 2	..
Tanjore— St. Mary's Industrial School, Kumbakonam.	Do.	74	24,117 4 8	..	3,250 0 0	..	600 0 0	..	3,420 0 0	31,387 4 8	..
North Arcot— Anjuman-i-Isha-a-Thal Husanath, Vellore.	Do.	54	2,691 0 6	..	1,700 0 0	..	650 0 0	..	2,448 1 6	7,489 2 0	..
Chingleput— U.F.C.M. Agricultural School, Melrosapuram.	Do.	48	2,488 2 5	..	1,000 0 0	455 0 0	..	..	3,614 14 9	7,568 1 2	..

APPENDIX II—cont.

Statistics relating to Industrial Schools for 1926-27—cont.

72

District and name of the Institution.	Boys or girls.	Number on rolls on 31st March 1927.	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.
ANDH INSTRUMENTS—cont.										
South Arcot— D.M. Industrial School, Pauruti.	Boys.	82	17,065 10 10	..	4,000 0 0	..	320 0 0	29,200 2 8	50,585 13 6	
Chingleput— A.A.M. Industrial School, Saidpet.	Do.	22	1,962 0 0	511 12 6	750 0 0	..	..	..	3,223 12 6	
North Arcot— Anjanam Industrial Orphanage, Melvisharam.	Do.	55	2,551 9 6	..	1,700 0 0	*2,000 0 0	200 0 0	3,208 6 7	9,660 0 1	
Ganjam— Baja's Industrial School, Parakimedi.	Do.	19	2,540 8 10	..	1,000 0 0	..	424 0 0	1,449 15 9	5,414 8 7	
Tinnevely— Weaving Institute, Alwarthirunagari.	Do.	8	2,467 5 6	..	500 0 0	..	..	911 14 6	3,879 4 0	
Madras— The Orr Assisted Industries School, Madras.	Do.	43	..	..	3,538 7 0	..	15 0 0	3,654 4 0	7,207 11 0	
Tinnevely— St. Joseph's Industrial School, Adaikalapuram.	Do.	36	1,874 4 0	..	1,000 0 0	..	..	533 14 11	3,408 2 11	
South Kanara— Commonwealth Trust Engineering Works Classes, Mangalore.	Do.	16	..	..	400 0 0	..	..	497 10 0	897 10 0	

Madras— Pasumalai Trades School, Pasumalai.	Do.	57	5,550 0 0	..	1,500 0 0	..	2,000 0 0	..	41,783 6 6	50,833 6 6	
Bellary— Board Panchama School, Yenniganur.	Do.	13	..	..	300 0 0	..	188 0 0	..	..	438 0 0	
Tinnevely— C.M.B. Industrial School for the Blind, Palamcottah.	Do.	69	4,555 1 0	..	2,000 0 0	..	..	..	2,413 8 0	8,968 9 0	
Madras— Ramakrishna Students' Home Industrial School, Mylapore.	Do.	16	50 14 0	18 0 0	1,000 0 0	..	2,000 0 0	..	2,987 11 1	6,056 9 1	
Sri Ram Motor School, Madras.	Do.	76	..	9,100 0 0	..	..	..	..	9,100 0 0	18,200 0 0	
Kistna— St. Joseph's Industrial School, Gunadala.	Do.	20	1,200 0 0	..	800 0 0	4,500 0 0	850 0 0	..	7,020 0 0	14,370 0 0	
Tanjore— Borstal School, Tanjore †	Do.	216	..	..	..	..	..	..	..	..	
Godavari— The C.B.M. Industrial School, Cocanada.	Do.	33	1,449 0 0	..	1,000 0 0	..	..	..	2,000 0 0	4,449 0 0	
Coimbatore— L.M. Weaving School, Erode.	Do.	93	1,000 4 6	..	900 0 0	1,000 0 0	175 0 0	..	1,412 12 7	4,488 1 1	
Madras— Madras Penitentiary Carpenter class.	Do.	43	1,656 3 11	..	..	..	..	2,440 8 0	..	4,096 11 11	
Kistna— Sree Krishna Parishramalayam Industrial School, Cowtharam.	Do.	16	840 0 0	..	500 0 0	..	300 0 0	..	390 0 0	2,030 0 0	
Malabar— Y.M.C.A. Industrial School, Allakode.	Do.	30	580 9 7	..	600 0 0	..	..	..	2,902 11 1	4,093 4 8	

† Paid on 1st April 1927.

† Expenditure met from the budget of the Jail Department.

APPENDIX II—*cont.*

Statistics relating to Industrial Schools for 1926-27—*cont.*

District and name of the Institution.	Boys or girls.	Number on rolls on 31st March 1927.	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.												
Madura— C.S.M. Industrial School, Dindigul.	Boys.	17	RS. A. P. 400 0 0	RS. A. P. ..	RS. A. P. 500 0 0	RS. A. P. ..	RS. A. P. ..	RS. A. P. ..	RS. A. P. 6,360 0 0	RS. A. P. 7,260 0 0	RS. A. P. ..	
Madras— Salvation Army Boys' Industrial School, Perambur.	Do.	105	RS. A. P. ..	RS. A. P. ..	RS. A. P. ..	RS. A. P. ..	RS. A. P. ..	RS. A. P. ..	RS. A. P. ..	RS. A. P. ..	RS. A. P. ..	
Vizagapatam— St. Aloysius' Supplemen- tary Industrial classes, Vizagapatam.	Do.	24	RS. A. P. ..	RS. A. P. ..	RS. A. P. 825 0 0	RS. A. P. ..	RS. A. P. ..	RS. A. P. ..	RS. A. P. 825 0 0	RS. A. P. 1,650 0 0	RS. A. P. ..	
Total ..	..	2,499	5,998 11 6	20,077 0 6	75,397 7 0	41,672 8 0	13,915 0 0	2,440 8 0	2,21,162 5 6	9,77,385 3 11	..	
Chingleput— U.P.C.M. Lacc School, Chingleput.	Girls.	53	2,108 3 4	..	500 0 0	..	..	..	599 15 5	3,208 2 9	..	
Madras— C.S.M. Girls' Industrial School, Kilpauk.	Do.	83	2,343 9 4	..	700 0 0	5,213 0 0	..	..	6,033 15 10	14,290 9 2	..	
South Arcot— D.M. Girls' Industrial School, Keelur.	Do.	42	4,846 9 6	..	400 0 0	..	..	..	752 14 8	5,999 8 2	..	

Trichinopoly— Wealeyan Mission Indus- trial School, Karur.	23	589	5	2	..	200	0	0	..	..	83	2	0	872	7	2
Madura— St. Joseph's Convent Indus- trial School, Madura.	103	8,797	11	0	..	700	0	0	..	120	0	0	1,924	12	0	11,542
Tinnevely— S.P.G. Lace School, Idai- yangudi.	18	399	6	0	..	250	0	0	..	..	58	10	0	708	0	0
S.P.G. Lace School, Kadangulam.	25	304	10	0	..	250	0	0	..	..	..	..	..	554	10	0
Bellary— St. Joseph's Girls' Indus- trial School, Bellary.	71	464	0	0	..	600	0	0	..	..	1,300	0	0	2,364	0	0
Tinnevely— R.C. Lace School, Veda- kangulam.	84	451	3	0	..	600	0	0	2,000	0	0	..	..	2,557	9	6
Hindu Girls' Lace School, Kadangulam.	29	625	0	0	..	200	0	0	..	30	0	0	..	1,764	0	0
Holy Cross Convent Indus- trial School, Tuticorin.	64	1,428	0	0	..	300	0	0	..	20	0	0	..	2,297	10	0
Anjengo— Sacred Heart Convent Industrial School, Anjengo.	21	300	0	0	..	300	0	0	..	..	1,092	3	6	1,692	3	6
Chingleput— Wealeyan Mission Indus- trial School, Ikkaadu.	100	12,507	2	3	..	800	0	0	..	600	0	0	..	2,817	10	0
Malabar— Common Wealth Embroi- dery School, Calicut.	68	9,400	0	0	..	800	0	0	..	..	577	0	0	10,777	0	0
Trichinopoly— Holy Cross Convent Indus- trial School, Trichino- poly.	70	3,266	10	0	..	500	0	0	..	186	0	0	..	4,254	0	0
Guntur— A.B.M. Girls' Industrial School, Ongole.	18	218	0	0	..	300	0	0	..	..	300	0	0	818	0	0

APPENDIX II—cont.

Statistics relating to Industrial Schools for 1926-27—cont.

District and name of the Institution.	Boys or girls.	Number on rolls on 31st March 1927.	Receipts.					Public funds.	Management contribution.	Total receipts (equal expenditure).
			Miscellaneous receipts including 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.
AIDED INSTITUTIONS—cont.										
Tanjore— Leipzig Mission Women's Industrial School, Mayavaram.	Girls.	32	1,200 0 0	..	500 0 0	..	50 0 0	..	4,800 0 0	6,550 0 0
Nellore— C.E.L.M. Girls' Industrial School, Gudur.	Do.	34	1,125 14 9	..	300 0 0	..	..	..	..	1,425 14 9
Chittoor— A.A.M. Women's Industrial Home, Palmaner.	Do.	42	2,036 12 0	30 0 0	500 0 0	10,000 0 0	..	..	13,926 8 0	26,493 4 0
Coimbatore— L.M. Girls' Industrial School, Erode.	Do.	47	478 1 10	..	300 0 0	..	..	..	520 0 0	1,298 1 10
Madras— Women's Home of Service, Mysore.	Do.	65	632 0 0	..	650 0 0	..	50 0 0	..	2,100 0 0	3,432 0 0
Total ..	Do.	1,092	53,522 2 2	30 0 0	9,650 0 0	17,213 0 0	1,056 0 0	..	47,759 14 11	1,29,231 1 1
Grand Total ..	..	4,849	6,53,333 9 1	20,107 0 6	84,957 7 0	58,384 8 0	14,971 0 0	2,79,104 3 0	3,71,922 4 5	13,83,280 0 0

* These figures have been compiled from the authorisations for payment issued from time to time.

APPENDIX III.

Statement showing the Receipts and Charges of the Department of Industries for the year 1926-27.

	Receipts.		Expenditure.	
	RS. A. P.	Amount.	RS. A. P.	Amount.
1. Weaving branch ..	..	2,943 0 6	I. Director ..	1,38,185 1 2
2. Industrial schools ..	..	14,552 11 6	II. District Engineering ..	2,71,081 1 7
3. School of Arts and Crafts ..	..	9,830 11 6	III. Industrial Schools—Grants-in-aid ..	1,55,495 7 0
4. Pumping and Boring ..	..	74,025 10 3	IV. " Scholarships ..	41,736 8 2
5. Industrial installation ..	..	6,415 8 0	V. Government Industrial Institute, Madras ..	60,000 0 0
6. Sugarcane crushing receipts ..	..	954 12 0	VI. Madras Trades School ..	57,803 7 6
7. Fruit Preserving Institute ..	..	3,728 4 5	VII. Leather Trades Institute ..	58,717 12 2
8. Other receipts ..	..	1,323 15 6	VIII. School of Arts and Crafts ..	60,409 9 6
9. Sericulture receipts ..	..	153 11 6	IX. Textile Institute ..	29,907 3 5
10. Rent of buildings ..	..	1,811 8 0	X. Weaving parties ..	19,718 14 9
	Total ..	1,15,739 13 2	XI. Sericulture Farm ..	9,572 14 0
			XII. Sericulture district work ..	2,758 2 0
			XIII. Fruit Preserving Institute ..	2,916 5 6
			XIV. Miscellaneous—	
			(i) Printers ink experiments ..	1,507 8 8
			(ii) Coir retting experiments ..	65 15 0
			British Industries Fair ..	167 13 3
			Total ..	9,10,043 11 8
Profits from Government Commercial undertakings—				
Industrial Engineering Workshops ..	..	2,444 3 7	Extensions to the Leather Trades Institute ..	31,918 12 0
Recoveries of Indirect charges from Government Commercial undertakings—			Loss on Government Commercial undertakings—	
Industrial Engineering Workshop ..	RS. A. P.		Kerala Soap Institute, Calicut ..	1,577 3 3
Kerala Soap Institute, Calicut ..	2,119 3 3		Government Industrial Institute, Madras ..	8,729 10 0
Government Industrial Institute, Madras ..	7,056 3 0		Government Industrial Institute, Madras ..	3,379 14 7
Government Industrial Institute, Madras ..	10,123 4 11			
Madras ..	1,143 0 0		Loss by exchange ..	13,686 11 10
			Expenditure in England ..	34,068 5 0
Grand Total ..	..	1,38,625 11 11		1,00,450 0 0
Deduct—Refunds ..	..	33,321 4 8		
Net cost of the department ..	..	9,85,463 1 3		
			Total ..	10,90,167 8 6

Order—No. 1472, Development, dated 16th September 1927.

Recorded.

2. The department took part in a number of industrial and agricultural exhibitions in the province but the grant sanctioned by the Legislative Council to enable this Government to participate in the British Empire Industries Fair, 1927, had to be surrendered owing to the lack of interest on the part of the manufacturers and producers and the consequent difficulty of collecting suitable exhibits for display at the fair.

3. The first Board of Industries constituted under the Madras State Aid to Industries Act was reconstituted during the year and the Government take this opportunity of thanking the members of the first Board for the very useful work done by them. During the year under review there was only one meeting of the Board and only three applications for loan were considered. The Carnatic Paper Mills have not yet been able to start manufacture and their application for further financial assistance to provide the working capital and to purchase some additional equipment has been under the consideration of Government for some time. The Government have also taken up the question of amending the Act in order to provide greater facilities for the grant of aid under the Act to cottage and other small scale industries.

The Bill to amend the law on the subject of apprenticeship referred to in paragraph 2 of the review on the report for the year 1924-25 has since been dropped as it was considered that the time was not yet ripe for the introduction of legislation on the lines recommended by the special committee.

4. The work of the Bureau of Industrial and Commercial Intelligence is of a wide and diversified character, and from the nature of the enquiries answered it is apparent that it is appreciated by the industrial and commercial public.

5. When reporting last year on the statistical work entrusted to the department, the Director raised a doubt as to the adequacy of the arrangements in force for the compilation of statistics. This question was specially investigated during the year and it was found that no useful purpose would be served by disturbing the existing arrangements. The Board of Revenue has however drawn the attention of the Collectors to the need for accurate and prompt compilation of the statistics.

6. A new feature of the report is the attempt made in it to give a short review of the condition and progress of the important major industries in the Presidency. Owing to the slackness of trade and unsatisfactory conditions of the money market there were few flotations of new companies and several failures among old ones. Of the new companies, only a small percentage included purely industrial undertakings. The cotton and jute industries seem to have worked

successfully. The special reports of Miss Tweddle on the lace and embroidery industry and the possibilities of overseas markets for its products show why it is difficult to adopt effective steps for the encouragement of this industry. The products of the industry have chiefly to be marketed abroad and changes of fashion in consuming centres disastrously affect the industry even in countries which are in immediate touch with markets and have a large and skilled organization devoted to stimulating and retaining the public taste. It will perhaps be necessary to concentrate attention on the production, mainly, of articles in constant demand for household use such as tea cloths, tray cloths, pillow and cushion covers and articles of this kind. The whole question is at present engaging the close attention of Government.

7. The development of the oil industry is not only of industrial importance but also of great direct benefit to agriculturists as oil-cake is a useful fertiliser as well as a valuable food-stuff for cattle. There are of course difficulties in the way especially in the matter of marketing, and the Director has referred to some of them. With a view to giving a stimulus to the oil-milling industry by demonstrating the usefulness of oil expellers the Government have decided to instal, as soon as the requisite funds are allotted, an oil expeller and roller mill in the premises of the Kallakurchi Co-operative Industrial and Agricultural Society. The result of the proposed experiment will be awaited before further action is taken in the same direction.

8. A great deal of interest has been evinced during the year under review in developing the mineral possibilities of the Presidency. Forty prospecting licences were issued for the prospecting of various minerals and twenty-three mining leases were granted, majority of which being as usual for the mining of mica which is chiefly carried on in the district of Nellore and to some extent in the Nilgiris. There has been a decrease in the output of manganese, magnesite, barytes and mica while there was an increase in the output of gold and silver as compared with the previous year.

9. As regards the manufacturing concerns conducted by the Government of which there are now only two, the Kerala Soap Institute at Calicut and the Industrial Institute, Madras, which though primarily designed as a minor industries laboratory is now primarily concerned with manufacture of ink. Owing to adverse trade conditions, the Soap Institute sustained a small loss after meeting all indirect charges including an amount of Rs. 18,700 towards interest on the invested capital. The question of the most suitable arrangements for expanding sales has been engaging the attention of the Director. The Superintendent whose work was hitherto confined to the manufacturing work at the institute has been permitted to visit important centres with a view to developing business. Though the institute has been in existence for some years and has also now and then been giving instruction in soap-making,

proposals for introduction of regular courses for apprentices were sanctioned only during the year and were brought into force shortly after the close of the year. The course introduced is one of two years and is purely practical in character adapted to the requirements of men with small capital and with moderate education. A shorter course of three months has also been since introduced for people who are not qualified for taking the longer course. The Industrial Institute (Ink Factory) was able to realize a profit of nearly Rs. 1,500 as against a loss of nearly Rs. 3,400 in the previous year. The question of its future is now engaging the attention of Government.

10. The Textile branch was engaged primarily in improving the conditions of the handloom industry through the agency of its peripatetic parties. The war preparation section has not been able to increase its output of sized yarn. Though the plant may be said to have demonstrated the economy of using power sized warps, there is considerable difficulty in inducing the weavers to purchase this yarn for use on their looms. The question of bringing about a settled organization on a co-operative basis which would be in a position to undertake the distribution of the entire quantity of yarn which the plant is capable of sizing is being considered by the Co-operative department.

11. The Coonoor silk farm was not able to do any satisfactory work owing to the attack of the mulberry plantations in Coonoor by a fungus which, in spite of careful treatment, seems to have reappeared in a violent form. The question of opening a new farm elsewhere is being examined. There are several centres in the Presidency where favourable conditions exist for the cultivation of mulberry and the rearing of worms. Work has already been initiated in some centres and with a view to securing closer control of the work already taken up and to developing the work in new tracts, Government have recently transferred the headquarters of the Sericultural Assistant from Coonoor to Madras.

12. The Industrial Engineering section received a larger number of enquiries and applications for advice and assistance. The number of plants erected during the year was only 68 as against 81 in the previous year but the area likely to be brought under irrigation as a result of the pumping plants erected during the year will be 697 acres against 409 in the last year. The number of compounded plants increased by 40. The number of loans sanctioned for the installation of pumping machinery increased from five to nine and the amount disbursed was Rs. 58,700 against Rs. 42,500 in the previous year. There was an addition of three power drills in the Boring Branch and the demand for the boring sets was the greatest during the year. Out of 450 applications received for boring plants 414 were disposed of and 768 borings were put down of which 584 were successful. Some progress was made in the mapping of underground water

supplies but as the work at present done consists chiefly in connecting bore holes put down at the instance of the ryots on payment of fees no great headway could be made in the preparation of a map for the whole of the Presidency within a measurable distance of time. The question of undertaking an experimental sub-soil survey in a compact area which was discussed at the Collectors' Conference is now engaging the attention of Government. There was an addition of 12 pumping sets during the year and the number of applications registered increased from 61 to 95 while the number disposed of increased from 67 to 91. The Government have since the close of the year examined the question of fees levied for advice rendered and machinery hired to the ryots and have decided to reduce in many cases the fees at present charged, and to remit them wholly in a few cases. It is estimated that the loss of receipts on account of the reduction will amount to about 25 per cent, and it is hoped that with a reduction in fees and an increase in the equipment in the possession of the department an extended use will be made of the services of the Engineering section by the agriculturists. The Industrial Engineering Workshop showed satisfactory results during the year and yielded a profit of more than Rs. 7,700.

13. The policy of Government in regard to the industrial education was continued in the development of that education mainly by means of aided institutions. The number of such institutions increased by seven during the year and the grants made to them for maintenance, equipment and building were as shown below :—

		Maintenance.	Equipment.	Building.	Total.
		RS.	RS.	RS.	RS.
1923-24		69,035	Nil.	Nil.	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	56,885	1,55,496

The expenditure has now exceeded the estimate which the Director of Industries considered fair in his report for 1923-24 and it represents a satisfactory advance towards the estimate of Rs. 2½ lakhs which the Committee on Industrial and Technical Education wanted to be earmarked as a beginning for a proper development of this branch of industrial education.

14. The institutions maintained by Government are the Madura Industrial Institute, the Madras Trades School and the Leather Trades Institute.

The Madura Industrial Institute which was reorganized in 1920-21 witnessed the passing of the second batch of the students during the year. It has now been placed on a permanent basis and an additional staff has also been sanctioned. Originally the workshop alone was treated as a commercial concern but during the year both the institute and the workshop were treated as a combined unit and worked under commercial conditions.

The ~~Maun~~ Trades School retained its popularity during the year though it suffered in strength as shown by the decrease from 478 on the rolls of the school on 31st March 1926 to 408 on the corresponding date of 1927. The electrical engineering course seems to be gaining in popularity as compared with the mechanical engineering course. The Director is requested to report whether, in view of the almost complete closure of the Victoria Jubilee Technical Institute Bombay, to the students of this Presidency in the electrical engineering department, the standard of instruction in the Trades School should not be raised to that of the Bombay Institute, if it is now in any way lower. The question of improving the available facilities for study of electrical engineering is becoming important and the Director is requested to examine the question and submit a report as early as possible. The printing and the preparatory trades classes are also becoming popular.

The Leather Trades Institute failed to attract more than one student during the year. The question whether, in view of the inadequate recognition by the trade of the usefulness of the instruction imparted in the institute, it should continue to provide the present three years' course of studies or whether the period of the course and the standard of education should be lowered has been examined and the Government hope to come to a definite conclusion at an early date.

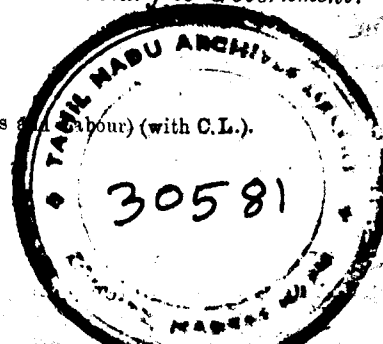
The average attendance and the average number on the rolls in the School of Arts and Crafts have increased and it attracted a larger number of pupils from artisan classes.

15. The proposal to set up the first model Government Industrial Institute in the Northern Circars has been dropped and proposals have been made by the Director to open an industrial school at Calicut and a Trades School at Mangalore. He has also suggested that a school for the Ceded districts which might be located at Bellary will prove successful and popular. Proposals in regard to these three schools have just been received and will be given the earliest consideration.

(By order of the Government, Ministry of Development)

V. PANDRANG ROW,
Secretary to Government.

To the Director of Industries.
" Director of Agriculture.
" Registrar of Co-operative Societies.
" Public Department.
" Government of India (Department of Industries and Labour) (with C.L.).
Editors' Table.



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