Administration Report of the Dept of Industries and Commerce Madras, for the year ended 31st March 1940.

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ADMINISTRATION REPORT OF THE DEPARTMENT OF INDUSTRIES AND COMMERCE, MADRAS, FOR THE YEAR ENDED 31ST MARCH 1940.

Direction.—Mr. V. Ramakrishna, I.C.S., was in charge of the department until the 13th April 1939 when I returned from leave and resumed charge of the appointment of Director of Industries and Commerce. I was in charge of the department for the remainder of the year.

2. *Tours.*—I was on tour for 83 days during the year.

3. *Exhibitions.*—The department participated during the year in a considerable number of agricultural and industrial exhibitions and Health and Baby week celebrations held in various parts of the Province. At most of these exhibitions a representative range of soaps manufactured at the Kerala Soap Institute, Calicut, was displayed, and wherever possible the working of pumping and boring machinery, of improved textile appliances and of silk worm rearing and reeling appliances was demonstrated for the benefit of the agriculturists, hand-loom weavers and the general public. Participation in these exhibitions constitutes a useful form of propaganda and serves to stimulate public interest in the activities of the department. A successful departmental display was staged at the All-India Khadi and Swadeshi Exhibition which was held at Madras from 22nd December 1939 to 2nd January 1940. At this exhibition, a representative range of textile appliances suitable for cottage and small scale operations was displayed. These included cotton spinning charka, eri silk spinning charka, bobbin and pirn winding charka, vertical warping mill, ball thread making machine, single bobbin doubling machine, muffler loom, aloe fibre twisting machine, lace-making loom with dobby, jacquard border lace loom, tubular banding charka, double tape loom, foldable loom for weaving heavy cloth and foot reeling machine. A demonstration of die pressing was staged by the students of the light metal casting section of the Government School of Technology, Madras. A demonstration of certain crafts in which instruction is provided in the School of Arts and Crafts was conducted. The manufacture of leather and leather goods on a cottage basis was demonstrated by the students of the leather working class of the Leather Trades Institute. Articles of wood and iron manufactured at the industrial schools, leather goods, coir articles, jaggery and sugar from the Leather Trades Institute and a representative range of products manufactured at the Kerala Soap Institute were also displayed at the exhibition. Unfortunately departmental appliances and exhibits valued at Rs. 3,922 were lost in the fire which practically destroyed the Exhibition on the 2nd January and subsequently this

amount was written off under the orders of Government. Exhibitions and fairs held in other parts of India, as well as in countries overseas, were brought to the notice of manufacturers and others in this Province.

4. *Committees.*—I continued to serve on a number of committees including the Advisory Committees of the Madras and Southern Mahratta Railway Company, Limited, and South Indian Railway Company, Limited, Provincial Research Committee, Provincial Cotton Committee, Provincial Marketing Board, Executive Committee of the Victory Memorial School for the Blind, Poonamallee, Employment Bureau Committee of the University of Madras, University Extension Board, Senate of the Andhra University, Council of the Victoria Technical Institute, Court of the Indian Institute of Science and Board of Visitors of the College of Engineering, Guindy. I served also as a member of the Board of Directors and of the Executive Committee of the Madras Handloom Weavers' Provincial Co-operative Society, Limited. I continued to serve as Chairman of the Board of Industries constituted under the Madras State Aid to Industries Act, 1922 (Act V of 1923) and of the Technological Diploma Examination Board. I was appointed a member of the general body and of the council of management of the Madras Industries Association in which the administration of the Central Industrial Museum is vested. A Committee was set up during the year to enquire into and report upon the problem of rural water-supply and I was appointed a member of it. I prepared a written statement embodying my answers to the questionnaire of the Co-operative Enquiry Committee and also gave oral evidence before the Committee.

5. *Eleventh Industries Conference.*—The conference of Ministers and Advisers in charge of Industries and Directors of Industries which was attended by Mr. H. M. Hood, C.S.I., C.I.E., I.C.S., and myself was held at Mysore on the 15th and 16th December 1939. At this conference, the following subjects, amongst others, were discussed: (i) constitution and functions of the Economic Resources Board, (ii) War and the industrial situation in India, (*a*) shortages, (b) minor industries, (iii) compilation of industrial statistics, (iv) utilization of the services of Indian Trade Commissioners and (v) progress of the schemes for the development of the handloom weaving industry and the question of allotments for 1940-41. I attended also the meetings of the Imperial Sericultural and Woollen Industry Committees which were held at Mysore on the 18th December 1939.

6. *Industrial Research Council.*—I attended the fifth session of the Industrial Research Council which was held at Calcutta on the 7th and 8th August 1939, when the following subjects were discussed: (i) research on oils and soaps, (ii) research programme of the Research branch of the Government Test House, (iii) development of the glass industry, (iv) publications of the Bureau, (v) allocation of prizes, (vi) industrial surveys, (vii) co-ordination of universities and research institutions in the development and extension of

research, and (viii) industrial development in respect of (*a*) casein and plastics, (*b*) cellulose and other materials required for an artificial silk industry, (*c*) synthetic resins of the Bakelite type, (*d*) shellac moulding powders and mouldings, (*e*) manufacture of sulphur and sulphuric acid from raw materials available in India, (*f*) utilization of linseed straw for the production of cottonised flax and (*g*) low temperature carbonization of coal.

7. *Famine Code Revision Committee.*—I prepared during the year a report on the recommendations of the Famine Code Revision Committee, 1938, in regard to the industrial development of the Ceded districts. A report was also submitted to Government with reference to the question of setting up a cotton spinning mill or mills in the Ceded districts. A spinning mill would provide a means of subsistence, directly or indirectly, for a considerable number of persons, whilst Bellary is one of the chief cotton producing tracts in the Province and in the adjoining districts of Kurnool, Anantapur and Cuddapah there are considerable areas under cotton cultivation. It should also redound to the benefit of the handloom weavers in the Ceded districts if they could be supplied with their requirements of yarn from a local mill. The annual requirements of cotton yarn of the handloom weavers of the Bellary district may be estimated approximately at 3,000,000 lb. and for the Ceded districts as a whole at 11,000,000 lb. The productive capacity of a mill of 24,000 spindles producing yarn of about 20s and below from local cotton would be about 6,000,000 lb. of yarn per annum. There may therefore be scope for more than one spinning mill in the Ceded districts, although it has to be borne in mind that some of the counts consumed are higher than could be suitably and economically spun from the local cotton. It was suggested that a beginning might be made by installing a mill with 12,000 spindles utilizing only the cotton available in the Ceded districts and spinning counts of yarn which could be produced from such local cotton, the number of spindles being increased to 24,000 within a few years. The question of establishing a cotton spinning mill in the Ceded districts was discussed in detail with a Madras firm, but in view of the changed conditions resulting from the war and the difficulty of obtaining delivery of machinery and plant they have decided not to proceed with the matter at present, though they may be prepared to take it up again when conditions improve. The recommendations of the Famine Code Revision Committee were under the consideration of Government at the end of the year.

8. *National Planning Committee.*—One of my first tasks on returning from leave in April was to draw up answers to the voluminous questionnaire of the National Planning Committee, comprising 167 questions in the main, and 78 in the supplementary, questionnaire. The answers to the questionnaires, which extended over more than 350 foolscap pages, were submitted to Government in batches as soon as they could be prepared and the last of

the answers was forwarded on the 7th June. Out of the total of 167 questions in the main questionnaire, answers were submitted to 161 whilst the whole of the 78 questions in the supplementary questionnaire were replied to. The answers to the questionnaires embody a great deal of information in regard to the economic resources of the Province and the possibilities of their development. Subsequently several enquiries were received from the National Planning Committee and notes were forwarded on the following subjects, amongst others, (i) manufacture of fish oil, (ii) manufacture of gelatine, (iii) tobacco manufacture, (iv) distillation of essential oils, and (v) fruit preservation and canning.

9. *Indo-Japanese trade.*—Indo-Japanese trade relations received considerable attention during the year as the Convention and Protocol regulating the commercial relations between India and Japan which were signed on the 12th of October 1937 would, subject to due notice of denunciation, cease to be effective after the 31st March 1940. The Central Government had to consider the desirability of renewing the Convention and Protocol either as they stood or in a modified form, or of negotiating an entirely new agreement. A report was sumbitted to Government on the subject in April in which the trend of Japanese demand for Indian raw cotton which has its repercussions on the prosperity of the cotton grower in this country, and the effect of the import of Japanese cloth on the cotton mill and handloom weaving industries, were examined. Subsequently, I was appointed an unofficial adviser to the Government of India on proposals relating to the Indo-Japanese Trade Agreement, and attended a meeting of the unofficial advisers at Simla from the 16th to the 22nd July, when a unanimous report was drawn up for the consideration of the Government of India in connexion with the negotiations with the representatives of the Japanese Government. About this time, a crisis occurred in the Cotton Mill Industry of Coimbatore owing, it was contended, to the increased imports of Japanese yarn, though it appears to have been due not a little to the rapid increase in the production of yarn in South India. A contributory factor was the reduced demand for cloth and yarn at the time owing to the impaired purchasing power of the agriculturists consequent on unfavourable seasonal conditions, whilst the under-capitalization of the mills accentuated the difficulties under which they were labouring. The whole situation was reviewed in a lengthy report to Government in which certain suggestions were put forward for dealing with the situation. Shortly afterwards, however, the war broke out and a strong demand set in for cotton yarn which rendered unnecessary the taking of any immediate measures to assist the cotton mill spinning industry. The trade negotiations between the Governments of India and Japan had not been concluded by the end of the year.

10. *Statutory Board of Industries.*—There were some changes in the personnel of the Board of Industries during the year. Sri S. Rm. Ct. Pl. Palaniappa Chettiyar, a representative of the

Southern India Chamber of Commerce vacated his seat on the Board by efflux of time and J. M. Jamal Sahib was elected by the Chamber to fill the vacancy. Under section 3 (2) of the State Aid to Industries Act, Government appointed Sri T. T. Krishnamachari, M.L.A., and Diwan Bahadur Sri A. Appadurai Pillai, I.S.O., M.L.A., as members of the Board in the places of Diwan Bahadur Sri G. Narayanaswami Chettiyar, C.I.E., and Sri C. M. Kothari respectively who completed their three-year tenure on the Board on the 11th August 1939. The vacancy caused by the demise of Sri D. L. Narasimha Raju, M.L.A., on the 11th December 1939 had not been filled up by the end of the year. Government renominated the Registrar of Co-operative Societies as a member for a further period of three years. The composition of the Board of Industries at the close of the year under report was as follows :—

(i) The Director of Industries and Commerce (Chairman).	Ex officio.
(ii) The Secretary to Government, Finance Department.	
(iii) F. Howard Oakley, Esq. ..	Elected by the Madras Chamber of Commerce.
(iv) J. M. Jamal Sahib	Elected by the Southern India Chamber of Commerce.
(v) D. Q. Davidson, Esq. ..	Elected by the Madras Trades Association.
(vi) Sri K. Chandramouli Choudari, M.L.A.	Elected by the Madras Legislative Assembly.
(vii) Sri P. S. Kumaraswami Raja, M.L.A.	
(viii) Sri T. T. Krishnamachari, M.L.A.	Nominated by Government under section 3 (2) of the Act.
(ix) Sri Diwan Bahadur A. Appadurai Pillai, I.S.O., M.L.A.	
(x) Sri Vavilla Venkateswara Sastrulu.	
(xi) The Registrar of Co-operative Societies, Madras.	
(xii) *Vacant.*	

11. Three meetings of the Board of Industries were held during the year on the 1st April, 15th September and 20th November 1939, respectively, at which the following applications for aid under the Act were considered :—

(1) Application from Sri P. V. Hanumantha Rao, Panyam, Kurnool district, for a grant of Rs. 4,000 for the purchase of machinery and also for an annual subsidy of Rs. 5,000 under the State Aid to Industries Act for five successive years for the establishment and development of a fruit canning and preserving industry.

(2) Application from the Grama Kaithozhil Abivirthi Sangam, Limited, Tittagudi, South Arcot district, through their Managing Agents, Lakshmi Trading Co., Tittagudi,

for a loan of Rs. 750 under the State Aid to Industries Act for the purpose of reviving the cottage industries of (i) spinning on hand driven charkas, (ii) weaving on handlooms, and (iii) paddy husking by wooden chakkis.

(3) Application from Sri Palle Lakshmikanta Sethu Narayana Rao, Proprietor, Sri Ananda Tirtha Printing Works, Ramachandrapuram, East Godavari district, for a loan of Rs. 3,000 under the State Aid to Industries Act, for the purpose of expanding the activities of his printing press.

(4) Application from the Metal Industries, Shoranur, for a loan of Rs. 6,000 under the State Aid to Industries Act for the purpose of purchasing additional equipment and liquidating prior debts.

(5) Application from Pandikasala Kunhalavi, Ramanatkara P.O., Malabar district, for a loan of Rs. 750 under the State Aid to Industries Act for the development of the coir yarn industry.

(6) Application from Sri Bheesetty Subbiah, Kancherapalam, Vizagapatam, for a loan of Rs. 500 under the State Aid to Industries Act for the preparation and sale of mortar.

(7) Application from Sri K. S. Gopalaswami Ayyar, Koyamballi, Karur taluk, Trichinopoly district, for a loan of Rs. 500 under the State Aid to Industries Act for the purpose of manufacturing hand woven fabrics.

(8) Application from the Indian Gold Prospecting and Mining Syndicate, Ltd., Narayannagar, Chittoor district, through their Managing Agents, Messrs. Narayandas Girdhardas & Co., Ltd., Madras, for a debenture loan of Rs. 3 lakhs and for the subscription of shares in the company to the value of Rs. 1 lakh under the State Aid to Industries Act for the purpose of developing the gold mining industry.

(9) Application from the Madras Sugars, Ltd., Madras, for the subscription of shares to the value of Rs. 30,000 under the State Aid to Industries Act for developing the sugar industry at Mailpatti.

(10) Application from Messrs. Rajah D. Mawnay & Co., Ltd., Madras, for a loan of Rs. 50,000 under the State Aid to Industries Act for developing the drug and chemical industry.

(11) Application from the Andhra Scientific Co., Ltd., Masulipatam, for a loan of Rs. 50,000 or for the subscription of shares of Rs. 50,000 under the State Aid to Industries Act for developing their manufacturing operations.

(12) Application from the Stoneware Pipes (Madras), Ltd., Tiruvellore, for a loan of Rs. 10,000 under the State Aid to Industries Act for developing the stoneware pipe industry.

(13) Application from Raja Bahadur Krishnamachariar, Hyderabad (Deccan), for the guarantee of an overdraft of Rs. 3 lakhs and for certain other concessions for the purpose of developing the magnesite industry in the Chetti-Chavadi Jaghir in the Salem district.

(14) Application from the Industrial Engineers and Merchants Ltd., Bezwada, for a loan of Rs. 50,000 under the State Aid to Industries Act for the purpose of developing the steel re-rolling industry.

(15) Application from the Quilandy Artisans' Co-operative Society, Ltd., for a non-recurring subsidy of Rs. 500 and for a recurring subsidy of Rs. 10 per month for a year, in the first instance, under the State Aid to Industries Act.

(16) Application from Sri M. Kumaran, Proprietor, The Ananda Vilas Weaving Company, Karaparamba, Eranhipalam Post, Calicut, for a loan of Rs. 5,000 under the State Aid to Industries Act for the development of the handloom-weaving and oil-milling industries.

(17) Application from Sri K. P. Subbiah Pillai, 155, South New Street, Tirunelveli town, for a loan and subsidy amounting to Rs. 2,000 under the State Aid to Industries Act for the purpose of manufacturing carbon paper.

(18) Two applications from Sri Avadaiappa Chettiyar, Madras, under the State Aid to Industries Act for the subscription of shares by Government to the value of 10 per cent of the share capital of the company proposed to be floated for the purpose of assembling and manufacturing cheap radio sets, and for the subscription of shares by Government to the value of 20 per cent of the share capital in another company proposed to be floated by him for the purpose of manufacturing water pumps.

(19) Application from Syed Afeez Meah, Toy Maker, Agadi, Cuddapah, for a loan of Rs. 500 under the State Aid to Industries Act for the purpose of developing his toy-making industry.

(20) Application from the Santhapet Basket Makers' Co-operative Society, Ltd., Chittoor, for a free subsidy of Rs. 192 under the State Aid to Industries Act for the development of the basket making industry.

(21) Application from Sri P. Suryanarayana, Proprietor, S.R.P. Works, Printers, Rajahmundry, for a loan of rupees 10,000 under the State Aid to Industries Act for the purpose of developing the typecasting industry.

(22) Application from the Quilandy Women's Cottage Industries Co-operative Society, Ltd., for a subsidy of Rs. 200 under the State Aid to Industries Act for running the society.

(23) Application from Sri A. Arumuga Pillai, Coimbatore, for a loan of Rs. 1,000 under the State Aid to Industries Act for the purpose of starting binding work and envelope-making as a cottage industry.

(24) Application from Messrs. Walter Hugh and Co., Ltd., Coimbatore, for the subscription of shares by Government to the extent of 5 per cent of the share capital of the company under the State Aid to Industries Act.

(25) Application from the Electrical Service Society, Ltd., Madras, for a subsidy of Rs. 4,000 under the State Aid to Industries Act for the purpose of manufacturing and assembling cheap radio sets.

(26) Application from the Co-operative Credit Society, Ltd., Vembavur, Trichinopoly district, for a loan of Rs. 100 for the purchase of a hand rice huller.

(27) Application from Sri M. Venataramaniah, Proprietor, Sree Venkateswar Furniture Works, Cocanada, for a loan of Rs. 2,000 under the State Aid to Industries Act.

(28) Application from the Andhra Chemical Corporation, Ltd., Madras, through their Managing Agents, Messrs. Sastri & Co., Tanuku, for the subscription by the Government of shares to the extent of 10 per cent of the issued capital and for certain other concessions under the State Aid to Industries Act.

(29) Application from the Andhra Cinetone, Ltd., Vizagapatam, through their Managing Agents, Messrs. Raju & Co., Ltd., Vizagapatam, for a loan of Rs. 1,50,000 under the State Aid to Industries Act.

(30) Application from Sri T. T. Ramacharya, Gudiyattam, for a loan of Rs. 500 under the State Aid to Industries Act for the purpose of manufacturing coffee powder on a cottage industry scale.

(31) Application from the India Canning Industries, Ltd., Bezwada, for the modification of one of the conditions under which the Government have agreed to take shares in the company to the value of Rs. 10,000.

(32) Application from the Dwaraka Mills, Ltd., Coimbatore, for (i) the grant of subscription of shares in the company to the value of Rs. 1,00,000, (ii) the grant of a subsidy of 25 per cent of the cost of special machinery when required, and (iii) the supply of electric energy at concession rates, under the State Aid to Industries Act.

(33) Application from the Proddatur Spinning and Weaving Mills, Ltd., Proddatur, for the subscription by the Government of shares in the company to the value of Rs. 50,000 under the State Aid to Industries Act.

(34) Application from Sri Doddaghatta Hanumantha Rao, Shrotriemdar, Doddaghatta P.O., Anantapur district, for a loan of Rs. 4,000 under the State Aid to Industries Act for the purpose of manufacturing jaggery from date palm juice.

(35) Application from E. S. Mohammad Ebrahim Sahib, Secretary, Mat Weavers' Association, Pattamadai, Ambasamudram taluk, Tinnevelly district, for a loan of Rs. 1,000 under the State Aid to Industries Act for the purpose of developing the Kora mat weaving industry carried on by the members of the Association.

(36) Application from Sri S. Vaidya Nathan, No. 15, Dandapani street, Theagaroyanagar, Madras, on behalf of himself and Dr. Balwanta Rao S. Bharade of Indore, for a subsidy of Rs. 3,500 under the State Aid to Industries Act for the purpose of manufacturing working models of three inventions, viz., two kinds of high speed velocipedes and a multiple handloom.

(37) Application from Sri Prattipati Sreeramulu, Proprietor, Sri Kanakadurga London Gold Metal Jewellery Company, Park Road, Bezwada, for a loan of Rs. 2,000 under the State Aid to Industries Act for developing the manufacture of gold and silver-tinted jewellery and vessels from copper and brass.

(38) Application from the Santhapet Basket Makers' Co-operative Society, Ltd., Chittoor, for a free subsidy of Rs. 192 under the State Aid to Industries Act for the purpose of developing the cottage industry of basket-making.

(39) Application from Sri A. Rangaswamiah, Proprietor, the Electrical Accessories Company, 71, Big street, Triplicane, Madras, for a loan of Rs. 3,170 under the State Aid to Industries Act for carrying on the manufacture of electrical accessories and appliances.

(40) Application from Sri K. Pothi Nayakar, Pudupatty, Thiruvengadam Post, Ramnad district, for a loan of Rupees 100 under the State Aid to Industries Act to enable him to complete a model of a turbine system steam engine which he claimed to have invented.

(41) Application from Sri K. Sreenivasan, Sree Kamala Lac Works, Pillayampet, Kumbakonam, Tanjore district, for a loan of Rs. 500 under the State Aid to Industries Act for developing the manufacture of lac and allied products.

(42) Application from the Madras Enamel Works, Ltd., Madras, for a loan of Rs. 25,000 under the State Aid to Industries Act for the extension and development of their manufacturing operations.

(43) Application from Messrs. Hebbar Bros., Ltd., No. 246, Thambu Chetty street, Georgetown, Madras, for a loan of

Rs. 10,000 under the State Aid to Industries Act for the purpose of developing the manufacture of surgical instruments and hospital apparatus.

(44) Application from Sri Rao Sahib C. R. Lakshmivaradha Ayyangar, B.A., B.L., Proprietor, The South Indian Nursery, Rajan Thottam, Kumbakonam, for a loan of Rs. 25,000 under the State Aid to Industries Act for developing the nursery.

(45) Application from Mr. S. S. Dhanaraj, 35/35, Ashtabujam Road, Vepery Post, Madras, for a loan of Rs. 500 under the State Aid to Industries Act for the purpose of manufacturing violins and other stringed instruments and cases.

(46) Application from the Mettur Chemical and Industrial Corporation, Ltd., Mettur, for a loan of Rs. 4 lakhs under the State Aid to Industries Act for the development of the alkali industry.

(47) Application from Messrs. K. V. Ratnam & Bros., Fountain Pen Manufacturers, Rajahmundry, for the subscription by Government of shares to the value of Rupees 25,000 under the State Aid to Industries Act in a company proposed to be floated by them.

(48) Application from Sri G. Muthukrishnan Chettiyar, Mela Gudalur village, Madura district, for a loan of Rs. 400 under the State Aid to Industries Act for starting the cotton ginning, spinning, weaving and dyeing industries.

Of these 48 applications, ten were recommended by the Board for the grant of aid, and details of these are shown in the following statement :—

Name of applicant or concern.	Amount of aid recommended by the Board.	Amount sanctioned by the Government.	Amount disbursed during the year.	Remarks.
			Rs.	
1 The India Gold Prospecting and Mining Syndicate, Ltd., Narayannagar, Chittoor district.	Subscription of shares by Government to the value of Rs. 30,000 on certain conditions.	..	..	Negatived by Government.
2 The Madras Sugars, Ltd., Madras.	Subscription of shares by Government to the value of Rs. 30,000 subject to certain conditions.	..	..	Do.
3 Messrs. Rajah D. Mawnay & Co. Ltd., Madras.	Guarantee by Government of an overdraft of Rs. 25,000 for a period of three years.	Government guaranteed an overdraft of Rs. 25,000 for a period of one year.	..	Permitted to draw on the overdraft from time to time with effect from 9th November 1939.
4 The Andhra Scientific Co., Ltd., Masulipatam.	Loan of Rs. 50,000.	Loan of Rs. 14,000.	..	Loan is pending disbursement as the mortgage deed has not yet been executed by the company.

Name of applicant or concern.	Amount of aid recommended by the Board.	Amount sanctioned by the Government.	Amount disbursed during the year.	Remarks.
			Rs.	
5 The Industrial Engineers and Merchants Ltd., Bezwada.	Loan of Rs. 50,000, subject to certain conditions.	A loan of Rs. 35,000 has been sanctioned by Government since the close of the year.	..	..
6 The Quilandy Artisans' Co-operative Society, Ltd., North Malabar.	Non-recurring subsidy of Rs. 500 and recurring subsidy of Rs. 10 per mensem for one year.	Non-recurring subsidy of Rs. 500 and recurring subsidy of Rs. 10 per mensem for one year.	500	Payment of the recurring monthly subsidy for a year will commence after the society has acquired the additional equipment out of the amount of Rs. 500 granted for the purpose as a non-recurring subsidy.
7 The Quilandy Women's Cottage Industries Co-operative Society, Ltd., North Malabar.	Non-recurring subsidy of Rs. 200.	....	..	Negatived by Government.
8 The India Canning Industries, Ltd., Bezwada.	Subscription by Government of shares to the value of Rs. 10,000 already sanctioned to be disbursed when the company has collected shares from the public to the value of Rs. 1 lakh instead of Rs. 1½ lakhs as stipulated previously.	....	..	Disbursement is pending the fulfilment by the company of the conditions of the grant
9 The Santhapet Basket Makers' Co-operative Society, Ltd., Chittoor.	Non-recurring subsidy of Rs. 192 on certain conditions.	Non-recurring subsidy of Rs. 192.	192	..
10 The Madras Enamel Works, Ltd., Madras.	Loan of Rs. 25,000.	....	..	Orders sanctioning the loan were issued after the close of the year.

Two applications, viz., numbers 41 and 43, were adjourned by the Board for further consideration at a subsequent meeting and had not been disposed of by the end of the year. The Board was unable to recommend the remaining applications, and accordingly they were rejected by the Government. The main reasons for the rejection of these applications by the Board were as in the case of applications rejected in previous years, the inadequacy of the security offered, the apparent incapacity of the applicants to establish the industries successfully and their failure to supply the details required for a proper consideration of the applications.

12. The proposal in regard to the decentralization of functions now exercised by the Director of Industries and Commerce and the Government, involving the delegation of powers to District Collectors to grant loans up to Rs. 500 to cottage industrialists under the State Aid to Industries Act, was still engaging the attention of the Government at the close of the year under review.

13. Of the concerns which were granted aid by the Government during the previous year, the following availed themselves of it to the extent mentioned against each. The loans sanctioned to Sri G. Chaganlal, Proprietor, Damodhar Envelope Factory, Madras (Rs. 6,500), Sri Mittadoddi Rama Rao, Nellore (Rs. 2,000), Sri M. Ratnam, Vepery, Madras (Rs. 1,000), Sri A. Dharmaraju, Associated Home Industries, Vizagapatam (Rs. 1,000) and Sri S. M. Ramalingam Pillai, Melacheval, Tinnevelly district (Rs. 16,800), were disbursed to them during the year. The loan of Rs. 500 sanctioned to Sri S. Radhakrishna Ayyar, Vishnumangalam, South Kanara, was not disbursed as the applicant had not executed the mortgage deed by the end of the year. The application for loan of Rs. 5,000 from the Toilets Manufacturing Company, Limited, Chittoor, was negatived by the Government, whilst payment of the subscription of shares to the value of Rs. 7,500 in the Surgical Cotton Mills, Limited, Rajapalaiyam, was pending owing to the non-fulfilment of the conditions of the grant. The total amount of aid disbursed during the year was Rs. 27,300 as against Rs. 19,050 in 1938–39.

14. The following is a brief review of the affairs of the concerns which have received aid under the Act but have not yet discharged it in full :—

(i) *The Metal Industries, Limited, Shoranur.*—The sixth instalment of the loan which fell due on the 1st April 1939 was paid by the due date. The balance of the principal outstanding against the company on the 1st April 1939 was Rs. 4,856–1–6. The Government permitted the company to repay the amount of principal outstanding together with interest, in 15 equated annual instalments of Rs. 550–2–0 each in order to ease the burden of repayment. The company executed a fresh mortgage bond accordingly. The audit report and accounts of the company for the year ending 30th June 1939 showed a net profit of Rs. 1–9–6 on the year's working.

(ii) *Messrs. Boddu Paidanna Sons, Vizianagram.*—The seventh instalment of the loan was due on the 1st April 1939, but owing to adverse business conditions the concern was permitted to repay the instalment amount in three sub-instalments with penal interest and completed the repayment on the 24th February 1940. The audit report for the year ended 31st March 1939 showed that the year's working resulted in a net loss of Rs. 7,805–14–0. The excess of liabilities over assets on 31st March 1939 was Rs. 64,785–8–11 as against Rs. 53,347–14–5 on 31st March 1938. The financial position which cannot be regarded as satisfactory has deteriorated during the year.

(iii) *Sree Ramakrishna Sugar Mills, Kirlampudi, East Godavari.*—The management repaid the third instalment of the loan on the due date and also effected the renewal of the insurance of the sugar mill for another year. The audit report of the concern for the year ending 31st October 1939 showed that the working of the factory resulted in a net loss of Rs. 24,537–9–7.

(iv) *The Andhra Paper Mills, Limited, Rajahmundry.*—The mill which closed down temporarily in December 1938 has not yet resumed working. The management has, however, reported that manufacturing operations are likely to be resumed shortly.

(v) *The Kollegal Silk Filatures, Limited, Kollegal.*—The erection of 74 new basins was completed during the year and additional accommodation for the storage of cocoons was also provided. The capital programme has now been practically completed though the electrification of the plant remains to be carried out when the supply of power becomes available. The seasonal conditions during the year were unfavourable as a result of which the supply of cocoons was intermittent and consequently the price was abnormally high. The net profit for the year, after making due provision for depreciation, amounted to Rs. 6,884–7–11 to which has to be added a sum of Rs. 3,000 surrendered by the Managing Agents, being a moiety of their allowance, thus raising the divisible balance to Rs. 9,884–7–11. The Directors have decided to appropriate Rs. 2,756–8–8 towards the write off of 20 per cent of the preliminary expenses and the first year's deficit, to declare a dividend of annas six per share or $3\frac{3}{4}$ per cent free of income-tax on the ordinary shares absorbing Rs. 6,441–12–0, and to carry forward to the next year's accounts, Rs. 686–3–3.

(vi) *The Button Manufacturers' Co-operative Production and Sale Society, Tiruppanangadu, North Arcot district.*—The working of the society for the year 1938–39 resulted in a loss of Rs. 33–11–0, although in the previous year the society was able to make a net profit of Rs. 106–1–0. According to the audit report of the society for the year 1938–39, the value of the assets was estimated at Rs. 274–4–0 and the subsidy of Rs. 108 granted to it, therefore, continued to be properly secured.

(vii) *Sri K. Subbarayudu, Toy-maker, Kondapalle, Kistna district.*—The working of this small concern for 1938–39 resulted in a net profit of Rs. 77–8–0. The second instalment of the loan was due on 15th March 1940, but the borrower applied for an extension of time by three months and this was granted after the close of the year.

(viii) *Sri M. Raghurama Raju, Apiary, Courtallam, Tinnevelly district.*—The report on the working of the apiary for the year ending 31st March 1939 showed that the proceeds of the loan had been fully invested in the business. The Assistant Industrial Engineer, Tanjore, who visited the

apiary recently has reported that it is working profitably. The sale of honey is being arranged through co-operative sale societies.

(ix) *The East Coast Ceramic Industries, Limited, Vizagapatam.*—The share money subscribed for by Government in the company has not been disbursed as the conditions of the grant have yet to be fulfilled.

(x) *The India Canning Industries, Limited, Bezwada.*—The company's request that the subscription by Government of shares to the value of Rs. 10,000 may be disbursed when the company has collected shares from the public to the value of Rs. 1 lakh instead of Rs. 1½ lakhs as laid down formerly was acceded to by Government. The share money has not, however, been disbursed as the company has not yet collected the required subscription from the public.

(xii) *Messrs. K. V. Ratnam & Bros., Fountain Pen Manufacturers, Rajahmundry.*—The second instalment of the loan was paid before the due date and the insurance was duly renewed. The working of the concern during the year ended 31st December 1938 resulted in a net profit of Rs. 1,766-9-4.

(xii) *Sri G. V. Venkataratnam, Proprietor, The Industrial and Scientific Works, Coimbatore.*—Inquiries as to whether the loan has been utilized for the purpose for which it was granted are still proceeding. The concern was insured against loss or damage by fire. The first instalment of the loan, which fell due on the 15th December 1939, was paid in full by the borrower in four sub-instalments on the 27th February 1940. The audit report of the concern for the year 1938-39 has not yet been received.

(xiii) *Sri Sampangi L. Venkatachalapathi, Gold Thread Manufacturer, Kumbakonam.*—The loan has been utilized for the purpose for which it was granted. The business was insured against loss or damage by fire. The statements of assets and liabilities and of profit and loss of the business have not yet been received. As a result of his inspection of the concern recently, the Assistant Industrial Engineer, Tanjore, has reported that the concern is working fairly well. The first instalment of the loan, which fell due on the 15th April 1940, was duly paid.

(xiv) *Mr. S. T. David, Proprietor, The Bone Mill, Ennore.*—The loan was utilized for the purpose for which it was granted. As the proprietor failed to insure the concern against loss or damage by fire, the insurance was effected by the department as provided under rule 15 A (i) of the rules framed under the Act, and the premium so paid will be recovered from the borrower along with the first instalment of the loan which falls due on the 1st May 1940. The audit report has not been received up to the present.

(xv) *Sri M. Ratnam, Ratnam Industrial Works, Vepery, Madras.*—The loan was disbursed during the year, but it has not yet been completely utilized for the purchase of machinery as proposed. The business was insured against loss or damage by fire. The statements of assets and liabilities and profit and loss of the business are due on the 1st June 1940.

(xvi) *Sri A. Dharmaraju, Associated Home Industries, Vizagapatam.*—The loan was disbursed during the year and has been utilized for the purpose for which it was granted. The concern was insured against loss or damage by fire. The statements of assets and liabilities and profit and loss are due on the 1st June 1940.

(xvii) *Sri S. M. Ramalingam Pillai, Proprietor, Dairy Farm, Melacheval, Tinnevelly district.*—The loan was disbursed during the year. The proprietor is endeavouring to arrange for the insurance of the livestock. It has been arranged for the farm to be periodically inspected by the officers of the Veterinary department and for them to render advice and assistance in the conduct of the farm as and when necessary.

(xviii) *Sri G. Chaganlal, Proprietor, The Damodhar Envelope Factory, Madras.*—The loan was disbursed during the year. The factory was insured against loss or damage by fire.

(xix) *Sri Mittadoddi Rama Rao, The Hygienic Bread Factory, Nellore.*—The loan was disbursed during the year, but, the conditions of the grant of the loan have not yet been fulfilled, as it has not been possible to obtain the necessary machinery from abroad.

(xx) *The Surgical Cotton Mills, Limited, Rajapalaiyam.*—The Company has published its prospectus and memorandum of association. The authorized capital of the Company is Rs. 3,00,000 divided into 3,000 shares of Rs. 100 each, whilst the present issue is for Rs. 75,000 divided into 750 shares of Rs. 100 each. It is reported that out of the 750 shares issued for public subscription, 450 shares have already been subscribed for. Owing to the war, difficulty is being experienced in obtaining the machinery and plant. As the conditions of grant have yet to be fulfilled by the Company, the Government subscription of shares in the Company has not been disbursed.

General Assistance to Trade and Industry.

15. The purpose of the section of the headquarters office which is known as the Bureau of Industrial and Commercial Information is to provide general and statistical information on industrial

and commercial subjects, and to answer enquiries and references received from the public and from Government relating to commerce, trade and industries and economic questions generally. The number of enquiries received and the number of periodical and special reports prepared during the year was very considerable. Considerations of space preclude a reference to the many ways in which the Bureau was of assistance in supplying information and advice to enquirers, but the steady increase in the number of enquiries may be taken as a reflection of the efforts made by the department to maintain an efficient service for the benefit of the public. The number of visitors calling at the office to make verbal enquiries has also increased to a marked extent in recent years and it is becoming very difficult to find the necessary time to interview callers and discuss with them, often at length, the subject of their enquiry. A large number of important reports on a variety of subjects was submitted to Government during the year. A number of references was, as usual, received from the Director-General of Commercial Intelligence and Statistics, Calcutta, in regard to overseas trade in general or with reference to the financial standing and business reputation of firms and individuals who wished to secure overseas trade introductions. The Director-General of Commercial Intelligence and Statistics continued to be supplied with a monthly review of trade conditions in the Madras Province and this report was reproduced in the *Fort St. George Gazette* and in some of the local newspapers, whilst copies were supplied to various officers of Government and to other authorities. A special periodical report in regard to the senna market was also sent to the Director-General of Commercial Intelligence and Statistics. In connexion with the application of certain firms and individuals in the Province for inclusion in the list of approved contractors for the supply of articles and stores to the Indian Stores Department, the Chief Controller of Stores was supplied with a considerable number of reports, based on an inspection of the firms' works, as to their capacity, financial standing, quality of the articles manufactured and their suitability generally for inclusion in the list of approved contractors. In connexion with the Indo-British trade preferences, the Government continued to be supplied with quarterly reports in respect of magnesite and cotton manufactures, and half-yearly reports in respect of woollen carpets and rugs, coir yarn and matting and myrobalans. The Bureau continued to compile statistics relating to industries including statements of cotton, jute, paper and woollen mills and mines and minerals, as also the annual review of the Indian Mines Act. The annual return of large industrial establishments in the Madras Province coming under the operation of the Indian Factories Act, 1934, was, as usual, compiled. Summaries on the subjects of manufactures, and mines and quarries, were also prepared for inclusion in the administration report of the Province.

16. *General.*—The industrialization of India, as of all primary producing countries, should be accelerated by war conditions, for not only is there likely to be an increased demand for the products of her existing factories and mines, but as a result of the substantial falling off in imports which may be expected as the war progresses, the scope of her industries should be widened. And in some respects the results should be more lasting, than they were in the last war, for the importance of Government continuing to give to industries established in war time a reasonable margin of protection even after the war, until such time as the industries are able to maintain themselves, has been recognized sufficiently early and the Commerce Member to the Government of India has publicly stated that those who now devote time and money to the development of new industries will not later be left to meet unprotected the onslaught of price-cutting and subsidized competition from abroad. Industrialists therefore have every incentive to go ahead with well conceived plans of development. It is true that there are some obstacles to industrial progress: There will be a definite shortage of machinery and plant and this may restrict in greater or less degree the expansion of existing manufacturing enterprises and the establishment of new ones. What machinery and plant it does prove possible to obtain may in some cases be very costly so that interest and depreciation charges will be comparatively heavy unless substantial depreciation can be written off before the war comes to an end. Another difficulty and perhaps the most important one, is finance, as the amount of capital available for industrial development in this Province appears to be very limited and if the creation of a sound industrial system is to be expedited, the problem of industrial credit may have to be solved by the creation of some instrument for financing industry on a larger scale than is afforded by the State Aid to Industries Act.

17. *Industries which should be re-started or developed.*—In Madras it was obvious that the first efforts should be directed to starting or re-starting the three large-scale industrial units that were not in operation, namely, the Mettur Chemical and Industrial Corporation, Limited, Mettur, the Andhra Paper Mills Company, Limited, Rajahmundry, and the Indian Steel Rolling Mills, Limited, Negapatam. The present position of the alkali factory at Mettur is that a modern and up-to-date alkali plant has been obtained from Germany, the specification for which was drawn up by a well known alkali expert, whilst the erection of the plant has been undertaken by a competent chemical engineer. About one-third of the machinery and plant has been installed and somewhat more than half the buildings comprising cell room, chlorine liquefaction room, power-house and stores and quarters have been completed, whilst the bleaching powder room, salt dissolving room, evaporating room and melting room have been partly constructed. If the further capital required for the completion of the factory is forthcoming and efficient management can be provided for, it should

be possible to complete the construction of the factory and commence manufacturing operations within a period of about six months. There is no question that the development of the alkali industry at Mettur has become a matter of national importance as a result of the changed conditions arising from the war as India may at any time be faced with a serious shortage of caustic soda, bleaching powder and chlorine. The department has been in touch during the year with various interests who contemplated taking over and completing the factory, but unfortunately it has not been possible for any of them to come to an arrangement with the present managing agents and in the meantime the development of an industry of national importance is held up. The position in regard to the Andhra Paper Mills Company, Limited, is that in the last few years, the power plant, water-works, paper section, pulp section, paper cutting section and recovery plant have been remodelled or improved, and the mill is now completely equipped for the manufacture of paper on the basis of a production of about 7½ tons per day, although one additional beater and pulp storage and washing tanks could be installed with advantage. Since the close of the year, arrangements have been made by the Canara Pulp and Paper Mills Company, Limited, Bombay, to take over the mills as licensees and it is understood that provided the necessary supply of chemicals can be procured, they will commence the manufacture of paper on a commercial scale at Rajahmundry in the near future. The Indian Steel Rolling Mills, Limited, which were not in operation during the year have come to an arrangement with the Tata Iron and Steel Company, Limited, for restarting the mills at Negapatam. There are a number of industries which should receive a stimulus in this Province as a result of the war and these include the manufacture of packing and wrapping paper, hardened oil for use as a tallow substitute, absorbent cotton and surgical wadding, surgical guts, enamelled hollow ware, certain implements, tools and machinery, electric motors, picture frame mouldings, insecticides, paints, glassware, malted foods and similar products, biscuits, fruit preserves, jams and canned goods generally, leather pickers, disinfectants, bichromates for the textile and chrome tanning industries, pharmaceutical products, fish liver oil, essential oils for preparing essences used in soap making and allied products and cosmetic articles. Developments in regard to the experimental or commercial manufacture of several of the products mentioned were in progress or in prospect at the close of the year. In the interests of industrial development and the employment which it would provide in the Province, every possible effort should be made to obtain a reasonable proportion of the orders for materials and stores required for purposes of the war which are placed by the Supply Department of the Government of India.

18. *Conditions in the war of* 1914–18.—It may be of interest to recount, albeit very briefly the conditions which obtained in the Province during the war of 1914–18. The closing of the Central

European markets to the raw materials which form the bulk of Madras exports caused at the outset of the last war considerable depression in trade, but as the war proceeded, this was largely made good by the increasing demand of the United Kingdom and the Allies, and the reaction would have been even more favourable had not the losses due to submarines seriously affected, as time went on, the freight available to transport the exports from the Province. The total exports of the Province, comprising sea-borne, coasting and rail-borne, continued to expand during the period of the last war and there was at the same time developed a considerable activity in manufactures, principally of military requirements. Considerable quantities of castor seeds and coconut oil were exported, whilst tea, coffee and rubber were also in great demand. The manufacture of finished leather was encouraged by the war needs of the Allies and the weaving mills in Madras rendered splendid service in the supply of cloth required for the troops. The engineering workshops and the small foundries in Madras were all pressed into service for the supply of ordnance stores, which included a wide range of metal fittings and wooden articles. There were considerable demands for timber and hay from the Madras forests for military purposes. The coir industry was considerably affected by the falling off in demand and lack of tonnage, but the Indian Munitions Board was able to assist the industry by placing large orders for yarn, cordage and mattings.

19. *The present war.*—The present European war was expected to exercise a profound influence on the economic factors affecting commodities, and it was thought that the demand for some commodities would probably undergo a substantial increase though individual commodities would naturally be affected in varying degrees, and some interference with transport facilities might be anticipated. It was also opined that under war conditions, producers of commodities the world over would be in a strong position which should enable them to sell their products on favourable terms without much difficulty. Events have not, however, entirely borne out these anticipations as since the close of the year, one country after another—including active trading and industrial areas—have been closed to world trade as a result of German aggression and the effect of this on Indian economy and on the demand for, and the price structure of, agricultural products must necessarily be serious unless alternative markets can be found for the displaced raw materials or ways and means can be devised of working them up into manufactured articles within the country, at least to some extent. The hide tanning and leather industry of the Province should enjoy reasonable prosperity during the year, but the scope for the further development of the leather goods manufacturing industry will depend on the extent that the war creates a demand for the supply of leather goods for military purposes. During the last war, leather accoutrements were supplied for army purposes in very large quantities by Madras factories. It appears to be the case, however, that owing to changes in army

dress, the demand for finished leather goods, apart from boots, is not likely to be on the same scale as in the last war. The prospects of the textile industry, other than that section of the industry engaged on army contracts, would seem to depend largely upon whether the prices of agricultural produce will rise as a result of the war to an extent which will increase the purchasing power of the agriculturists and the outlook in this regard is not very hopeful. As regards the oil seeds industry, there was a falling off in the exports of groundnut during the last war, and the prospects of the groundnut market during the present war depend upon whether the United Kingdom will be able to absorb the quantity of groundnut which was formerly exported to Germany or to the countries which have been taken over by Germany. The probabilities are that a not inconsiderable restriction in demand as compared with the pre-war years may be expected and it is very desirable therefore that the industrial utilization of groundnut within the country itself should be encouraged as much as possible. The further development of the soap industry would not afford a solution of the problem as good hard soap cannot be made entirely with groundnut oil and it is necessary to add thick fatty oils to improve the hardness. There is scope for the setting up of a hydrogenation plant at Mettur in conjunction with the alkali factory as in the manufacture of caustic soda and chlorine, sufficient hydrogen will be produced as a by-product to hydrogenate 16 tons of groundnut oil per day. But the most promising outlet for surplus vegetable oils would seem to lie in substituting these oils for kerosene oil as an illuminant, provided that a suitable lamp could be evolved for the purpose. If vegetable oils could be used in place of kerosene in the villages, it would enable the imports of kerosene to be reduced to a considerable extent and this would be of great economic benefit to the country. In view of the fact that the import of matches into the United Kingdom from Scandinavia is likely to cease, whilst United Kingdom manufacturers may experience some difficulty in securing sufficient supplies of wood for match manufacture, the question of exporting Indian matches to the United Kingdom was taken up shortly before the close of the year.

20. *Adjustment of the industries to war conditions.*—The adjustment of the industries of the Province to the situation created by the outbreak of war had not proceeded very far by the end of the period under review, and apart from textiles, the orders received for materials and stores for military purposes were limited. The Buckingham and Carnatic Company, Limited, are turning out very large quantities of khaki cloth and the production of this material is understood to be much greater than it was during the war of 1914–18. The Buckingham and Carnatic Company, Limited, are also producing for military purposes considerable quantities of grey and khaki canvas. The Madras Army Clothing Factory has been reopened after being closed for many years and is providing work for a considerable number of tailors

employed by contractors outside the factory. Several thousand tons of sawn timber have been supplied from Madras forests for military purposes, and further orders are expected to be received at regular intervals. A large number of tent poles and tent pins have also been supplied. Messrs. Simpson and Company, Limited, have reorganized their motor body building department so as to enable them to take up army contracts and they are now turning out bodies at the rate of 100 per month. Messrs. P. Orr and Sons, Limited, in anticipation of receiving army contracts, have reorganized their workshops and are in a position to handle a large volume of scientific instrument manufacture. At the close of the year, arrangements were in progress for producing charcoal made from coconut shells for using in anti-gas respirators both on the West Coast and East Coast. The question of the supply of hand-woven blankets for army purposes is referred to elsewhere in this report. A list of Government and aided industrial schools under private management capable of manufacturing various articles of wood and iron for military purposes was communicated to the Director of Contracts who has undertaken to give the various schools an opportunity to quote for his requirements with effect from 1st July 1940. It is hoped that the schools will be able to co-operate to a useful extent in the supply of military stores which they are capable of manufacturing. As a measure of insurance against a possible shortage of stocks of wattle bark for the Madras tanning industry which might arise owing to a possible interruption of sea communications or for other reasons, the Government of India decided to maintain a reserve of 7,500 tons of wattle bark in the Madras district. Arrangements were made for the bark on arrival in Madras to be stocked under the control of the Director of Industries and Commerce and a portion of the supply had been received by the end of the period under review.

21. *Geological surveys of the minerals of the Province.*—It has been said that the basic wealth of a modern nation is in these dynamic days, founded more on its available minerals than on its agriculture, and in almost every case where plans are in progress for the organization of a country's economic resources, the development of the available mineral wealth occupies a prominent place in the programme. The existing knowledge of the raw materials of mineral origin in Madras is at present very meagre, and in considering the possibilities of developing industries, the difficulty presented by this lack of accurate knowledge of the geological and mineral resources of the Province has been keenly felt. The probabilities are that a lot of mineral wealth remains untapped, whilst, a point to be borne in mind in this connexion is that some minerals which were comparatively of little economic value half a century ago, have assumed considerable importance under modern conditions. As the problem of broadening the economic basis of the Province, and accelerating its industrialization, postulates the discovery of new economic assets, it is of the utmost importance, as I have been stressing for many years past that mineral surveys

should be undertaken without any avoidable loss of time. At least three field parties of the Geological Survey of India should be attached to this Province for several years. One party should concentrate its attention in the first place on the Salem district, which appears to be a veritable storehouse of minerals and to be in fact one of the most highly mineralized districts in the whole of India. In this district, besides the valuable deposits of magnesite and the interesting and potentially valuable deposits of magnetite iron ore, various other minerals are known or thought to exist, e.g., bauxite, chromite, mica, emery, corundum, barytes and gold. This party could also extend its activities to the southern districts of Madura, Ramnad and Tinnevelly, of the mineral resources of which very little indeed is known. There are said to be deposits of iron and manganese ores in the Madura and Ramnad districts, whilst in view of the industrial development which is likely to be seen in the area when the Papanasam Hydro-electric Project is completed, an examination might well be made of the limestone deposits in the Tinnevelly district. It is also more than possible that an examination would reveal the presence of ilmenite on the coasts of Ramnad and Tinnevelly. When the party has completed its work in this area, a survey of the Coimbatore, Nilgiris and West Coast districts might be taken up. Mica and gold are found in the Nilgiris district, and mica is said to be present in Coimbatore, whilst it is conceivable that other minerals might be found in the course of an intensive geological survey of these districts. A second party is required for the Ceded districts, the economic development of which is at present engaging the attention of Government. Mining is carried on in all the four districts of Anantapur, Bellary, Kurnool and Cuddapah. In Bellary, manganese is produced on a small scale, barytes in Kurnool and Anantapur and asbestos in Cuddapah. The deposits of barytes in the Ceded districts are recognized to constitute the largest reserves of barytes in India. Asbestos is found in the Cuddapah and Kurnool districts and may exist in the Anantapur district also. Hematite iron is known to exist in Kurnool and Bellary, whilst in the past iron ore has been smelted in insignificant quantities at three different places in the Anantapur district. It has been stated that the main obstacle to the exploitation of the Kurnool deposits of hematite iron is their distance from the sea coast, but the possibility of working up the iron ores into manufactured form *in situ* has not been examined. There would seem to be a case for an intensive examination of these ores with a view to determining their grade, quality and commercial value under modern conditions. The question of developing the hematite iron ore deposits of the Bellary district bordering on the Sandur State is at present under investigation by certain commercial interests. The gold deposits of the Anantapur district hold out possibilities of development having regard to the present high price of gold. Another field party is required for the Northern Circars. Manganese is mined in the Vizagapatam district, and it is quite possible that a survey of the area would

reveal the presence of other minerals at present unsuspected. The Godavari district also requires to be surveyed. Coal has been found in the Godavari valley though not in payable quantities. Graphite occurs in the khondalite series of rocks in the Vizagapatam hilly tracts and in the Godavari district. In the Guntur and Kistna districts there are valuable deposits of marble and limestone, whilst deposits of chromite have recently been discovered at Kondapalli. The open cast methods of mica mining practised in the Nellore district are extremely wasteful and an investigation of the mica deposits with a view to their more economic exploitation would seem to be well worth while. Old copper workings on an extensive scale are to be seen in the Nellore district in the neighbourhood of Ganipenta, but are confined mostly to the surface and the existence of payable ores at appreciable depths has never been investigated. These deposits also require to be carefully examined. The gypsum and kyanite deposits in the estate of the Raja of Venkatagiri should also be surveyed. One geological survey party was actually in operation in the Madras Province during the year under review, and surveys were carried out of the limestone deposits of Sankaridrug, Salem district, the gypsum and phosphatic nodule deposits of Trichinopoly, the asbestos deposits of Cuddapah and the slate deposits of the Kurnool district, whilst the gold deposits of the Anantapur district were also examined by a superintendent of the Geological Survey of India. The question of what arrangements could suitably be made for the examination and analyses of the specimens collected in the course of the surveys was under examination at the close of the year.

22. *Manufacture of alloy steels from the Salem iron ores.*—There is no further progress to record in regard to the development of the potentially valuable deposits of magnetite iron ore in the Salem district. It is proposed that a party of the Geological Survey of India should re-examine these deposits in the next field season which commences in November. If the war lasts for any considerable time, the question of the exploitation of these ores may assume some importance in view of the difficulty which the United Kingdom must presumably be experiencing in obtaining its usual supplies of magnetite iron ore from Sweden.

23. *Production of power alcohol.*—A reference was made in last year's report to the setting up by Government of a committee to examine the question of production of power alcohol from molasses. The committee considered that the mixture of alcohol with petrol for use in motor vehicles would be a practical proposition, that Government should take steps by legislation to render the use of such mixture compulsory and that a commencement should be made in the areas suggested in the report. Subsequently some doubt was expressed as to whether power alcohol, even taking the very low rate of Rs. 7 per ton for molasses, could compete with petrol at any point in this Province after paying the

central excise of 10 annas per gallon, and the possibilities of manufacture of power alcohol in the Province appeared to be somewhat negligible unless the Government of India were prepared to levy a lower excise duty on power alcohol than on petrol. A leading firm of distillers considered that the total cost of power alcohol (99·4 per cent) would not be less than 9 annas per gallon as compared with the landed cost of petrol which was then believed to be in the neighbourhood of 5 annas per gallon. Eventually in G.O. No. 2995, Development, dated 11th December 1939, Government decided that the proposed legislation for the compulsory mixture of power alcohol with petrol for use as motor fuel should be dropped. If the question is to be reopened it would seem preferable for a committee representative of all the provinces and of the Government of India to be set up to consider the matter anew in the light of all the information that has become available on the subject during the last two years.

24. *Substitutes for petrol.*—It has been suggested that one way of lessening this country's dependence on imports of petrol would be to introduce substitutes. In fact, as a result of the rise in petrol prices, increasing attention has been directed to possible substitutes for petrol in many countries. It seems most improbable that it will be possible for any country to dispense entirely with petrol for a very long time to come, but to some extent by the introduction of substitutes, the domination of foreign oil monopolies could be mitigated. Alternatives to petrol which may be considered in Madras include the electric storage battery using electricity generated from water power, producer gas obtained from charcoal and industrial alcohol, the latter of which has already been referred to. The electric battery car, like the vehicle driven by gas, has the attraction that it is propelled by home-produced power giving it definite economic advantages. The chief advantages claimed for the electric vehicle include ease of operation and maintenance, ease of control by drivers, and cleanliness, smooth and silent running, long life, considerably less repair work as compared with the petrol vehicle and lower running costs. Any extended use of electric vehicles would of course postulate the organization of a net-work of battery charging stations. It would seem worth while for an investigation to be made as to whether it would be an economic proposition to introduce the electrically propelled vehicle as an alternative to the ordinary petrol driven car or lorry. Another possible substitute for petrol is producer gas. The engine of a producer gas vehicle runs on carbon-monoxide gas generated by the slow cumbustion of charcoal, coke or other carboniferous material. It has been claimed that with one type of producer gas plant in use in the United Kingdom the fuel cost is only 20 to 25 per cent of that of a petrol driven vehicle. The Forest Department have been experimenting with a Chevrolet lorry fitted with a gas-producer plant, and their experience, which is confirmed by that of commercial organizations, operating charcoal gas lorries in the Madura and Tinnevelly districts, is that the charcoal gas lorry will work at 20 per cent of the cost of a petrol lorry so far as fuel alone is concerned. There would appear to be great scope for the extended use of producer gas driven vehicles in this Province, although it is for heavy long-distance work that they are likely to find their main application. Messrs. Simpson and Company, Limited, have succeeded in evolving a new type of gas producer which seems to constitute a distinct advance on the gas producers previously in use. It is understood that they have already installed gas producers on some sixty vehicles and that they look forward to a considerable extension in the use of such vehicles in South India. The use of charcoal gas propelled vehicles in India should be encouraged as much as possible as their introduction on the roads in any considerable numbers would result in a reduction in the imports of petrol to the economic advantage of the country.

25. *Paper manufacture.*—The question of the manufacture of packing and wrapping paper from Botha grass and also the possibilities of utilizing this grass for the production of straw boards and mill-boards was under consideration during the year in consultation with the Forest Department and the Forest Research Institute and College, Dehra Dun. An annual output of 6,000 tons is considered by the Forest Research Institute to represent the smallest economic unit for the manufacture of packing and wrapping paper, and enquiries as to whether it would be possible to find a market for this quantity of paper, are proceeding.

26. *Starch.*—The possibilities of establishing a starch factory were examined during the year. As far as viscosity is concerned, cassava starch is better than maize and jowar starches and slightly inferior to potato starch, and cassava starch could, it is understood, be used as a suitable substitute for potato starch in the textile industry. There is no systematic cultivation of tapioca in Malabar and the present yield per acre would have to be considerably increased by proper cultivation methods before the cost of production could be reduced sufficiently. In fact tapioca will have to be ruled out as a raw material for starch manufacture unless it can be made available at appreciably less than the present price. As regards potatoes, which are grown chiefly in the Nilgiris, there should be a sufficient surplus to provide for a production of two tons of starch per day, although as the quantity required would represent about 21 per cent of the exports from Mettupalaiyam, it is not possible to say what the effect of this additional demand would be on local prices. It was found, however, on investigation, that the economics of starch manufacture from potatoes was more unfavourable than that of tapioca, and after careful consideration it was decided not to proceed further with the matter.

27. *Eucalyptus oil.*—This oil is distilled in the Nilgiris from *Eucalyptus globulus*, the annual production being about 15,600 gallons in the Ootacamund taluk, and 6,250 gallons in the

Coonoor taluk. The question of the inclusion of Indian eucalyptus in the Brtish Pharmacopœia was taken up during the year in consultation with the Indian Chemical Manufacturers' Association. The prospect of such inclusion turns on the cineol content of the oil and on the willingness of the British Pharmacopœia Commission to reduce the cineol content to 55 per cent in the case of Indian oil. I am much indebted to the Indian Chemical Manufacturers' Association for the keen interest they have shown, and the assistance they have rendered, in the matter which has been pursued further since the close of the year.

28. *Cottage manufacture of matches in the Ramnad district.*—An investigation of the conditions under which the small-scale match factories are operating in the Ramnad district was carried out during the year by the Personal Assistant and his recommendations for the betterment of the industry were under the consideration of Government at the end of the year. There appears to be scope for the formation of a co-operative society to assist the small factories in regard to their wholesale buying and marketing. Especially under the present conditions such a society might be of considerable assistance to the small factories in enabling them to obtain their requirements of essential chemicals and materials at rates which would assist them to compete with the larger factories which have greater facilities for obtaining supplies under the abnormal conditions now prevailing. The question of forming a society to meet the needs of the small factories, or of developing the existing wholesale society in the Madura-Ramnad districts to serve the purpose, was engaging the attention of the Registrar of Co-operative Societies at the close of the year. The imports of matches into Madras from Burma in 1939–40 amounted to Rs. 12·37 lakhs in value and when negotiations for a new commercial convention between India and Burma are taken in hand, Madras might well press for the imposition of a higher duty on imports of matches from Burma or for the restriction of such imports by a quota, as the adoption of either of these measures would give a stimulus to the match industry in this Province and enable the production to be increased not inconsiderably.

29. *Chinese crackers.*—The question of developing the manufacture of Chinese crackers was considered during the year, and in this connexion, it was suggested that a few Chinese unemployed workers well versed in the industry should be brought from China and engaged in starting the industry. As, however, it did not prove possible to come to satisfactory terms with the Chinese, the feasibility of stimulating the manufacture of Chinese crackers in one of the existing match factories in the Ramnad district was taken up for investigation. Chinese crackers have already been produced on a very small scale at Sivakasi, and the owner of the factory has stated that there is no real difficulty in the way of their manufacture, but that the trade is seasonal and of such short duration as scarcely to warrant the conduct of commercial

manufacture. It is the case, however, that there is a considerable consumption of crackers in this Province and there seems no reason why commercial manufacture should not be developed, provided that some of the materials, especially the cheap quality paper used in China, can be made available in India at prices which would enable the locally manufactured goods to compete on equal terms with the Chinese products. The question of what steps could suitably be taken to assist the Sivakasi manufacturer to develop the industry on a sound basis was under consideration at the close of the year.

30. *Presence of excessive quantity of lead in turmeric exported.*—Complaints were received from the United Kingdom during the year about the presence of lead in excess of the prescribed limit, in ground turmeric exported from India. In order to safeguard the interests of Indian trade in turmeric it is imperative that every possible precaution should be taken to see that the excessive quantity of lead that is at present contained in the ground turmeric should be minimized. The Government Analyst, Guindy, who was consulted in the matter, has stated that many curry powders exported from Madras contain excessive quantities of lead and that this may be due to the turmeric being coloured with lead chromite, a strongly yellow coloured substance. It has been suggested that in order to stop this objectionable practice of leaving excessive lead in exports of turmeric, exports by sea of turmeric powder or curry powder should be confined to those covered by a certificate of their lead content, issued by the Government Analyst. In the interests of the local consuming public, it has also been suggested that the Government Analyst or the District Health Officer, as the case may be, should examine samples of locally sold curry powders and turmeric powders for food purposes and enforce the provisions of the Prevention of Food Adulteration Act wherever necessary. The question was under consideration at the close of the period under review.

31. *Central Industrial Museum.*—It has been recognized for many years that an industrial museum would be of great benefit to industrialists, and especially to cottage industrialists, by bringing them into touch with buyers, and it was mentioned in last year's report that steps had been taken to set up a museum at Madras. The Central Industrial Museum, which is housed in a building adjoining the Government Book Depot in Mount Road, provided by Government, was opened on the 8th August. The articles displayed in the museum include a representative range of the products of the large, small and cottage industries of the Province, besides specimens of the agricultural, forest, mineral and economic resources of the Province. The various departments of Government have either lent exhibits of their own for display or assisted in securing exhibits from various quarters. It is hoped that in course of time the Museum will come to be looked upon as Madras' "Shop Window," and that since it will enable people not only to see what the Province manufactures, but the quality

of the products also, it will play a useful role in stimulating the demand for Madras industrial products. District museums have been set up at Vizagapatam, East Godavari, West Godavari, Guntur, Chittoor, Kurnool, Anantapur, Cuddapah, Mangalore, Calicut, Coimbatore, Salem, Cuddalore, Tanjore and Madura, and it is hoped that in course of time each district will have a museum of its own. The district museums are linked to the Central Industrial Museum at Madras. Government sanctioned during the year my proposal that exhibits of the various sections of the department be displayed in one or two district museums each year, subject to an expenditure on this account not exceeding Rs. 1,000 in a year.

Statistical Section.

32. *Staff.*—Sri N. K. Adyanthaya continued as Statistical Officer throughout the year. The Statistical Officer was appointed a member of the Prices Advisory Committee for Madras City constituted for the purpose of fixing mean prices for essential commodities in consultation with representatives of the trade. Sri Adyanthaya attended the meeting of the Cotton Forecast Improvement Sub-Committee of the Indian Central Cotton Committee at Bombay on the 2nd August. Various new items of work were undertaken in the Statistical section in the course of the year and this necessitated an increase in the clerical establishment. The appointment of two lower division clerks for six months and of one lower division clerk for four months was sanctioned for the compilation of the first quinquennial Statistical Abstract of the Madras Province. Government also sanctioned the appointment of two lower division clerks for three months for work connected with the consolidation, analysis and interpretation of the statements of stores purchased by the several departments of Government, district boards and municipal councils and subsequently extended the sanction of employment of one lower division clerk for two months. In addition, the appointment of a lower division clerk in the office of the Director of Agriculture was sanctioned for one year for work connected with the tabulation and analysis of the results of the crop-cutting experiments carried out in 1936–37, 1938–39 and 1939–40, and he worked under the guidance of the Statistical Officer in my office. This clerk was appointed from the 20th January 1940.

33. *General.*—Statistical analysis is becoming of fundamental importance in every-day affairs, and there has recently been a great increase in the volume of work turned out by the Statistical section. The character of the work undertaken has also undergone many changes. Instead of it being confined mainly to agricultural statistics and prices as in the recent past, many new and useful lines of work have been undertaken, such for example as the initiation of a cost of living index for Madras City, of index numbers of wholesale prices and of import and export prices, and the compilation of a Statistical Abstract for the Madras Province. In addition, economic issues are from time to time statistically examined with the aid of charts of which increasing use is being made.

34. *Agricultural statistics—Crop forecasts.*—Forty-three reports in all were issued in the course of the year forecasting the area and yield of paddy, cholam, cumbu, ragi, korra, varagu, samai, horsegram, greengram, redgram, blackgram, sugarcane, groundnut, gingelly, castor, cotton, pepper, ginger and senna during the growing period. The areas estimated in 1938–39 differed from the actuals in the Season and Crop Report by 0·002 per cent in the case of pepper, 1·00 per cent in the case of paddy, 1·36 per cent in the case of sugarcane, 1·50 per cent in the case of groundnut, 2·02 per cent of cotton, 1·71 per cent in the case of groundnut, 2·02 per cent in the case of ginger, 2·18 per cent in the case of korra, 3·28 per cent in the case of blackgram, 4·34 per cent in the case of castor, 5·02 per cent in the case of ragi, 5·61 per cent in the case of horsegram, 5·76 per cent in the case of cumbu, 6·32 per cent in the case of gingelly, 7·52 per cent in the case of redgram, 8·02 per cent in the case of senna, 9·17 per cent in the case of samai, 9·30 per cent in the case of cholam, 9·38 per cent in the case of varagu, and 15·59 per cent in the case of greengram. The relatively large difference in the case of millets and pulses is due to the fact that forecast reports on these crops were instituted for the first time in 1937–38. Few reports were received from Tahsildars and many of the reports received had been incorrectly prepared. In consequence, the estimates had to be based on very imperfect material. It is, however, hoped that, in course of time, the forecast reports on millets and pulses will attain the degree of accuracy revealed in the reports on other crops. The revised scheme of trade classification of cotton as approved by the Government of India was adopted in the forecasts of cotton in the year under review. Five forecasts on the sowing and condition of Virginia and country tobacco during September to January in the districts of East Godavari, West Godavari, Kistna and Guntur and in the Kandukur taluk of the Nellore district were also prepared during the year and copies of these reports were sent to (i) the President, the Indian Tobacco Association, Guntur, (ii) the Secretary, Tobacco Federation of the British Empire, London, (iii) the High Commissioner for India, London, and (iv) the Under Secretary, Imperial Council of Agricultural Research. With a view to enabling the karnams to record the areas correctly under Virgina and country tobacco, clear instructions were issued to them in regard to the distinctive marks of each variety of tobacco and in order to make sure that these instructions are followed carefully, the Board of Revenue issued instructions to the Collectors of Kistna and Guntur at my instance, requesting them to arrange for a periodical sample check of the karnam's figures of the area under tobacco by the Revenue Inspectors and Tahsildars.

35. *Crop-cutting experiments.*—The tabulation and analysis of the results of crop-cutting experiments on paddy, cholam, cumbu, ragi and sugarcane carried out in the years 1936–37, 1938–39 and 1939–40 was continued. The experiments had been abandoned in the Kaikalur taluk of the Kistna district in 1938–39 and 1939–40 owing to the abnormal situation created by the floods.

36. *Plantation crops.*—For the purpose of recording the figures required for the compilation of the statistics of area of tea, coffee and rubber, the Board of Revenue prescribed special registers and amended the Manuals of Village and Taluk Accounts. The Collector of the Nilgiris having pointed out the difficulty of preparing the special registers in the absence of posting registers in which to enter the figures for each estate or patch, the possibility of converting the special registers into posting registers by the addition of the necessary columns was suggested to the Board of Revenue.

37. *Rainfall.*—Sanction was accorded to the opening of three new rain recording stations, one at Chinnakallar in the Coimbatore district and two at Pullambadi and Siruganur in the Trichinopoly district. The data relating to the last two stations will be published in the rainfall tables only from January 1941. Rainfall was being measured at most stations at 8 a.m. Indian Standard time which is the time observed by the Post and Telegraph Offices and the Railways. On the proposal of the Director-General of Observatories that rainfall measurements at all stations should be made at 8 a.m. Local Mean time, and not at 8 a.m. Indian Standard time, the Indian Standard time corresponding to 8 a.m. Local Mean time at the several rain recording stations in each district was calculated with reference to the longitudes of the different stations and communicated to Collectors for the guidance of the rainfall observers in the district.

38. *Census of livestock.*—The quinquennial census of livestock was held in the last week of January 1940 and the final checking and enumeration was done on 31st January 1940. The Provincial Government accepted the suggestion made to the Government of India that each Province should publish a Livestock Census Report of its own showing *inter alia*, the livestock population of each unit of the urban area and of the total rural area in each district. There are 342 units of the urban area in the Madras Province. The Government of India also amplified the form of the census so as to include statistics of poultry, etc., with the result that there are now 100 columns in the revised form as against 38 columns in the old form.

39. *Ratio of breeding bulls to cows.*—The Government of India pointed out that the ratio of breeding bulls to cows in this Province according to the census taken in January 1935 was disproportionate in certain areas and suggested that instructions might be issued so as to prevent errors at the 1940 census. An examination

of the figures collected at the 1935 census showed that the number of breeding bulls and of young stock under one year in the Province was 169,285 and 2,198,481, respectively, giving less than 13 calves for a bull kept exclusively for breeding. This figure is undoubtedly too low. As the number of breeding bulls thus appears to be too many in relation to the number of young stock, it is reasonable to infer that the number returned for breeding bulls in the cattle census of this Province in 1935 included a large number of bulls which were not used exclusively for breeding, but were used partly for breeding and partly for work. In order to prevent anomalies of this kind arising in the figures of future censuses, Government at my instance ordered that a new column should be opened in the form of the census of livestock to show separately "uncastrated males over three years kept both for work and breeding." Figures under this head were accordingly collected at the census of 1940.

40. *Grazing and fodder.*—The method of arriving at an estimate of the grazing and fodder resources in the Province was elaborated in a note which was sent to the Board of Revenue. The statements showing the estimated supply of cultivated fodders in the Province which had already been sent to the Director of Agriculture were revised on the basis of revised figures of the normal yield per acre of the several fodders, furnished by him. It was seen therefrom that the available resources of fodder in this Province were very much below the requirements.

41. *Analysis of data relating to field trials.*—The Director of Agriculture forwarded for scrutiny and check the results of certain agricultural experiments carried out at the Agricultural Research Station, Nanjanad. A note was sent to him setting forth as models the analysis of the first two experiments and indicating the lines on which the other experiments might be analysed.

42. *Trade statistics—Statistics of inland trade.*—Remarks were offered on the report of the Committee appointed by the Government of India to consider the question of amplification of inland trade statistics, and the unsuitability of the proposed merging of Coorg under the trade block, "West Coast and Hills" and the desirability of having it as a separate block were pointed out. Attention was also drawn to the necessity of having cholam, cumbu and ragi as separate items in the list of commodities and the need to have separate figures for (1) boots and shoes, (2) cashew kernels, (3) cashewnuts, (4) groundnut cake, (5) pulses, (6) leather manufactures other than boots and shoes, (7) vegetable ghee and (8) cardamoms.

43. *Imports of paddy and rice.*—Quarterly reports on the imports of paddy, rice and broken rice into this Province were submitted to Government. Imports of broken rice, rice and paddy in terms of rice into the Madras Province in 1939–40 totalled 837,898 tons, recording a rise of 32·2 per cent over the

imports in 1938–39. Of the imports in 1939–40, 123,453 tons or 14·7 per cent comprised the imports by rail and the remaining 714,445 tons or 85·3 per cent the imports by sea. An analysis of the imports in terms of rice by rail according to the main places of origin revealed that in 1939–40, 65,383 tons or 53·0 per cent originated from the Central Provinces and Berar, 52,264 tons or 42·3 per cent from Orissa and 2,316 tons or 1·9 per cent from Bengal. The percentage share of these provinces in the previous year was respectively 48·9 per cent, 40·8 per cent and 4·3 per cent. As regards imports by sea, Burma accounted for 518,453 tons or 72·6 per cent of the imports in 1939–40, French Indo-China for 143,424 tons or 20·1 per cent, Siam for 31,268 tons or 4·4 per cent and Sind for 16,071 tons or 2·2 per cent. The share of Burma was 93·4 per cent in 1938–39 and 97·4 per cent in 1937–38. A feature of the import situation as evidenced by the above figures was a gradual replacement of the imports of paddy and rice from Burma, which practically accounted for the whole of the imports by sea two years ago, by imports from French Indo-China and Siam. In the year under review, French Indo-China and Siam exported 162,914 tons and 23,833 tons respectively of paddy to this Province as against an export of 23,557 tons and 5,028 tons respectively of rice and 10,716 tons and 10,272 tons respectively of broken rice.

44. *Ceylon market for Tanjore rice.*—A report was submitted to Government on this question during the year. The imports of rice and paddy in terms of rice into the Province of Madras far exceed the exports from it. To the extent that Madras exports rice to other countries, to that extent it must import rice from Burma and suffer a possible reaction on the price level. The export trade in rice with Ceylon is, however, economically advantageous to Madras since it enables Sirumani rice, the fine produce of Tanjore which commands a high price, to be exported to Ceylon and be replaced by the coarse rice imported from Burma at a comparatively low price. But the outlook for Tanjore rice has been rendered somewhat obscure by the Agricultural Products (Regulation) Ordinance which was passed by the Ceylon Legislature and which came into force on 1st June 1940. The Act establishes an Agricultural Produce Regulation Board. This Board can recommend the application of the Ordinance to any commodity to protect the home market. This can be done for rice by (i) prohibiting the export except under licence, (ii) fixing the proportion of the home products to the total stocked and (iii) fixing the prices at which they are sold. As it is of the highest importance that efforts should be directed to at least maintaining the present scale of export of rice from Tanjore to Ceylon if not increasing it, Government have asked me to watch the situation carefully and to report to them the time most favourable for making representations for the adoption by Ceylon of a sympathetic attitude in so far as the fine Sirumani rice of Tanjore, which does not compete with Ceylon produce, is concerned.

45. *Weights and measures.*—Following the enactment of the Standards of Weight Act, 1939 (IX of 1939), the question of preparing a Weights and Measures Bill was under the consideration of the Provincial Government. I was consulted in the matter and suggested suitable standards of weights and of measures of capacity, length and area. As regards the stamping of weights and measures based on these standards, it was suggested that the most economical and satisfactory course would be for weights and measures, conforming to standards to be manufactured wholesale by Government in the Public Works Workshops, stamped there properly with Government insignia and supplied to Tahsildars on indent for sale to the public. As weights and measures are subject to wear and tear owing to their constant rough use, it was proposed that they should be examined once every two years at the nearest taluk office, adjusted and restamped so as to indicate the year in which they were last examined, or condemned if they were worn out. It was also proposed that the possession of weights and measures which are unstamped or incorrect or not restamped once in two years and the refusal to show them for inspection or hiding them, should be made offences.

46. *Cess on Agricultural Products.*—A report was submitted to Government on the proposal of the Government of India to levy a cess on agricultural products to provide funds for the Imperial Council of Agricultural Research. It was pointed out that the Province of Madras would have to bear about 39 per cent of the total amount to be realized by this expedient.

47. *Indo-British Trade Agreement.*—The scope of the new Indo-British Trade Agreement, which came into force during the year, was examined in so far as the Province of Madras was concerned and a report submitted to Government shortly after the close of the period under review. It was shown that the preferences granted to India by the United Kingdom remained practically unaltered whilst there was a drastic reduction in the list of preferences granted to the United Kingdom, and that this was perhaps the most striking feature of the new agreement.

48. *Trade relationship between Madras and Ceylon.*—At the time when the Government of India were preparing to receive a deputation from Ceylon for negotiating a trade pact between the two countries, a report was submitted to the Provincial Government in which the position in regard to trade between India and Ceylon and in particular of the Madras Province with Ceylon, was examined in considerable detail.

49. *Improvement of tobacco trade.*—The crisis which developed in the tobacco trade of Guntur was examined. The reason for the trade having been brought to the verge of collapse was traced to the indiscretion of exporters in sending large consignments of indifferent grades of tobacco to the London market which had no use whatsoever for such inferior stuff. It was pointed

out that there were some countries which required low grade tobacco and that the inferior tobacco over-stocked at London could be diverted to those markets. It was later ascertained that Norway, Sweden, Denmark, Belgium and Holland were some of the countries which were ordinarily in a position to absorb inferior tobacco. It was recommended that the exports to London should in future be confined to specific grades, that section 19 of the Sea Customs Act might be suitably amended, and that a special grading staff to be financed by the levy of a fee on export licences, should be employed for grading. The need for tobacco cultivators to grow better crops with the improved seed supplied by the Department of Agriculture was urged. As, however, the capacity of the London market is limited, it was pointed out that until and unless new markets were found, the area under cultivation might have to be controlled in order to prevent the evils arising out of over-production, and that cultivation must be regulated on the basis of various qualities required in different markets.

50. *Periodical price reports.*—The following two periodical reports on prices were submitted to Government (i) a half-yearly report on prices required in connexion with the report of the Provincial Government to the Government of India on the prevailing agricultural situation and the measures adopted to relieve agricultural distress and (ii) a monthly report on the wholesale prices of rice at Cocanada, Nellore, Madras and Shiyali. The latter report has since been discontinued under the orders of Government. Since 1st December 1939, in addition to the preparation of the statement of wholesale prices each week for publication in the *Fort St. George Gazette*, a statement of wholesale prices in terms of local units of transaction of important commodities at selected centres is being sent daily to the Station Director, All-India Radio, Madras, for inclusion in the broadcast item " Market rates and Comments." The statement of wholesale prices sent to the Station Director, All-India Radio, Trichinopoly, was amplified by the inclusion of the prices of paddy and rice prevailing at Trichinopoly, Negapatam, Mannargudi, Tiruvarur and Kumbakonam. For the last quarter of the year under review, the quarterly report on prices of commodities in the Province of Madras was brought in line with the weekly statement and review of the index numbers of wholesale prices of commodities submitted to Government.

51. *Returns of prices prescribed as a result of war conditions.*—On the outbreak of war, the retail prices of almost all commodities, whether locally produced or imported, rose sharply as a result of panic buying. Government at once issued a communiqué stating that there was no justification for the rapid rise and warning traders that profiteering would not be allowed. A few days later a further communiqué was issued by Government pointing out that the Provincial Government had obtained from the Central Government authority to fix the maximum prices

of essential commodities and asking for the co-operation of the public in their attempt to check profiteering. With a view to enabling Government to watch the trend of prices and stocks of essential commodities, the following reports were submitted: (i) A statement of daily wholesale prices of some important commodities in Madras City, (ii) weekly return of daily retail prices of essential commodities in Madras City, (iii) a fortnightly statement of wholesale prices of important commodities in Madras City and (iv) a monthly statement of imports of paddy and rice by sea into the different ports of the Province. In addition to the above statements, a weekly statement with a review of the index numbers of wholesale prices of (i) foodgrains, (ii) commercial products and (iii) all articles in the Province of Madras, was submitted to Government from the last week of March. The indirect system of weighting was adopted in the construction of the index. The weights for the different commodities were fixed on the basis of the values of the production of the several commodities in the Province as a whole and the number of quotations for each commodity was taken to correspond to the percentage weight pertaining to it so that the total number of quotations for all commodities was 100. In order to give representation to certain commodities whose weightage on a strictly mathematical basis would not have entitled them to a place in the list of price relatives and index numbers, certain adjustments were made so as to include them in the list. The statement and review of the index numbers of wholesale prices is sent to Government every Thursday and a copy of the statement and review is communicated to the Agricultural Marketing Adviser. The index was originally constructed with the prices ruling on 28th August 1939, i.e., just before the outbreak of war as base, but in order to bring it in line with the All-India index compiled by the Economic Resources Board, New Delhi, the base period for the Madras index has since been changed to week ending 21st August 1939 which is regarded as the latest normal week before the outbreak of war. A number of questions arising out of prices control was examined including the question of the increase in the price of sugar following the outbreak of war, response of the price of Burma rice at Madras to the price at Rangoon, rise in the wholesale price of matches in November, and increase in the price of firewood in February and March.

52. *Cost of living index.*—On the outbreak of war, the index of cost of living shot up from 98 in August 1939 to 103 in the following month. Subsequently it rose to 104, 105 and 108 in October, November and December 1939 respectively. In view of the rising tendency shown by the index, a weekly cost of living index number was initiated on the same lines as the monthly index for the purpose of watching more closely the movement of cost of living. A weekly series is now being maintained commencing with the index for the first week of December 1939.

53. *Labour statistics—Statistics of wages.*—The Draft Convention covering statistics of wages and hours of work adopted by the General Conference of the International Labour Organization was considered and recommendations were made to Government as to the extent to which the Convention could be ratified in so far as this Province was concerned. The question of constructing index numbers of wages for different classes of workers in the factories coming under the operation of the Factories Act was examined and a form was proposed for collection of the necessary statistics under the direction of the Chief Inspector of Factories.

54. *Statistical Abstract for the Province of Madras.*—A statistical abstract for the quinquennium ending with 1938–39 has been compiled. It comprises statistics relating to the various administrative departments of this Province, to trade, shipping, wholesale and retail prices of principal commodities, index numbers of prices and index numbers of cost of living, agriculture, production in principal industries and population. Statistics have been presented by districts wherever possible.

55. *Statistical analysis of the statements of stores purchased by the various departments.*—It was considered by Government that if a majority of Provincial Governments combined and agreed on a common stores purchase policy, it might be possible to obtain capital to start new industries which would supply the need. With that end in view, heads of departments were requested by Government to furnish me with detailed statements of stores purchased by them during the two years 1936–37 and 1937–38 showing separately (i) the manufactures of this Province, (ii) of other provinces, and (iii) of foreign countries. One hundred and eighteen statements were received for consolidation, analysis and interpretation. The innumerable articles of diverse description entering into the stores purchases of the various departments were first grouped according to standard trade classifications to enable an estimate to be made of the stores requirements according to certain broad industrial categories and the new industries for the development of which scope exists to be indicated. The articles were then re-grouped under three heads according as they were manufactured in the Province, or other Provinces in India or in foreign countries. The return from an important department of Government is still due and when it is received the analysis and interpretation of the statistics will be completed.

56. *Index numbers of import and export prices.*—With a view to providing a measure of the general level of prices of commodities imported into and exported from the Province of Madras by sea, index numbers of declared values of (i) foreign imports, (ii) foreign exports, (iii) coastwise imports and (iv) coastwise exports have been constructed. The index numbers will be compiled every month. An endeavour has been made to make the index numbers as truly representative as possible by basing them on the declared values of the greater part of the commodities that enter into trade. According to the returns for 1937–38, the articles in the list comprise in the case of foreign imports, 71 per cent of the total value of foreign imports, in the case of foreign exports 97 per cent of the total value of foreign exports, in the case of coastwise imports 70 per cent of the total value of coastwise imports and in the case of coastwise exports 82 per cent of the total value of coastwise exports. A few articles such as machinery for which quantities are not specified could not be included. In the choice of the base period, the situation in which the trade finds itself since the outbreak of war outweighed other considerations and the pre-war month of August 1939 has therefore been taken as the base period. This will enable the trend of import and export prices of commodities in this Province to be watched with reference to their pre-war level. The index number is a weighted average of the price relatives, the weights being proportional to the values of the commodities computed on the basis of the declared values per unit in the base period.

57. *Index number of wholesale prices for Madras City.*—An index number of wholesale prices of commodities for the Madras City has been initiated. The index will be constructed every month. The indirect system of weighting has been adopted. According to this system, each commodity is represented by different quotations proportional in number to its weight so that the arithmetic mean of all the price relatives will be automatically weighted. The weights are computed on the basis of the quantities of the different commodities traded in for consumption in the city. Statistics were by no means adequate for arriving at the weights but the fullest use has been made of all available data. The values of foreign, coastwise and railborne imports into and exports from the Madras City during the three years ending 1938–39 form the basis for the weighting of most of the commodities. As only quantities are published in the Inland Trade Statistics, the values had to be estimated on reasonable assumptions. Final weights were, however, assigned not strictly in proportion to the values arrived at by means of the trade figures inasmuch as railborne statistics are not available for many commodities and the imports and exports by lorries and carts are not recorded at all. Adjustments were made for these lacunæ in data and 80 quotations of commodities were finally selected under 12 groups, namely: (i) cereals, (ii) pulses, (iii) sugar and jaggery, (iv) condiments and other articles of food, (v) oils, (vi) tea, coffee and tobacco, (vii) seeds, (viii) textiles, (ix) tanned hides and skins, (x) metals, (xi) building materials and (xii) other raw and manufactured articles. The week ending 21st August 1939 has been taken as the base period for the same reasons which prompted the choice of the base period in the case of index numbers of import and export prices. Prices are collected in the wholesale markets in the city on the 14th and the last day of each month.

Cottage Industries.

58. In the review of the administration report of the department for the year 1938–39, it was stated that with a view to finding out ways and means of providing employment for the landless rural labour during the periods of enforced idleness, Collectors had been asked to prepare comprehensive memoranda on the manner in which the development of cottage industries in their districts could be fostered and encouraged, to place them before district periodical conferences for discussion, and to submit detailed reports to Government for consideration. Several memoranda were received from Collectors during the year and reports thereon submitted to Government on which orders have been passed since the close of the period under review. Several Collectors have suggested the advisability of conducting demonstrations in order to encourage the production of improved jaggery in their districts. Demonstrations of improved palmyra and coconut jaggery manufacture could be staged in any area where suitable facilities exist provided that arrangements could be made by people locally interested to supply free juice, free fuel and free labour and meet a further expenditure not exceeding Rs. 50 in each case for the construction of furnaces, railway freight and transport of appliances. The demonstrations should be followed up by the formation of co-operative societies in suitable cases. Similarly attempts might be made in some areas to produce a better quality of coir fibre and coir yarn and if interested people could arrange for the free supply of husks and defray the cost of transport of the appliances, demonstrations could be arranged in different areas at minimum cost. There would seem to be considerable scope for co-operative effort in the coir industry.

In framing schemes for the development of cottage industries, much depends on whether suitable local aid can be enlisted in conducting them. The co-operation of a gentleman in the Bellary district and of the correspondent of an aided industrial school near Madras has been very useful in connexion with the development of the hand-made paper industry, and if local non-official action could be stimulated in a similar way in different areas, much might be done under existing rules and with existing facilities. Local bodies and associations should be given every encouragement to submit schemes for the development of cottage industries by the provision of instruction in classes under the Code of Regulations for Industrial Schools, though the extent to which they could be aided to cover the cost, wholly or in part, as the circumstance of each case may require, will necessarily depend upon the funds which Government are able from time to time to make available for the purpose. Under this arrangement, all the technical assistance required would be provided by the Department of Industries and Commerce, and this should be supplemented by the efforts of the Co-operative Department in the direction of providing facilities for co-operative buying and selling. I am in agreement with the view expressed by the Registrar of Co-operative Societies that there is need for a detailed survey with reference to the survival value of the existing cottage industries under modern conditions, and the extent of State help or protection necessary for their revival. There is, I consider, much to be said in favour of placing an experienced technical officer of the Department of Industries and Commerce on special duty for revising and bringing up-to-date and supplementing the information contained in the reports of the Special Officer who was appointed to survey the cottage industries of the Province in 1927. With the information that might be expected to become available from such a survey carried out by a technical officer, it would be possible for the department to consider if anything could be done to establish a new industry in any particular area or to improve an existing industry by providing finance, assistance in marketing, or improvement in technique and design, whilst the Co-operative Department could consider whether co-operative methods were applicable. It is no doubt almost as necessary to introduce and develop new cottage industries as to find an extended market for the products of the existing ones, and this aspect of the matter could also be examined by the Special Officer. In many cottage industries, there is scope for the introduction of improved apparatus and appliances, but owing to lack of staff and other necessary facilities for the conduct of experiments in connexion with the devising of such appliances, little progress has been made in this direction. Another very important question affecting cottage industries is that of improvement of design for handicrafts and the introduction of improved patterns and designs amongst the cottage workers and craftsmen. It should be the function of the School of Arts and Crafts to arrange as far as possible for the adaptation of design in indigenous industries with a view to meeting modern demands and for the development of a closer relationship between art and industry, and as a first step, it has been proposed that a design teacher should be appointed for the purpose of imparting instruction in design in the crafts section of the School of Arts and Crafts, and to assist in the introduction of improved designs in cottage industries. If funds permit, on the conclusion of a properly conducted survey, cottage industries officers for groups of districts might be appointed, as an experimental measure, to organize and develop cottage industries. Every endeavour should be made to form industrial co-operative societies or associations in each district for the supply to the cottage workers of raw materials, improved designs and appliances, and for the marketing of their products. Demonstrations of improved methods and processes and of improved appliances could also in suitable cases be carried out through the medium of these co-operative societies or district associations.

59. *Deputation of Sri V. R. Chitra to Japan to study the small scale and cottage industries of that country.*—It was stated in the report of the previous year that arrangements had been made

to depute Sri V. R. Chitra, Superintendent, Crafts section, School of Arts and Crafts, to Japan for the purpose of studying the methods, technique, and organization of the cottage and small-scale industries of that country. Sri Chitra left for Japan in July and returned to Madras in November 1939. The capacity of Japan to export cheap industrial goods has been ascribed by various authorities to a combination of factors; to the active interest of the Government of Japan in the industry of the country to rationalization, to constantly improving technique, to adaptability to new requirements, to the supply of cheap power throughout the towns and villages of Japan, and to cheap and highly efficient labour. The traditional policy of the Japanese Government has been to encourage and promote small as well as large industries, and in Japan small workshops which employ fewer than ten workers and therefore are outside the regulation of Japanese Factory Acts are extremely numerous, probably about one half of all industrial workers being employed under such conditions. It is estimated by some authorities that from 60 to 70 per cent of Japanese exports consist of the manufactures of small and medium-scale industries. A special feature of Japanese industry is the integration of production. The small industries of Japan are for the most part run by families assisted by hired workers who live almost as members of the employing family. These cottage industries are mechanized as cheap power is available and the use of small motors and machines is universal. The products of the cottage industries are collected, finished, graded and marketed by large scale organizations. It is evident that the particular characteristic of Japanese industry is the control which the Japanese Government exercise over industry, both directly and through various organizations and by various legislative enactments so as to ensure co-operation and co-ordination, to prevent undercutting, to provide cheap transport facilities and to develop export markets. In the memorandum of instructions which I drew up for Sri Chitra prior to his departure for Japan, I gave a list of fifteen different industries which I considered it advisable that he should intensively study, and stated that if it was found impossible to obtain detailed information in regard to all these industries, he should confine himself to obtaining information in regard to such of the cottage and small-scale industries of Japan as appeared *prima facie* to be suitable for introduction and development in this Province. In the time at his disposal, Sri Chitra was able to study only the hand-made paper, pottery and porcelain, enamelware, pitcture-frame moulding and dolls and toys industries and the important question of design for handicrafts. Sri Chitra's report with my recommendations, were submitted to Government shortly after the close of the year and are now engaging their attention.

60. *Handspinning and khadi manufacture.*—A provision of Rs. 2,00,000 was made in the budget for 1939-40 for the development of the handspinning and khadi industry. Government

approved the proposals of the All-India Spinners' Association, Ahmedabad, for the utilization of an amount of Rs. 43,399 by the branches of the Association in this Province for the Andhra (Masulipatam), and Kerala (Payyanur) including Moplanad, in order to finance the designing, manufacturing and supplying of gins, bows, with guts and spindles with thin pulleys, speed wheels, vertical and horizontal charkas, fly shuttle looms and fittings, and also for the conduct of research work in carding, spinning, printing, dyeing and weaving, and for the training of workers and their employment as instructors in the villages with a view to increasing the efficiency of the artisans and the implements used. Government also sanctioned a subsidy up to a maximum of Rs. 1,51,250 to cover possible losses caused by inexperienced workers and to enable adequate wages to be given to the spinners and other artisans, based on the actual increase in the production of khadi during the year, calculated at the rate of one anna per square yard of increase. In regard to the famine areas, a grant of Rs. 5,349, including a subsidy of Rs. 1,000 calculated at the rate of annas eight per viss of yarn produced, was sanctioned in respect of schemes for development in Adoni taluk of the Bellary district and in Kurnool taluk of the Kurnool district. A total grant of Rs. 46,470 under non-famine and famine areas and a total subsidy of Rs. 74,652 to the branches of the Association were drawn and disbursed during the year.

61. *Coir working class.*—The full number of 12 students underwent training during the year in the various processes of coir manufacture such as beating, cleaning of fibre, spinning of coir yarn and weaving of mats and other articles in the coir working class at Beypore in Malabar, whilst a few of the old students returned for further training in mat weaving. Several thousand soaked husks and about seven candies of coir fibre were purchased and converted into finished articles. Six and a half candies of coir yarn, 2,400 feet of woven mats, 650 lb. of rope, 240 brooms, and 100 brushes and other sundry articles were made and sold, the sale proceeds during the year amounting to Rs. 610. It is encouraging to be able to report that several of the old students have taken to the spinning of yarn on the charka and are now turning out brush mats, etc., on a cottage industry basis. A resident of Beypore opened a small factory equipped with improved appliances and engaged some of the trained students, with whose aid coir goods of excellent quality were produced. A manufacturer of coir mats at Calicut deputed two of his women workers for training in the school some time ago and is now manufacturing from machine spun yarn, matting for cricket grounds and other purposes. Messrs. Peirce Leslie and Company, Limited, Calicut, have kindly undertaken to value the machine spun yarn produced at the Beypore school and if this yarn can be produced in Calicut on a commercial scale on the basis of their valuation, they will send samples to London for further report

with a view to developing an export business in Calicut machine-made yarn.

62. *Demonstration of the manufacture of white sugar from palmyra sweet toddy at Tiruppalur, Palghat taluk, Malabar district.*—A demonstration of the manufacture of white sugar from palmyra sweet toddy was conducted at Tiruppalur in Palghat taluk towards the close of the year, the people locally interested supplying raw juice, fuel and labour. This demonstration may be considered to constitute an advance over those previously carried out, in that it holds out a greater prospect of economic success for the small scale manufacture of sugar from palmyra sweet toddy on a cottage basis, the removal of lime from the juice and the centrifuging of the rab having been simplified. The cost of centrifuging may be brought down, as it was in this demonstration, by driving the centrifuge by an engine engaged in running other industrial machinery, such as a rice mill, when not required for working the centrifuge. It would therefore seem advisable to engage in the small scale sugar industry only as a side line to, or in conjunction with another small factory industry, since the sugar industry is a seasonal one, and an engine if bought solely for purposes of such industry would have to remain idle for a good portion of the year.

63. *Assistance to the Peravali Jaggery Co-operative Sale Society.*—With a view to improving the economic condition of the toddy tappers in the West Godavari district, the Government sanctioned in 1938–39, the deputation, for a period of two months of a mechanic of the department to teach the tappers of the newly formed Peravali Jaggery Co-operative Sale Society improved, methods of preparation of jaggery. Owing, however, to the lack at that time of suitable mechanics trained in jaggery manufacture, it was not possible to give effect to the arrangement last year. A mechanic was deputed for the purpose towards the close of the year under review and demonstrations of the manufacture of jaggery were conducted in the Peravali area up to the third week of May 1940.

64. *Hand made paper.*—The two paper making classes attached to the Harijan Industrial School, Kodambakkam near Madras, and the Bharadwaj Asram, Peddakadubur, since transferred to Adoni, Bellary district, continued in operation during the year. The special grant by Government to meet the full expenditure involved was withdrawn, and the classes continued under the ordinary provisions of the Code of Regulations for Industrial Schools, the maintenance grant thus being limited to not more than half the net cost. The classes in hand made paper making at two other industrial schools one at Rajahmundry and one in Malabar were continued and paper making was taken up during the year by the Gokulam Cottage Industrial School, Madras. Generally speaking the plan in these industrial schools is to give the students of the regular school courses, e.g., cabinet-making, blacksmithy, etc., some instruction in paper making

as a side line or subsidiary industry, and apart from these part-time students, to admit a limited number of students for short intensive courses of three to five months full time instruction in paper making. Proposals are under consideration for establishing classes in paper making at other centres and some co-ordinating agency for supervising and developing the work to the best advantage seems to be necessary. A comprehensive scheme for the development of the hand made paper industry, which involved the constitution of three demonstration parties and the appointment of a supervising demonstrator, who, in addition to controlling the work of the parties, would carry out experimental work with a view to determining what raw materials are specially suitable for hand made paper manufacture and also devote attention to the evolution of improved appliances for the industry, was drawn up during the year, but has been deferred by Government for the present. The prolongation of the war may result in a shortage of paper, and would seem to provide an opportunity for the hand made paper industry to establish itself. It is very desirable, under the present conditions, that waste paper and other waste materials suitable for hand made paper manufacture should be collected and utilized for the purpose, as this would assist in some measure to solve the problem of paper shortage, should it arise in an acute form. It does not appear to be generally realized that unglazed hand made paper makes an excellent blotting paper which is superior to, and much more economical in use, than the ordinary mill product, and there seems no reason why the whole of the requirements of Government and other large consumers of blotting paper should not be met by a properly organized hand made paper industry.

65. *Preparation of malted foods.*—There was a reference in last year's report to the fact that with a view to evolving a small scale plant, for the preparation of malted foods from cholam and other cereals, Government had sanctioned the construction at the Industrial Engineering Workshop, of the requisite apparatus for soaking, drying and couching and machines for husking, grinding and roasting cholam. In the course of the year, a couching and malting basin with arrangements for temperature control, husking and polishing machine, automatic spiral roaster, grinding machine, and oscillating malt grading machine, were designed and constructed. An experimental trial of the whole plant was conducted by the Agricultural Chemist shortly after the close of the year as a result of which it was found desirable to effect certain alterations and adjustments to some of the machines. It is anticipated that these modifications to the plant will be completed by about the end of July.

66. *Sand paper.*—It was stated in the report of the previous year that Government had sanctioned the experimental manufacture of a gluing roller, hand worked grader, and sprinkler for the manufacture of sand paper on a cottage industry basis. Owing to the fact that no special staff was available for carrying

on the experimental work and that the staff of the Industrial Workshops were fully engaged, in addition to their ordinary duties, on the construction of a plant for the preparation of malted foods, little progress was made with the manufacture of sand paper machinery during the year. It is hoped, however, that it will be possible to complete the manufacture of the several machines and to experiment with them during the current year.

67. *All-India Village Industries Museum, Wardha.*—The Government sanctioned during the previous year an expenditure not exceeding Rs. 950 for the supply of various models of village implements with the necessary charts and blue prints for display at the All-India Village Industries Museum, Wardha, and the following articles were manufactured and forwarded to Wardha for the purpose during the year under review, models of cotton durry weaving loom, kora grass mat loom, husk crushing machine, willowing machine, coir spinning charkas and block printing apparatus, from the Government Textile Institute, of improved juice boiling furnace, Pinto chekku, bullock driven chekku, Panruti circular mhote, Ramachandra water lift and charcoal making furnace, from the Industrial Engineering section, of appliances used in the manufacture of jaggery, coir rope making accessories and tannery implements from the Leather Trades Institute, and of an improved potter's wheel and kiln from the School of Arts and Crafts.

General Review of Commercial and Industrial Conditions.

68. *World conditions.*—The year under review, which was a period of uncertainty caused by recurring international crises, may be divided into two parts: the first five months, when conflicting forces were in operation, and low prices prevailed for raw materials, and the last seven months in which the events in Europe were the predominating influence in practically all markets and rising prices were seen. Following a year of depression, business, in the opening months of the period under review lacked buoyancy and was under the shadow of political unsettlement which later developed into the European war. During the months prior to the outbreak of war, there was very little change in the general level of world prices. In the United Kingdom, the growth of public expenditure must have tended to raise prices, but in the case of industrial commodities, this was offset by the low level of business activity in the United States of America. At the time when war broke out, it is probable that conditions were ripe for a slow rise in world prices. American business activity was improving, whilst the rate of world armament expenditure was still increasing. The effect of the war was to raise prices sharply immediately after its outbreak owing to the onset of heavy restocking all over the world, and then to continue to raise them at a slower pace. At the beginning of September, the Government of the United Kingdom took steps to control prices of the principal foodstuffs and of certain other commodities and

by the end of December some 20 groups of commodities were controlled. Soaring commodity prices are traditionally associated with war and there was necessarily a certain wonder at the moderate repercussions which the outbreak of war had upon the general level of prices by the end of the period under review. The unrestrained advance in prices during the last war, however, was due to inflation of a character which it is still hoped to avoid and also to the absence of the measures of governmental control which on this occasion were applied promptly on the very outbreak of war in the case of the more important primary commodities. Nevertheless, in India the contrast in economic conditions before and after the outbreak of war was fairly sharp as following a period in which the price level was falling or stagnant and there was a reduced demand for her exportable products, trade became more active and prices rose. In the last six months of the year under review, exports of Indian merchandise from Madras advanced by about Rs. 175 lakhs as compared with the corresponding period of the previous year. On the other hand imports of private merchandise into Madras fell by about Rs. 38 lakhs. The Calcutta index of wholesale prices (July, 1914 = 100) which was 96 in March 1939 rose to 121 in March 1940, representing a rise on the year of 26·1 per cent. The Karachi index number advanced from 104 to 117 or by 12·5 per cent, and the Bombay index number from 99 to 119 or by 20·2 per cent.

69. *Economic conditions in Madras.*—There was no change in the Bank rate which has remained at three per cent since November 1935. The improvement in economic activity was reflected in the value of cheques passing through the Madras Clearing House which increased from Rs. 98,90,74,934 in the year ended 31st March 1939 to Rs. 1,07,94,22,164 in the year under review. The earnings of the railways were also higher. The total receipts of the Madras and Southern Mahratta Railway Company, Limited, increased from Rs. 754·44 lakhs in 1938–39 to Rs. 792·27 lakhs in 1939–40, the improvement being attributable to increased goods traffic. The total earnings of the South Indian Railway Company, Limited, also improved from Rs. 546·74 lakhs to Rs. 551·26 lakhs owing mainly to an increase in goods earnings. The imposition of increased charges from 1st March 1940 also contributed to the increase. There was a decrease in coaching earnings owing to widespread breaches on account of heavy rains and the stoppage of immigration of labour to Ceylon. The total value of the sea-borne trade of the Madras Province (both foreign and coastwise), including trade with Burma, increased by Rs. 385·21 lakhs, or by about 4·87 per cent, to Rs. 8,289·02 lakhs. The foreign trade, excluding Government transactions and excluding Burma, increased in value from Rs. 4,931·36 lakhs to Rs. 5,306·77 lakhs, Burma accounting for another Rs. 1,335·51 lakhs, as against Rs. 1,178·53 lakhs in the previous year. The coasting trade, however, declined from Rs. 1,748·29 lakhs to Rs. 1,618·44 lakhs (excluding Burma). In

the case of private merchandise imports from foreign countries (excluding Burma) advanced from Rs. 1,537·04 lakhs to Rs. 1,677·55 lakhs or by 9·14 per cent, imports from Burma also advancing from Rs. 924·39 lakhs to Rs. 1,004·46 lakhs. Imports of oils, cotton twist and yarn, dyeing and tanning substances, manures, provisions and oilmanstores, chemicals, drugs and medicines, spices, grain, pulse and flour, artificial silk, and sugar and soap, registered increases, whilst imports of machinery and mill-work, metals and ores, vehicles, cotton manufactures, instruments, apparatus and appliances, paper and paste-board, hardware, tobacco, rubber, liquors, tea chests, glass and glassware, silk—raw and manufactured, building and engineering materials, stationery (excluding paper), postal articles not specified, wood and timber, and 'other articles not listed,' showed decreases. Exports of Indian produce to foreign countries (excluding Burma) rose by Rs. 270·81 lakhs, i.e., from Rs. 3,306·18 lakhs to Rs. 3,576·99 lakhs or by 8·19 per cent. Exports of leather, tea, cotton manufactures, cotton raw, fruits and vegetables, grain, pulse and flour, coir—raw and manufactured, metals and ores, rubber, postal articles, spices, hides and skins—raw, oils and 'other articles not listed' increased, whilst exports of seeds, tobacco—raw and manufactured, oil-cakes, coffee, fish, and fibre for brushes and brooms, declined. A glance at the table of prices of commodities which faces this page will show that the average of the monthly average values of the listed commodities were, with the exception of pepper, coir yarn and tobacco, higher during the year under review than in the previous year. Values of cotton, groundnut, paddy and rice, copra and coconut oil, jute, castor seed, sugar, tanned cow hides, tanned goat skins and tanned sheep skins, were higher in March 1940 than in the corresponding month of the previous year, and amongst the listed commodities only pepper, coir yarn and tobacco were standing at lower levels.

70. *Inter-Empire and foreign trade.*—The trade with the British Empire (including Burma) represented 68·86 per cent of the total foreign trade of the Province compared with 66·14 per cent in the previous year. Imports rose by Rs. 32·47 lakhs to Rs. 1,767·86 lakhs or by 1·87 per cent and exports by Rs. 473·69 lakhs to Rs. 2,726·23 lakhs or by 21·03 per cent. Imports from the United Kingdom declined by Rs. 115·78 lakhs to Rs. 540·14 lakhs, but exports to that country rose by Rs. 295·35 lakhs to Rs. 1,735·60 lakhs. The percentage of the trade with the United Kingdom to the total foreign trade of the Province advanced from 34·77 to 34·88. The imports from Burma were again the largest from any single foreign country, including the United Kingdom, and exceeded this year also in value that of the imports from all countries outside the Empire put together. Imports from Burma advanced from Rs. 924·39 lakhs to Rs. 1,004·46 lakhs and exports from Rs. 252·61 lakhs to Rs. 266·60 lakhs, the percentage of the total trade with Burma to the total foreign

Average monthly wholesale prices of some of the principal Madras commodities during the year 1939–40.

Commodity.	April. (2)	May. (3)	June. (4)	July. (5)	August. (6)	September. (7)	October. (8)
(1)	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Cotton (Cambodia) (Tirupur) per candy of 520 lb.	162 8 0	159 10 0	161 11 2	158 12 0	156 12 0	171 14 5	178 0 0
Cotton (Karunganni), (Tirupur) per candy of 520 lb.	136 8 0	135 6 0	135 0 0	130 12 0	128 0 0	149 3 2	158 14 0
Groundnut (Nandyal), per candy of 531 lb.	21 2 0	24 15 0	26 6 7	24 13 3	25 11 9	25 12 10	26 3 0
Groundnut (Coimbatore), per candy of 531 lb.	..	..	..	..	25 2 8	25 10 5	26 1 2
Pepper (Tellicherry) per cwt.	17 9 0	17 14 0	17 6 5	17 0 0	16 6 0	18 0 9	17 2 0
Paddy, (Tenali) per bag of 164 lb.	4 4 8	4 5 2	4 7 9	4 8 2	4 9 4	4 15 4	4 14 6
Rice (Tenali) per bag of 164 lb.	6 6 0	6 7 0	6 6 0	6 5 0	6 5 6	6 6 0	6 6 0
Coir yarn (Alleppey) per candy of 672 lb.	49 10 0	48 6 0	52 8 0	52 8 0	50 0 0	43 2 0	42 13 0
Copra (Cochin) per candy of 655 lb.	38 0 0	42 12 0	42 12 10	42 8 0	42 12 0	53 12 10	60 0 0
Coconut oil, (Cochin) per candy of 655 lb.	59 6 0	66 6 0	65 4 10	64 4 0	63 3 0	74 4 10	79 6 0
Jute (Vizianagaram) per candy of 500 lb.	47 0 0	52 8 0	50 9 7	40 4 0	37 8 0	42 9 7	42 0 0
Tobacco (Erode) per maund of 28 lb.	4 4 0	4 4 0	4 4 0	3 10 10	3 4 0	3 5 7	3 8 0
Castor seed, per Imperial maund of 82-2/7 lb.	4 3 1	4 4 2	4 5 0	4 4 3	4 5 0	4 7 2	4 7 2
Nellikuppam sugar per cwt.	15 4 0	16 3 0	14 14 6	14 6 10	13 15 9	15 15 10	16 0 0
Mandya sugar, per cwt. ..	15 5 0	16 0 0	..	..	..	..	16 7 8
Tanned cow hides—							
Bangalores 8-8½ lb., per lb.	0 9 11	0 10 1	0 9 11	0 10 2	0 10 2	0 10 2	0 11 4
Up-countries 8-8½ lb., per lb.	0 9 8	0 9 10	0 9 8	0 9 11	0 9 11	0 9 11	0 11 0
Coasts 7-7½ lb. per lb. ..	0 10 2	0 10 4	0 10 2	0 10 5	0 10 5	0 10 5	0 11 1
Tanned goat skins—							
Good per lb.	1 9 10	1 9 6	1 8 9	1 8 7	1 9 0	1 8 3	1 14 10
Fair „	1 7 11	1 7 6	1 7 2	1 6 10	1 7 0	1 6 7	1 11 1
Common „	1 6 4	1 6 6	1 6 2	1 5 10	1 6 0	1 5 9	1 9 11
Tanned sheep skins—							
Good per lb.	1 7 3	1 7 2	1 7 0	1 7 6	1 7 0	1 7 6	1 14 4
Fair „	1 6 3	1 5 6	1 5 2	1 5 11	1 5 6	1 5 9	1 11 11
Common „	1 2 2	1 2 11	1 3 4	1 3 2	1 2 6	1 2 9	1 10 8

Commodity.	November. (9)	December. (10)	January. (11)	February. (12)	March. (13)	Average of the monthly prices for 1938–39. (14)	Average of the monthly prices for 1939–40. (15)
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Cotton (Cambodia) (Tirupur) per candy of 520 lb.	184 6 0	216 14 0	227 10 0	219 4 0	218 12 10	149 11 3	184 10 10
Cotton (Karunganni) (Tirupur) per candy of 520 lb.	153 12 0	184 0 0	202 8 0	201 14 0	201 11 2	128 5 10	160 3 4
Groundnut (Nandyal), per candy of 531 lb.	26 8 0	28 0 0	27 0 0	26 15 0	27 5 7	20 12 10	25 14 10
Groundnut (Coimbatore), per candy of 531 lb.	26 13 7	32 0 0	30 0 0	28 4 0	31 6 5	21 7 9	28 2 6
Pepper (Tellicherry) per cwt.	18 6 9	19 2 0	17 8 0	16 8 0	16 2 10	17 12 6	17 6 9
Paddy (Tenali) per bag of 164 lb.	4 15 0	4 13 6	4 7 9	4 12 7	5 4 9	4 6 4	4 11 3
Rice, (Tenali) per bag of 164 lb.	6 7 0	6 8 0	7 8 6	7 5 8	6 13 10	6 6 10	6 9 9
Coir yarn (Alleppey) per candy of 672 lb.	49 4 0	47 9 0	47 13 0	48 12 0	51 4 0	36 12 10	48 10 1
Copra (Cochin) per candy of 655 lb.	81 8 0	78 12 0	67 0 0	60 8 0	56 12 10	41 9 1	55 2 11
Coconut oil, (Cochin) per candy of 655 lb.	107 0 0	104 10 0	99 13 0	88 13 0	86 8 0	63 7 7	78 14 7
Jute (Vizianagaram) per candy of 500 lb.	69 4 0	91 0 0	86 4 0	71 4 0	78 12 10	35 9 8	59 1 4
Tobacco, (Erode) per maund of 28 lb.	3 8 0	3 6 0	3 8 0	3 8 0	3 4 10	4 2 10	3 10 5
Castor seed, per Imperial maund of 82-2/7 lb.	4 11 2	5 10 9	5 12 10	5 8 2	6 2 1	4 8 8	4 14 5
Nellikuppam sugar, per cwt.	17 8 2	19 1 0	17 14 0	17 11 0	17 9 3	13 15 10	16 5 11
Mandya sugar, per cwt. ..	17 9 6	19 2 0	17 14 1	17 11 0	17 3 6	13 9 0	17 3 4
Tanned cow hides—							
Bangalores 8-8½ lb. per lb.	0 12 4	0 13 2	0 13 1	0 13 11	0 14 1	0 9 5	0 11 7
Up-countries, 8-8½ lb. per lb.	0 12 2	0 13 0	0 12 11	0 13 8	0 13 10	0 9 2	0 11 4
Coasts, 7-7½ lb. per lb. ..	0 12 5	0 13 3	0 13 3	0 13 11	0 14 1	0 9 11	0 11 8
Tanned goat skins—							
Good per lb.	2 7 9	2 5 7	2 8 5	2 8 0	2 8 9	1 6 8	1 15 3
Fair „	2 2 2	2 1 0	2 2 11	2 3 0	2 4 3	1 5 5	1 12 6
Common „	2 0 3	1 15 9	2 1 7	2 4 6	2 2 9	1 4 8	1 11 3
Tanned sheep skins—							
Good per lb.	2 3 3	2 6 6	2 6 5	2 3 6	2 6 0	1 8 11	1 14 5
Fair „	2 2 9	2 2 0	2 2 6	2 4 0	2 2 2	1 5 0	1 11 5
Common „	1 15 11	1 15 0	1 15 10	2 2 0	1 14 9	1 2 11	1 8 11

trade declining, however, from 19·53 to 19·47. The principal imports from Burma were rice (Rs. 605·17 lakhs—representing over 60 per cent of the total imports), kerosene, petroleum (these two between them accounting for Rs. 195·65 lakhs), pulses, teakwood, paddy, lubricating oil, grain and matches, and the principal exports were cotton manufactures (piecegoods—coloured), vegetable oil (groundnut), cotton twist and yarn, fish—dry unsalted, fresh fruits and vegetables, groundnuts, cigarettes and piecegoods (grey). Imports from Ceylon amounted to Rs. 35·00 lakhs (an increase of Rs. 4·08 lakhs), while exports to that island were Rs. 451·50 lakhs (an increase of Rs. 83·85 lakhs), the total trade with Ceylon representing 7·45 per cent of the total foreign trade of the Province. The export trade with Ceylon is important to Madras in that it represents over 16 per cent of the export trade of the Province with the British Empire as a whole and nearly 12 per cent of the total foreign export trade, coming next to the United Kingdom in the export trade of the Province. The trade with countries outside the British Empire declined from 33·86 per cent to 31·14 per cent of the total foreign trade of the Province (including that with Burma). Imports advanced by Rs. 188·10 lakhs to Rs. 914·14 lakhs, but exports dropped by Rs. 198·20 lakhs to Rs. 1,117·36 lakhs. Imports from European countries declined from Rs. 354·20 lakhs to Rs. 241·53 lakhs and exports thereto from Rs. 977·70 lakhs to Rs. 635·19 lakhs, the percentage of the total trade with European countries to the total foreign trade of the Province declining sharply from 22·09 per cent to 13·44 per cent. In regard to Asiatic countries, imports advanced from Rs. 238·81 lakhs to Rs. 518·72 lakhs and exports from Rs. 104·72 lakhs to Rs. 239·79 lakhs, imports from Japan advancing by Rs. 36·89 lakhs to Rs. 160·74 lakhs and exports to that country by Rs. 10·58 lakhs to Rs. 81·99 lakhs. The percentage of the trade with Asiatic countries advanced sharply from 5·70 per cent to 11·63 per cent. Imports from America and exports to that continent advanced in value and the percentage of the trade to the total foreign trade of the Province rose from 4·54 per cent to 5·34 per cent. Imports from Africa rose slightly, but exports to that continent declined and consequently there was a fall in the percentage of the trade to the total foreign trade from 1·53 per cent to 0·73 per cent.

71. *New industrial undertakings.*—One hundred and seventy-four companies were registered during the year, of which five were without share capital. The authorized capital of the 169 companies registered with capital amounted to Rs. 252·87 lakhs, the subscribed capital to Rs. 14·39 lakhs, and the paid-up capital to Rs. 0·63 lakhs. Of the new registrations with share capital, 93 were trading and manufacturing concerns, 31 hotels, theatres and entertainment enterprises, 18 transit and transport companies, 15 banking, loan and insurance companies, four tea and other plantation companies, three mills and presses, two mining and quarrying concerns, two others and one estate, land and building

concern. The companies floated with the largest capital were: Proddatur Spinning and Weaving Mills, Limited, Proddatur, Cuddapah (Rs. 50 lakhs); Rodgers Dairy Agri Farms Chemical and Engineering Works, Limited, Madras (Rs. 30 lakhs); Royalaseema Bank, Limited, Bellary (Rs. 25 lakhs); Kasturi and Sons, Limited, Madras (Rs. 15 lakhs); Justice Company, Limited, Madras, M.C.T. Bank, Limited, Madras and South Madras Electric Supply Corporation, Limited, Madras (Rs. 10 lakhs each); Andhra Chemical Corporation, Limited, Madras, Deepdala Estates, Limited, Coimbatore and Sri Bharat Glass Industries, Limited, Coimbatore (Rs. 5 lakhs each); Ajax Products, Limited, Madras and Vizagapatam Industries Corporation, Limited, Vizagapatam (Rs. 2·5 lakhs each); East Coast Electric Supply Corporation, Limited, Madras, National Construction Company, Limited, Bezwada, National Electric Works, Limited, Coimbatore, National Mica Company, Limited, Nellore, Building and Loaning Corporation, Limited, Tenali, Rubber and Industrial Investment Trust, Limited, Madras and Raja Rajeswari Oil Mills, Limited, Karaikudi (Rs. 2 lakhs each); Vellore General Motors, Limited, Vellore, Nilgiri Wattle Plantations, Limited, Nilgiris and Nilgiri Gowder Company, Limited, Ootacamund (Rs. 1·5 lakhs each). A noteworthy feature of the year was the registration of Dayalbagh Stores at the following centres, with a capital of Rs. 20,000 in each case: Bobbili, Vizagapatam, Vizianagram, Bhimavaram, Ellore, Palacole, Tanuku, Kovvur, Amalapuram, Pandalapaka, Rajahmundry, Ramachandrapuram, Bezwada, Tenali, Nellore, Kurnool, Nandyal, Bellary, Cuddapah, Triplicane, Trichinopoly, Dindigul, Madura, Palamcottah, and Salem.

72. *Mining operations.*—The following prospecting licences and mining leases were granted during the calendar year 1939:—

	ACRES.
Thirty prospecting licences for prospecting for barytes over an area of	1,329·67
Ten prospecting licences for prospecting for mica over an area of	108·69
Three prospecting licences for prospecting for red oxide of iron over an area of	600·00
Two prospecting licences for prospecting for iron ore over an area of	304·40
Two prospecting licences for prospecting for magnesite and chromite over an area of ..	54·32
One prospecting licence for prospecting for asbestos over an area of	109·10
One prospecting licence for prospecting for oxide of iron over an area of	51·50
One prospecting licence for prospecting for bauxite over an area of	262·83

	ACRES.
Seventeen mining leases for working mica over an area of	642·38
Five mining leases for working barytes over an area of	252·11
One mining lease for working manganese over an area of	259·37
One mining lease for working steatite over an area of	2·20
One mining lease for working phosphatic nodules and gypsum over an area of	430·22

Mining was carried on in the districts of Anantapur, Chingleput Coimbatore, Cuddapah, Kistna, Kurnool, Nellore, the Nilgiris, Salem, Trichinopoly and Vizagapatam.

73. *Manganese.*—The mining of manganese was carried on in the district of Vizagapatam only, the production in that district advancing from 31,813 tons to 34,640 tons, or by nearly nine per cent. Exports of manganese ore advanced from 256,540 tons valued at Rs. 61·59 lakhs to 377,968 tons valued at Rs. 94·05 lakhs. Of this quantity, the United Kingdom took 137,960 tons valued at Rs. 34·23 lakhs, Japan 135,300 tons valued at Rs. 29·14 lakhs, Belgium 30,050 tons valued at Rs. 7·20 lakhs and France 30,012 tons valued at Rs. 10·49 lakhs.

74. *Magnesite.*—The output of magnesite advanced from 23,052 tons to 29,903 tons. Exports of magnesite rose from 147,302 cwt. valued at Rs. 4·46 lakhs to 232,741 cwt. valued at Rs. 9·22 lakhs. Of this quantity, the United Kingdom took 212,416 cwt. valued at Rs. 8·72 lakhs and the United States of America 16,660 cwt. valued at Rs. 0·42 lakh.

75. *Mica.*—The production of mica increased from 693 tons to 1,057 tons, of which the Nellore district accounted for 1,045 tons, Salem for 6·4 tons and the Nilgiris for 5·4 tons. The output of waste mica fell from 3,029 tons to 1,531 tons. Exports of mica advanced from 26,634 cwt. valued at Rs. 15·18 lakhs to 32,349 cwt. valued at Rs. 25·62 lakhs, of which the United Kingdom took 25,399 cwt. valued at Rs. 21·04 lakhs.

76. *Other minerals.*—The production of barytes advanced from 9,516 tons to 15,868 tons, Cuddapah contributing 7,245 tons, Anantapur 4,794 tons and Kurnool 3,829 tons. The production of steatite rose from 25 to 34 tons and of asbestos from 24 tons to 38 tons. The output of phosphatic nodules increased from 23 tons to 182 tons and of gypsum from 9,381 tons to 9,812 tons. An output of 6·83 tons of kyanite, and of 4·61 tons of garnet was also recorded during the year under review.

77. *Cotton.*—The area under cotton in the Province in 1939–40 was estimated at 2,206,200 acres as against 1,957,600 acres in the previous year, representing an increase of 13·1 per cent as

compared with the finally recorded area of 1,950,224 acres in 1938–39. The yield was estimated at 420,900 bales of 400 lb. lint as against 372,010 bales in the previous year, representing an increase of 13·1 per cent. Exports of raw cotton advanced from 19,625 tons valued at Rs. 107·58 lakhs to 29,123 tons valued at Rs. 158·79 lakhs, representing an increase of 48·4 per cent in quantity and 47·6 per cent in value. Of the quantity of cotton exported from the Province, China took 12,042 tons valued at Rs. 64·52 lakhs, Japan 8,294 tons valued at Rs. 44·69 lakhs, the United Kingdom 4,205 tons valued at Rs. 24·58 lakhs, France 2,308 tons valued at Rs. 12·73 lakhs and Belgium 1,573 tons valued at Rs. 8·62 lakhs. Prices of cotton were steady during the first five months of the year, but thereafter advanced appreciably and at the end of the year were standing considerably higher than at the commencement of the period under review.

78. *Cotton spinning and weaving mills.*—There were 56 cotton mills at work in the Province with 1,331,828 spindles and 5,623 looms. The mill production of yarn during the year amounted to 173·77 million lb. against 168·80 million lb. in the previous year. The mill production of cotton piecegoods during the year declined in yardage from 78·46 million yards to 76·42 million yards, but increased in weight from 21·87 million lb. to 23·02 million lb. The production of higher count yarns, i.e., 40s. and above, increased from 43·34 million lb. to 44·57 million lb. Exports of cotton piecegoods by sea to foreign countries (including Burma) amounted to 69·01 million yards valued at Rs. 256·01 lakhs, of which Burma accounted for 28·35 million yards valued at Rs. 118·51 lakhs. Exports to foreign countries (excluding Burma), increased from 27·52 million yards valued at Rs. 102·40 lakhs to 40·66 million yards valued at Rs. 137·90 lakhs. Of the total quantity of piecegoods exported to all countries, coloured piecegoods accounted for 64·66 million yards valued at Rs. 243·52 lakhs, the share of Burma amounting to 26·81 million yards valued at Rs. 111·49 lakhs. For the first half-year, a very low level of yarn prices was ruling, but following the outbreak of war in September, there was some improvement, though as the price of the raw material advanced much more rapidly than yarn prices, the spinning mills did not derive the full benefit. The war created a heavy speculative demand for yarn up to December and thereafter markets fell away and in the last three months of the period under review, were stagnant. Heavy imports of Japanese yarn and yarn spun in Japanese controlled mills in China had also a depressing effect on the demand for, and prices of, [illegible] yarns which throughout the year were comparatively unremunerative to spinners. The weaving mills experienced a difficult year as the period prior to the war was one of falling prices and further accumulation of stocks, whilst after the short-lived optimism following the outbreak of hostilities, consumers proved unwilling to pay the higher prices necessitated by the increase in cost of raw material, dyestuffs, chemicals and mill stores. An impetus

was given to the larger units of the industry by large Government orders for war purposes.

79. *Hosiery.*—There were eleven organized hosiery factories coming under the Indian Factories Act during the year though returns were not received from one of them. The production during the year declined from 1,394,744 lb. to 1,084,578 lb. There was an increased demand for the better qualities of hosiery owing no doubt to the higher cost of, and inability to secure, goods of overseas manufacture.

80. *Madras handkerchiefs and Lungis.*—Exports of Madras handkerchiefs increased in value from Rs. 18·13 lakhs to Rs. 28·17 lakhs. For the first six months of the year, business generally was dull though there was a moderately steady offtake in the various consuming centres. On the outbreak of war, it was anticipated that much higher prices would be obtainable, and in September and October, exporters quoted considerably higher rates and a certain amount of business was transacted. The demand did not, however, increase to the extent contemplated with the result that rates in Madras declined though not to the level ruling in August. Exports of lungis and sarees increased in value from Rs. 112·95 lakhs to Rs. 123·59 lakhs.

81. *Jute.*—Four jute mills were in operation during the year. Prices prior to the outbreak of war had been maintained at fairly low levels, but subsequently the large Government orders placed and the productive capacity thus absorbed, resulted in prices appreciating rapidly. Buyers overseas refused, however, to follow the high prices established, and genuine demand gradually diminished. Demand was affected by (i) extensive speculation by bazaar operators which forced prices far beyond reasonable levels, (ii) lack of freight and (iii) use of second-hand bags, which was encouraged by the high prices for new goods.

82. *Tanning industry—General.*—Exports of tanned hides advanced from 14,381 tons valued at Rs. 220·37 lakhs to 24,940 tons valued at Rs. 411·51 lakhs. Exports of tanned skins also increased from 5,101 tons valued at Rs. 235·63 lakhs to 5,528 tons valued at Rs. 250·91 lakhs. Almost the entire quantity of tanned cow-hides, tanned goat skins and tanned sheep skins, and by far the greater portion of the tanned buffalo hides exported went, as usual, to the United Kingdom, shipments to that country comprising chiefly, tanned cow-hides 20,112 tons valued at Rs. 818·88 lakhs, tanned buff-hides 1,970 tons valued at Rs. 26·02 lakhs, tanned sheep skins 2,787 tons valued at Rs. 130·27 lakhs, and tanned goat skins, 2,381 tons valued at Rs. 105·87 lakhs.

83. *Tanned hides and calf.*—At the commencement of the year, the kip market was firm with a good demand, and prices advanced at the end of April by about seven per cent. The April advance was lost during June and enquiry contracted, but the local market was sustained by prior orders and large shipments

continued. The subsidiary lines, buff hides, buff calf, and cow-calf followed the same trend as cow-hides. During the quarter July to September, there was not much change in prices of kips, but a decline in light weight kips was noticeable and also in poorer qualities. Leather for army work, however, was in good demand. The outbreak of war in September brought business temporarily to a stop, but control prices were soon introduced in London and after a short time Madras prices, supported by the advance in cost of raw hides, began to rise sharply. Prices generally were very low just before the outbreak of war and the controlled prices fixed at London on that level soon proved much too low. Accordingly on 6th November, prices of kips were raised by 20 to 25 per cent to bring them into line with world prices. On this basis, in the period from October to December, very large sales were made to London, and Madras prices were extremely firm. The uncontrolled lines, buff hides, buff calf and cow calf staged a spectacular rise in the first two months of the war and advanced by 65 per cent, 100 per cent and 75 per cent respectively. In November and December, however, a great deal of this advance was lost. In September, there was a strong demand from New York for Madras buffalo hides and calves, and Madras cow-hides also participated, but after a period of great activity, buyers became satisfied and left the market. In the last three months of the period under review c.i.f. prices for tanned cowhides remained at the maximum allowed by the Hides Controller in London. The schedule was considered with a view to revision on the 6th February, but no change was made though the Madras market remained oversold, with the result that the local prices were above London controlled prices. There was a shortage of heavy weights. The uncontrolled lines—buff hides, buff calf, and cow calf—were in plentiful supply. Prices of buffalo hides showed only a small variation, but both types of calf skins fell considerably and were still weak at the end of March. There was no business transacted with New York in tanned cow hides, but a certain number of orders were placed for buffalo hides from February onwards in both light and heavy weights.

84. *Tanned goat skins.*—Demand was weak in April though prices did not decline to any great extent. The month of May still found buyers hesitant to place orders for the usual two months shipment basis, and the auctions closed with extra heavy skins in better tannages losing 2*d* to 3*d*. per lb. and only the best examples of prime tannages occasionally reached the previous sales rates. In the intervening period between the May and July auctions, European political conditions were still in an unsettled state and the lower prices established in Madras had no material effect on the amount of forward business transacted. After the July auctions which closed with firm prices and an increase for light weights, business in Madras continued on a steady scale for all lines with light weights especially finding a good market. The international conditions at the end of August caused a postponement of the public sales for one week, and when the sales

took place, the absence of continental buyers resulted in heavy weights declining by about 2*d*. per lb. though light weights, owing to the continued United Kingdom demand closed firmer. In September for about a week after the close of the auctions, practically no business was transacted and suppliers in Madras were prepared to accept orders at prices ruling at the end of July and August. About the middle of the latter month, a sudden influx of orders from London for light weights brought prices up by 10 per cent in two days. There was a steady trade in October and November, though it was more spasmodic than in the previous months. Compared with the prices ruling before the outbreak of war, by the end of October heavy goats had risen by 33⅓ per cent and light goats by 55 per cent. The average increase in prices in November was about four annas per lb. over those ruling at the end of October. The result of the auctions in December was satisfactory, an increase in price for goats of about 4*d*. per lb. all-round being recorded. January was a good month, orders coming through freely and steadily and prices in Madras advancing by a further two annas per lb. There was no notable decrease in prices of tanned goats in February, and orders came through steadily, although towards the end of the month, heavies declined by about one anna per lb. In March, business was poor, and although occasional orders came through for regular lines, no interest was displayed for the future. Prices suffered a small decline of about two to four annas per lb. from the maximum prices realized at the commencement of the month for both lights and heavies, but no bulk business was put through.

85. *Tanned sheep skins.*—The trend of the tanned sheep skins market throughout the year was similar to that of tanned goat skins. In April and May, business was poor and there was a lack of confidence in the future. At the public auctions, prices declined in sympathy with the tanned goat market, showing an average fall of about 3*d*. to 6*d*. per lb. for Prime tannages. June and July found the market steady with no notable changes taking place. Business was erratic in August and there was no change in prices. After the outbreak of war, although no business was transacted during the first half of September, business improved at the end of the month and this continued into October. By the end of October, prime tannages had advanced from 5/3*d*. to 6/9*d*. per lb., middle class tannages up to 5/—, and ordinary and common tannages rose from 2/7*d*. to 3/5*d*. per lb. Business in November was not so brisk although prices declined only by 2*d*. to 3*d*. per lb. At the December public auctions, tanned sheep primes increased by 2*d*. per lb., but common tannages eased by the same amount. January was a good month, orders coming through freely and steadily and in the middle of the month, Madras prices for tanned sheep advanced by at least two annas per lb. Business in February could hardly be described as good although orders came through steadily. The end of the year under review found business in tanned sheep skins rather quieter, offers being made

of regular lines of prime tannages at about 3*d*. per lb. lower than February prices though they were not taken up immediately.

86. *Chrome leather manufacture.*—Prior to the war, the chrome leather manufacturing industry was commencing slowly to recover from the 1937–38 slump, although margins of profit were still very finely cut. With the outbreak of war came a very large demand for chrome leather and up to the end of the year tanneries were working to full capacity. There was a keen demand from the civilian trade until about the end of the year when this demand for some types of leather slackened off somewhat. In the meantime, finished box-calf and side prices had advanced by about 90 per cent from pre-war levels and raw prices for chrome quality cow-hides by well over 60 per cent. Glace kid leathers did not advance by more than about 55 to 60 per cent and raw skins by about 35 to 40 per cent.

87. *Sugar.*—The area planted with sugarcane up to 25th December 1939 was estimated at 132,010 acres as compared with 96,930 acres estimated for the corresponding period of the previous year, representing an increase of 36·2 per cent. The estimate of the previous year fell short of the actual area by 1·4 per cent only. The yield was estimated at 358,140 tons of jaggery as against 261,130 tons estimated in January 1939, an increase of 37·2 per cent and as against 273,860 tons estimated in the Season and Crop Report of the previous year, the increase in this case amounting to 30·8 per cent. The increase in the area planted with cane may be attributed to favourable prices prevailing for jaggery at the time of planting. Imports of sugar from overseas advanced from 5,010 tons valued at Rs. 5·70 lakhs to 39,475 tons valued at Rs. 60·17 lakhs. Coastwise imports of sugar declined from 5,837 tons valued at Rs. 14·02 lakhs to 1,713 tons valued at Rs. 4·23 lakhs. The quantity of sugarcane crushed in the province increased. The production of the cane and palmyra factories during the year may be estimated at approximately 40,250 tons against an estimated consumption of about 1,00,000 tons. Clearly, therefore it would be undesirable to agree to any regulation of production of sugar in India which does not recognize the right of Madras to increase its production of sugar to some extent at least, since the problem in this Province is one of increase of production rather than of stabilization and rationalization, and of increasing the number of factories rather than of licensing factories. Sugar prices in the early part of the year rose steadily due to low production in Northern India and the anticipated shortage of Indian sugar at the end of the year. Heavy purchases of Java sugar were therefore made and prices in June and July declined owing to the uncertain international situation and the drop in the price of Java sugar. In September, October and November, prices were affected by the declaration of war and rose very sharply. During the remainder of the year prices remained fairly steady at just below the highest level reached after the outbreak of war. In April 1939, the protective duty was reduced

from Rs. 7-4-0 to Rs. 6-12-0 per cwt. but this did not affect prices owing to the small North Indian crop. In March 1939, the excise duty was increased by Re. 1 per cwt. from Rs. 2 to Rs. 3 per cwt. This was borne by the factories as no increase in selling prices took place. Owing to heavy over-production in the north during the 1939-40 season, the year ended with very unfavourable prospects, in view of an anticipated carry over of about 300,000 tons of Indian sugar.

88. Thirteen sugar factories worked during the whole or part of the season, but of these four refined jaggery only. The Kalyanpur Sugar Mills, Kaliyanpur, was not in operation during the year. The factory of the Southern India Sugar Company, Limited, Pugalur, Karur taluk, commenced crushing in August and expected to continue crushing up to the end of June 1940. By the end of March, they had crushed 27,585 tons of sugarcane from which 2,530 tons of sugar were obtained representing the satisfactory rate of recovery of 9·75 per cent. The company expected to be able to declare a dividend during the first year of working. The factory of the Vuyyuru Co-operative, Agricultural, Industrial and Credit Society, Limited, Vuyyuru, worked for 98 days. The total quantity of cane crushed was 55,477 tons, from which 4,685 tons of sugar were obtained, representing a recovery of 8·14 per cent. The factory of the India Sugars and Refineries, Limited, Hospet, worked for 108 days and crushed 38,786 tons of cane from which 3,372 tons of sugar were produced, the percentage of sugar recovery on cane being 8·722. The Sri Rama Sugar Mills, Limited, Bobbili, worked for 179 days and crushed 28,623 tons of cane from which 2,882 tons of sugar were produced, the percentage of recovery on cane being 10·076. The Vizagapatam Sugars and Refinery, Limited, Vizagapatam, worked for 145 days and crushed 9,400 tons of cane from which 700 tons of sugar were obtained. The Sree Ramakrishna Sugar Mills, Kirlampudi, worked for 144 days, and crushed 10,225 tons of cane, from which 840 tons of sugar were obtained, the yield of sugar on cane being 7·9 per cent. The factory of the Ettikoppaka Co-operative, Agricultural and Industrial Society, Limited, worked for 111 days and crushed 5,691 tons of cane from which 464 tons of sugar were obtained, the yield of sugar on cane working out to 8·26 per cent. The cane mill of the Coimbatore Lakshmi Sugar Mills, Limited, Podanur, worked for 33 days and crushed 1,236 tons of sugarcane from which 77 tons of sugar were obtained, representing a recovery of 6·18 per cent. This factory was also engaged for 202 days in the year on the melting of jaggery. The crushing of cane was not carried out during the year in the factory of the Madras Sugars, Limited, at Mailpatti, but it was engaged for 168 days on the refining of palmyra jaggery. This factory has since been disposed of to the Murugappa Sugar Company.

89. *Oil-seeds—Groundnut.*—The area sown with groundnut in the Province in 1939 was estimated at 3,534,200 acres against 3,835,300 acres in the previous year, a decrease of 7.9 per cent.

The yield (in unshelled nuts) has been estimated at 1,576,500 tons against 1,613,000 tons in the previous year. Exports of groundnut to foreign countries declined from 753,853 tons valued at Rs. 879·92 lakhs to 471,050 tons valued at Rs. 596·07 lakhs. Of the quantity exported, France took 107,541 tons valued at Rs. 130·79 lakhs, the United Kingdom 105,413 tons valued at Rs. 135·70 lakhs, the Netherlands 61,224 tons valued at Rs. 77·62 lakhs, Belgium 54,393 tons valued at Rs. 72·71 lakhs and Germany 34,506 tons valued at Rs. 42·00 lakhs. The decline in the export trade was mainly due to the smaller crop and the better demand for local consumption. The level of prices was higher than in the previous year. Values at the commencement of the year stood at £9 per ton. Prices underwent some fluctuations and after rising to £10-6-3 in May and June fell to £9-18-9 in July. Subsequently there was an advance to £11-2-6 in September and after falling to £10-13-9 in December, the price recovered to £11-10-0 in March. The monsoon started early in October with heavy rains and caused considerable damage to the standing crop, and the export surplus estimated to be available was reduced. It was estimated that only about 35 per cent of the total crop was still available for export at the end of March. After the outbreak of war, the United Kingdom Government requisitioned all British ships in order to control the freight rates and consequently all sales to the United Kingdom Government for shipment to the United Kingdom or France were then made on an f.o.b. basis, as was the case also with sales to the Dutch Government. Business with neutral countries after the outbreak of war was difficult owing to the necessity of obtaining licences for export and to the scarcity of freight.

90. *Castor.*—The area sown with castor up to 25th November 1939 was estimated at 272,600 acres as against 256,000 acres estimated for the corresponding period of the previous year, an increase of 6·5 per cent. The yield has been estimated at 26,800 tons as against 25,700 tons estimated for the corresponding period of last year. Exports of castor seed by sea to foreign countries advanced from 5,051 tons valued at Rs. 6·24 lakhs to 5,470 tons valued at Rs. 7·86 lakhs. The Netherlands took 1,524 tons valued at Rs. 1·80 lakhs, the United States of America 1,113 tons valued at Rs. 1·92 lakhs, the United Kingdom 1,014 tons valued at Rs. 1·20 lakhs, and France 1,000 tons valued at Rs. 1·63 lakhs. The average price of castor seed was higher than in the previous year.

91. *Oil-milling.*—Imports of copra declined from 555 tons valued at Rs. 0·68 lakh to 97 tons valued at Rs. 0·16 lakh, Ceylon supplying practically the whole quantity. Imports of coconut oil declined from 428,933 gallons valued at Rs. 3·97 lakhs to 350,685 gallons valued at Rs. 4·48 lakhs, Ceylon supplying 292,223 gallons valued at Rs. 3·65 lakhs. Coastwise exports of coconut oil amounted to 2,016,342 gallons valued at Rs. 22·21

lakhs as against 2,965,839 gallons valued at Rs. 28·08 lakhs in the previous year. Exports of groundnut cake declined from 126,993 tons valued at Rs. 81·90 lakhs to 84,964 tons valued at Rs. 57·29 lakhs, the United Kingdom taking 40,460 tons valued at Rs. 26·62 lakhs. The price of coconut oil advanced in sympathy with the higher Ceylon prices and partly owing to the local shortage in crop. The ex-mill price for expeller groundnut oil at Madras fluctuated considerably during the year, the highest and lowest rates obtainable being Rs. 80 and Rs. 45 per candy of 500 lb. representing an average increase in price of from 20 to 25 per cent as compared with the previous year. The price of groundnut oil cake fluctuated between Rs. 70 and Rs. 57–8–0 per ton net. There was on the whole a good demand for groundnut oil and fair quantities were railed from the Vizianagaram area to Calcutta and from Kurnool to Delhi and the Punjab. There were regular exports of oil to Rangoon and the Malay States from Cocanada and Madras, whilst shipments from Madras to Mauritius showed an increase. The increased demand for oil is understood to have been due mainly to the fact that the Burma and Malay States groundnut crops were below normal, whilst the oil-seeds crop in the Punjab was also affected. I have on many occasions drawn attention to the possibilities of exporting groundnut oil to the United Kingdom and it is gratifying to be able to record that during the year under review 550 tons of groundnut oil were shipped to London in bulk, this constituting, it is believed, the first bulk shipment of groundnut oil from India. It is understood that only two steamers calling at Madras ports are fitted with suitable tanks for carrying oil in bulk and the prospects of developing an export trade with Europe in groundnut oil must depend upon whether sufficient steamers with the requisite tank accommodation can be made available for the trade.

92. *Soap industry.*—Imports of all classes of soap advanced from 313 tons valued at Rs. 4·61 lakhs to 361 tons valued at Rs. 5·48 lakhs. The value of imports of household and laundry soaps advanced from Rs. 0·1 lakh to Rs. 0·11 lakh and of toilet soaps from Rs. 4·42 lakhs to Rs. 5·24 lakhs. The competition from foreign soap manufacturers was severe during the year. American soaps are extensively advertised and their prices have been maintained at pre-war levels, whilst Indian factories have been obliged to raise their prices in order to meet the increased cost of raw materials, chemicals and other manufacturing requisites.

93. *Cashewnuts.*—Exports of cashewnut kernels advanced from 12,330 tons to 12,336 tons in quantity, but declined from Rs. 119·60 lakhs to Rs. 119·53 lakhs in value. Of the quantity exported, the United States of America took 9,756 tons valued at Rs. 93·61 lakhs and the United Kingdom 1,164 tons valued at Rs. 11·59 lakhs. Prices on the basis of pre-war rates of freight and marine insurance varied for standard wholes between 80 shillings and 100 shillings per cwt. c.i.f. New York. The highest prices were obtained shortly after the outbreak of war, sales of standard wholes for forward shipment were being made at the end of the year at about 88 shillings per cwt. c.i.f. New York on the basis of pre-war rates of freight and marine insurance. The industry is showing a decided tendency to move from the Madras Province to Travancore. The drift of the industry to Travancore—chiefly Quilon—is said to be due to the following circumstances, (i) labour rates in Quilon are lower than those in Calicut and Mangalore, (ii) owing to less stringent factory regulations, the cost of erecting factories in Travancore is lower than in British India, (iii) there is no Maternity Benefit Act in Travancore, and (iv) there is not also a Sales Tax in operation in the Travancore State.

94. *Coir.*—The total exports of coir manufactures increased from 689,446 cwt. valued at Rs. 95·20 lakhs to 858,104 cwt. valued at Rs. 127·17 lakhs. Conditions were unsettled during the first half of the year and demand and prices fluctuated. For some months following the war, there was an increased demand for coir yarn, mats and matting which reached its peak in January. Subsequently increasing restrictions of various kinds operated to cause a decline in the industry.

95. *Manures.*—Imports of manures (excluding oil cakes) increased in value from Rs. 51·65 lakhs to Rs. 56·38 lakhs. The demand for fertilizers for ryots' crops was maintained at the high level reached in the previous year. There was an increase in the consumption of fertilizers for sugarcane, paddy, and plantains and even crops such as tobacco consumed larger quantities than ever before. Before the outbreak of war, the consumption of fertilizers for plantations was on about the same level as in recent years, except that the coffee industry continued to experience low prices and consequently the decline in the sale of fertilizers to coffee planters persisted. With the outbreak of war, the position underwent a considerable change. In the planting districts, tea and rubber interests became assured of a better return and with increased export quotas, more interest was shown in fertilizers than at any time since the pre-restriction era.

96. *Match industry.*—Imports of matches amounted to 573,959 gross valued at Rs. 12·38 lakhs, practically the entire quantity coming from Burma. The production within the Province increased during the year, and the production of cottage factories is said to have attained the highest level on record. Prices remained steady on the basis of the 1938 level up to the outbreak of war. In September and October, price adjustments were small, but in the two succeeding months, rates advanced appreciably, and during this period the unit price for boxes advanced from three to four pies in respect of 40*s*. The demand during the year was comparatively good, although the increase in local production was registered only after the outbreak of war.

97. *Pepper.*—Exports of pepper advanced from 15,237 cwt. valued at Rs. 2·99 lakhs to 16,037 cwt. valued at Rs. 3·31 lakhs. It is probable that the Indian consumption, an increasingly important factor in the trade now-a-days, was at least maintained. The price of Tellicherry pepper remained generally at between Rs. 16 to Rs. 17–8–0 per cwt. f.o.b. with a few short-lived fluctuations to a maximum of Rs. 22–8–0. The closing price was about Rs. 16. Pepper all over the world is still one of the over-produced articles.

98. *Tea.*—Exports of tea advanced from 56·29 million lb. valued at Rs. 491·59 lakhs to 57·10 million lb. valued at Rs. 540·33 lakhs. The United Kingdom took 48·54 million lb. valued at Rs. 460·95 lakhs and Ceylon 6·99 million lb. valued at Rs. 64·05 lakhs. The year under review was the second year of the renewed tea regulation scheme which is due to expire in 1943. After the outbreak of war, most producers entered into two contracts with the Food Controller, one known as the short-term contract and the other the long-term contract extending from 1st January 1940 to 15th January 1941. Under the long-term contract, producers must offer up to about 90 per cent of their export quota to the Food Controller. The international quota release for 1939–40 was 95 per cent and the same rate has been fixed for 1940–41. The voluntary scheme for regulation of production and sale of tea in India continued. Ample supplies were made available for consumption in India and the average price obtained barely equalled the average cost of production on well maintained estates. In spite of the long drought, crops were fairly good and prices satisfactory.

99. *Coffee.*—Exports of coffee declined from 180,274 cwt. valued at Rs. 73·58 lakhs to 167,670 cwt. valued at Rs. 73·04 lakhs. Of the quantity exported, the United Kingdom took 45,920 cwt. valued at Rs. 23·92 lakhs, Norway 37,219 cwt. valued at Rs. 15·50 lakhs, and France 28,163 cwt. valued at Rs. 10·16 lakhs. At the beginning of the season, it was estimated that the total production of plantation coffee would be about 2,000 to 3,000 tons below that of the previous season when about 7,000 to 8,000 tons were harvested, and the crop appears to have turned out more or less in accordance with anticipations. An improvement in demand and prices set in towards the end of February and prices improved further in March. Stocks at Coimbatore and Mangalore at the end of the year were small.

100. *Rubber.*—Exports of rubber raw advanced from 17·21 million lb. valued at Rs. 71·56 lakhs to 21·54 million lb. valued at Rs. 93·76 lakhs. Of the quantity exported, the United States of America took 9·62 million lb. valued at Rs. 38·03 lakhs, the United Kingdom 7·06 million lb. valued at Rs. 33·49 lakhs and Ceylon 3·48 million lb. valued at Rs. 16·74 lakhs. The international rubber regulation scheme remained in force throughout the year. Prices in London rose from an average of 7-31/32*d.* or April 1939 to 8-5/8*d.* in August 1939. Subsequently, prices ncreased steadily until over a shilling was reached in January o March 1940. Prices for rubber sold in India without export ights have improved considerably. Burma is still permitted to xport rubber to India free of export licence and this assists to eep the price in India considerably below the world price. All ubber estates appear to have been in full production during the ear.

101. *Miscellaneous.*—Imports under the head 'Chemicals and hemical preparations' advanced in value from Rs. 47·62 lakhs o Rs. 69·84 lakhs. Imports of dyeing and tanning substances dvanced from Rs. 51·75 lakhs to Rs. 60·11 lakhs, of which barks or tanning (wattle bark) accounted for Rs. 40·00 lakhs. There was a keen demand for locally manufactured acids and chemicals nd competition was rather less. The decline of the dyeing ndustry during the last quarter of the year, however, curtailed the demand for acids. There was some development in the manufacture of pharmaceutical products during the year. Exports of sandalwood oil advanced from 454 gallons valued at Rs. 0·49 lakh to 831 gallons valued at Rs. 0·91 lakh. Exports of lemon grass oil increased from 97,920 gallons valued at Rs. 7·13 lakhs to 100,133 gallons valued at Rs. 9·79 lakhs. As a result of increased demand, prices increased from Rs. 13 per dozen bottles in September 1939 to Rs. 34 in March 1940. There was a shortage in the ginger crop and prices rose by about Rs. 7 per cwt. Shoals of sardine again appeared in very small quantities during October and November and only very small quantities of guano and oil were manufactured and sold at comparatively high prices for local consumption. Exports of Malabar tiles to Straits ports and Burma were maintained, but the industry suffered from the curtailment of building programmes in India. There was a falling off in demand from Ceylon where the local manufacture of tiles has been developed. The tile industry in South Kanara district underwent little improvement and there was a deterioration in the price structure for certain classes of products. The demand for edge tools and cutlery manufactured on the West Coast was well maintained. The slate manufacturing industry continued to expand, the demand for slates manufactured in India having increased since the war. Plywood continued to be manufactured by the Kallai factory and there was a considerable increase in the demand for tea chests. Shortly before the close of the year, an order for plywood was received for army purposes. Activity in the timber trade was restricted in the first six months of the year, but as a result of the war, prices of soft wood timbers gradually appreciated though the sawing season was not very brisk until about the end of November. The Kallai and Baliapatam saw mills were working at full pressure in the last quarter of the year. The rate for railway sleepers was higher than in the previous year and this was of benefit to contractors, especially those working in the Wynaad area. The Indian Steel Rolling

Mills, Negapatam, was not in operation during the year. The Industrial Engineers and Merchants, Limited, Bezwada, produced 671 tons of ¼ inch to 1 inch reinforcement rods of high tensile quality. The production was restricted by the quantity of rails that could be obtained. Imports of cement declined from 10,175 tons to 3,819 tons. The Andhra Cement Company, Ltd., Bezwada, commenced the production of cement on a commercial scale from 1st January 1940. The aluminium and brass utensil industry was affected by the shortage and high cost of raw materials. The demand for stoneware pottery during the first half of the year was normal and increased slightly during the second half. Sales of the canning factory at Bezwada increased, and in addition to the 25 fruit products which they are preparing, they hope shortly to place on the market canned fish and meat products.

Kerala Soap Institute, Calicut.

102. *Staff.*—Sri A. K. Menon, B.A., continued as Superintendent of the Institute throughout the year.

103. *Production and accounts.*—The total production of soap increased from 213 tons in the previous year to 215 tons in the year under review. There was a satisfactory improvement in the sales which increased in value from Rs. 1,76,259 to Rs. 1,91,949. The result of the year's working, subject to audit, was a net profit of Rs. 43,000 as compared with Rs. 19,069 in the previous year. The increase in the net profit must be regarded as very satisfactory since conditions during the year were very difficult. After war was declared in September, there was a shortage in the supply of several imported articles, and prices of packing materials such as paper, box-boards, nails and hoop iron, advanced considerably. A large consignment of box-boards on order was held up on an enemy vessel near Bombay and delivery could not be obtained of it, whilst it was not possible to find an alternative source of supply. As a result the greatest economy had to be exercised in packing materials. Outer card-board boxes were dispensed with in the case of some of the toilet soaps, the cakes being put into small cartons and three such cartons wrapped up in cellophane paper. As the price of imported chemicals, perfumes and packing materials advanced considerably, it was found necessary to increase the price of Kerala soaps by three per cent towards the end of February 1940, although this hardly covered the increase in the cost of materials.

104. *Agencies.*—Trading conditions were difficult during the greater part of the year and owing to the credit stringency and the failure of several petty dealers, wholesale dealers were reluctant to stock goods in any quantity. New agents were appointed for Sind and Baluchistan, and new stockists for Lahore and Rawalpindi. The West Coast agent again introduced the largest volume of business although his turnover was slightly lower than in the previous year. The Madura agent who increased his sales during

the year occupied the second place and was followed by the Madras agent whose sales showed some contraction as compared with the previous year. The Bezwada, Colombo, Bombay, Trichur, Adoni and Alleppey agents increased their sales, whilst small decreases were shown by the Kumbakonam agent and the Salem stockists. The turnover of the Rangoon agent showed a small increase, but the volume of business transacted in that market continued to be limited. The experimental manufacture of Deepa brand soap to compete with the well-known Monkey Brand was continued, but difficulty was still experienced in obtaining an abrasive clay of suitable quality. The experimental manufacture of transparent soaps, using a special quality of denatured spirit, the sale of which to soap-makers was sanctioned by Government, was undertaken during the year, and satisfactory products free from the offensive odour which the ordinary denatured spirit imparts to transparent soaps were prepared. The large scale production of transparent soaps was not attempted owing to the difficulty, under present conditions, of obtaining suitable perfumes and packing materials. Special shampoo soaps were made and supplied to some of the agents, medical practitioners, and missionary institutions. Considerable quantities of Coal-tar carbolic and Vegetol soap tablets stamped in special sizes, were supplied to the Borstal and certified schools in the Province. The Madras and Southern Mahratta Railway Company, Limited, and the South Indian Railway Company, Limited, placed orders for soft soap at prices accepted by the Indian Stores Department.

105. *Visits to important markets.*—During the year, the Superintendent was on tour for 89 days and visited some 35 different markets. In the course of these tours, the Superintendent not only studied the market conditions in respect of raw materials and soap, and discussed outstanding business questions with the agents and dealers, but inspected a number of private factories and advised the owners how to improve their methods and products. A number of oil mills were visited in connexion with the survey of the oil seed crushing industry. At Madras, dealers in perfumery were interviewed with a view to finding an outlet for the orange oil prepared at the Institute, and at Yercaud, a number of planters were interviewed in regard to the distillation of orange oil. The Superintendent took advantage of his visit to Bangalore to attend the sixth annual conference of the All-India Soap Makers Association of Calcutta.

106. *Training of apprentices.*—Ten students underwent training in the institute during the year, eight in the ordinary course, one in the advanced course and one in the short course. Of these, five were from the Madras Province, three from Bombay and one each from the Punjab and Hyderabad. It is an important function of the Institute to maintain touch with its ex-students who often re-visit the institute and work in it for short periods in order to bring their knowledge up to date. Many of the former students also correspond with the institute with a view to the elucidation of

practical difficulties which they have encountered in the course of their factory work and send their soaps for examination and advice as to how their quality may be improved. Former students are recommended for employment as and when opportunity arises, and during the year five students secured posts on the recommendation of the Superintendent.

107. *Laboratory.*—Five hundred samples of the various raw materials and of the finished products in different stages of manufacture were tested in the laboratory, of which 390 were of raw materials and soaps relating to work of the factory, and the remainder of soaps and allied products received from the ex-students and other members of the public, agents and stockists, or collected by the Superintendent in the course of his tours. Certificates of analyses were issued in respect of three products on payment of the prescribed fee. The students continued to receive training in the laboratory in the practical testing and analysis of oils, fats, and soaps for 12 hours a week.

108. *Preparation of creams, brilliantines and other toilet articles.*—Hair oils, brilliantines, vanishing creams, dental creams, and other cosmetic articles have been prepared at the institute, but an obstacle to placing them on the market is the difficulty of obtaining suitable containers. As further supplies of bottles and tubes of the special patterns required cannot now be obtained from Europe, endeavours are being made to develop an Indian source of supply of containers even though they may not have the same finish as, and the prices may be higher than, those formerly imported. Until the question of a regular supply of bottles and tubes can be assured, it is not possible to advertise the products, because when once a demand is created, the institute should be in a position to supply the articles in quantity without interruption. Cosmetic articles to the value of Rs. 625 were sold during the year.

109. *Experimental manufacture of insecticides, fungicides and sprayers.*—Insecticidal preparations from tobacco, sulphur, arsenic, etc., were sold to various consumers and satisfactory reports were obtained in regard to their quality. There was some demand for 'Leechex', a preparation which has proved very effective in use for protecting those working on plantations where leeches thrive. Shortly before the end of the year, samples of this preparation were sent to the Directors of Public Health and Veterinary Services for testing and report as to its efficacy for the prevention of hookworm and as a curative for the foot and mouth disease of cattle. Samples of pyrethrum flowers, cashew shell oil, and specimens of several roots, barks and herbs were tested for their insecticidal properties during the year.

110. *Essential oils.*—The essential oil distilling and extraction plants were in regular operation during the year. About 16,000 lb. of seville and sweet orange peels, 4,085 lb. of kasturi manjal and

1,735 lb. of zedoary roots were purchased for distillation purposes, and 340 lb. of orange oil, 70 lb. of kasturi manjal oil, and 32 lb. of zedoary oil were produced and used in partial substitution of imported materials of more or less similar properties with satisfactory results. The possibility of distilling these oils on a commercial scale was under consideration at the end of the year. A number of distillation experiments were conducted on a considerable variety of substances such as vetivert, lemongrass, cinnamon leaf, kewda flowers and roses with a view to selecting, and standardizing for large scale operations, the most suitable of these from the point of view of perfume content. Among the new materials tested during the year may be mentioned artemesia vulgaris from Wynaad, ocimum canum and moringa root from the suburbs of Calicut, sage plant and camphor leaf from Ootacamund, mango ginger root from Calicut, pachouly from Travancore, mulakuthani or Adakamani (Pali) and kamakasturi from South Kanara. A number of plants and herbs, whose local names only were available, were sent to the Government Botanist, Agricultural College, Coimbatore, for identification and information in regard to their availability in this Province. An enquiry was instituted with a view to ascertaining the quantities available in the various districts in the Province of common flowers such as rose, jasmine, kewda, henna, lotus, champaka, etc., for preparing floral waters and attars, and the information obtained goes to show that unless the cultivation of these flowers is considerably extended, there is no possibility of getting supplies in sufficient quantity for distillation purposes. An attempt to prepare rose water is being made by a private florist in Kollegal who has studied the distillation processes carried out in the Institute and a small still was also lent to him for distilling the roses in a fresh state in order to obtain the finest quality of rose water. During the course of his tours, the Superintendent endeavoured to induce several planters and others to take up the distillation of essential oils as a profitable side line to their ordinary avocation. A small still was taken to Yercaud and the process of distillation of orange peels from the oranges plucked fresh from the orchards was demonstrated to one or two planters. A planter in the Wynaad was advised as to how to distile artemesia vulgaris, a sweet smelling plant which grows wild in that area. A planter in Gudalur, who distilled some of this plant a year or so ago on the advice of the Superintendent, was able to realize a good price for the oil which he produced and he proposes to take up the distillation of the material on a larger scale hereafter.

111. *Oil refining.*—The oil refining plant continued in operation for experimental and demonstrational purposes and the processes were explained to interested visitors to the Institute. The usual supply of refined coconut and groundnut oils to the hospitals in the Province was continued.

112. *Coconut shell charcoal.*—Experiments were initiated towards the end of the year on the dry distillation of coconut shell

in retorts improvised at the Institute with a view to the recovery of the by-products, such as acetic acid, methyl alcohol, and tar which are lost in the crude methods of burning the shells in pits as practised on the West Coast. The improved method of carbonising also yields a larger percentage of excellent charcoal—a yield of 34 per cent having been obtained at the Institute, as compared with about 22 per cent in the pit burning process. The charcoal produced when the shells are burnt in a retort is also better in quality and more uniform than when the shells are burnt in pits. The pyroligneous acid obtained in the process of dry distillation is a valuable source of acetic acid which is largely used by planters for coagulating rubber latex. Acetic acid is also used in various other industries such as, dyeing, ligature gut making from silk worms, etc. The question of developing a permanent coconut shell charcoal industry on the West Coast seems to be worthy of consideration as the industry has been developed to a considerable extent in Ceylon. The chief use of coconut shell charcoal at present is for the production of gas masks, but this is by no means the only use to which it is put. It is used also for a number of industrial purposes, including sugar refining, vegetable oil refining, purification of drinking water, purification of air and gases, petroleum refining, decolorization and purification of fine chemicals, and solvent recovery. Coconut shell charcoal is also used for making creosote. If therefore the manufacture of coconut shell charcoal on the West Coast could be established even on a comparatively limited scale, it might be possible to build up a permanent industry for supplying the industrial requirements of European countries after the war is over.

113. *Survey of oil-seed crushing industry.*—It was stated in last year's report that Government had sanctioned the conduct of a survey of the oil-seed crushing industry which had been commenced in November 1938 under the supervision of the Superintendent, Kerala Soap Institute. The survey was completed during the year and a report embodying the information collected and proposals for the organization and development of the industry is under preparation.

114. *General.*—An attempt was made to ascertain how far the oil bearing fruits, from plants, trees, etc., in the forest reserves could be tapped to supplement the supply of seeds to the villagers to enable them to run their chekkus throughout the year. Bulk samples were collected by the Forest department and sent to the Institute for carrying out tests for determining the oil content, etc. The Institute participated in a number of exhibitions, as well as in the Health and Baby Week celebrations at several centres. A considerable number of enquiries in regard to the manufacture of soap and various problems connected with the oil and allied industries were received and answered during the year. The institute was as usual visited by a large number of people.

TEXTILE SECTION.

115. *Staff.*—Mr. D. M. Amalsad continued as Principal, Government Textile Institute, throughout the year. Mr. Amalsad continued to serve as a member of the Board of Directors and of the Executive Committee of the Madras Handloom Weavers' Provincial Co-operative Society, Limited. He also served as a member of the Cotton Purchase Committee for the Central Jail, Coimbatore, and of the Wool Purchase Committee for the Central Jail, Bellary.

116. *Grant-in-aid by the Government of India for the development of the handloom weaving industry.*—The Government of India subvention during the year 1939-40 amounted to Rs. 71,210 which together with the unspent balance of the subsidy during the previous years of Rs. 80,564 was available for expenditure during the year. Of this amount, Rs. 98,895 was expended during the year. This expenditure included the non-recurring and recurring charges, amounting to Rs. 24,601, incurred on account of the bleaching, finishing and calendering plant installed in the Government, Textile Institute, Madras, for the benefit of the Provincial Society. In the course of the year, the Provincial Society collected a further share capital of Rs. 3,670 and on 31st March 1940, the number of members was 299, comprising 162 weavers' co-operative societies, 87 individuals, 40 central banks and co-operative institutions, nine firms and one other institution, and the paid-up share capital was Rs. 41,505. The registration of new societies was restricted during the year to large centres where arrangements could be made for at least fifty members to join each new society with a paid-up share capital of Rs. 100 and to ensure that each society employed not less than 25 looms. Thirty-one new weavers' societies were affiliated during the year and 37 additional societies were given subsidies ranging from Rs. 15 to Rs. 60 per mensem, in order to meet their establishment charges—including the pay of salesman—and to buy appliances, and the total subsidy disbursed during the year amounted to Rs. 32,735. The policy of issuing cash credit loans, supplying yarn on the guarantee of the Provincial Society and advancing money on goods sent for sale by the primary societies was continued, and the Provincial Society sanctioned cash credit loans to the extent of Rs. 1,21,610, and yarn guarantees of Rs. 83,655. Yarn to the value of Rs. 81,934 was supplied on the guarantee of the Provincial Society to the primary societies from the approved mills. The cash credit loans, yarn loans and advances against goods disbursed during the year amounted to Rs. 37,515, Rs. 64,963 and Rs. 20,818 respectively. Arrangements were made for the district central banks to grant cash credit accommodation to such of the societies as required loans of Rs. 2,000 and above, leaving the smaller societies to be financed by the Provincial Society. The number of executive officers and supervisors was increased to five and ten respectively. In addition to the cloth designer, a separate dyeing supervisor was

also employed to supply new designs and to render technical assistance in dyeing to the affiliated weavers' societies. The eight sales emporiums at Madras (two), Rajahmundry, Bezwada, Bellary, Vellore, Trichinopoly and Calicut continued in operation during the year. Goods to the value of Rs. 1,42,134 were supplied to these emporiums by the weavers' production societies on consignment basis and sales to the extent of Rs. 1,29,612 were effected. The depots opened by the Coimbatore Devanga Weavers' Co-operative Society and the South Kanara District Handloom Weavers' Society, Mangalore, were granted subsidies to meet half of their monthly expenditure, and these two depots received and sold goods to the extent of Rs. 13,462 and Rs. 12,014 respectively. Shortly before the close of the year, some of the primary societies were permitted to open sales depots at Tenali, Nellore, Vizianagaram, Dharmapuri, Yemmiganur and Sholinghur, whilst the Triplicane Urban Co-operative Society at Madras, and several co-operative loan and sales societies and co-operative stores societies in the Province have also undertaken the sale of finished goods of weavers' societies on a consignment basis. The value of goods produced by the primary societies during the year was Rs. 8,90,602, of which goods to the value of Rs. 8,37,785 were sold.

117. *Bleaching, finishing and calendering plant.*—The bleaching, finishing and calendering plant referred to in last year's report was installed in the Government Textile Institute during the year. The plant, which is housed in a specially constructed building in the premises of the Government Textile Institute and is operated under the general supervision of the Principal, comprises five cement vats, one of which is provided with steam connexions, wooden size vat, piece-end-sewing machine, squeezing machine, scutcher, starch mangle coupled with a drying machine of seven cylinders; spray damping machine, seven-bowl calendering machine and hand cloth folding machine. The plant was set to work in October 1939 and by the end of the year under review twenty-three weavers' primary co-operative societies had sent cloths for calendering and 12,786 yards of cloth were calendered for them. The Provincial Society decided that cloths should be calendered free of charge up to 31st December 1939, the concerned primary societies meeting the cost of transport and packing charges of the cloth. Subsequently, a nominal charge of one pie per yard was levied for calendering. Standard types of shirtings and coatings produced by handloom weavers on the West Coast are finished on calendering machines set up by two private concerns at Cannanore and Pappinisseri, whilst a calendering plant has been installed at Madura by a private capitalist. The plant at Pappinisseri calendered during the year hand-woven shirtings, coatings and lungees to the extent of 880,000 yards. The plant installed at the Government Textile Institute for the benefit of the Madras Handloom Weavers' Provincial Co-operative Society, can most advantageously be utilized for finishing the cloths of the affiliated

weavers' societies which are marketed in the City of Madras. The departmental hand-driven sizing machines continued to be employed by the weavers production societies at Melapalayam and Adoni.

118. *Grant-in-aid by the Government of India for the development of the small scale woollen industries of the Province.*—The scheme for the development of the cottage and small scale woollen industries of the Province sanctioned by the Government of India continued in operation during the year. The Pile Carpet Weavers' Co-operative Society, Ellore, the six cumbly weavers' co-operative societies, four in the Ceded districts and two in the Northern Circars —organized under the scheme—functioned satisfactorily during the year. The grant sanctioned for this Province for 1939–40 was Rs. 8,738 which added to the balance of the previous years grant made up an amount of Rs. 20,864. A sum of Rs. 11,928 was expended during the year out of this amount. The expenditure on the dyehouse at Ellore which was met from Provincial funds was Rs. 855.

119. *Ellore Pile Carpet Weavers' Co-operative Purchase and Sale Society, Limited, Ellore.*—The society progressed satisfactorily during the year. The membership decreased from 80 to 63, but the working capital increased from Rs. 956 to Rs. 1,050. An additional working capital of Rs. 2,000 provided from the Government of India grant was disbursed to the society during the year. An amount of Rs. 11,350 was borrowed from the central bank, whilst of the amount of Rs. 13,000 borrowed from the central bank during the previous year Rs. 11,305 was repaid during the year so that the total balance of loans outstanding on the 31st March 1940 was Rs. 12,595. At the end of the previous year, the society held stocks of wool, woollen yarn, dyed and undyed cotton and jute yarn, dyes and chemicals to the value of Rs. 4,742 and 1,070 square yards of pile carpets valued at Rs. 4,741. During the year under review, the society purchased raw materials to the value of Rs. 9,176, and on the 31st March 1940 held stocks of wool, dyes and chemicals to the value of Rs. 4,172 and carpets valued at Rs. 2,222. Despite the loss of foreign markets as a result of the war, the Society received orders for 4,040 square yards of carpets valued at Rs. 19,600 and of this quantity, 2,850 square yards of the value of Rs. 13,960 were supplied by the end of the year. The society manufactured 3,738 square yards of carpets of different qualities of an aggregate value of Rs. 17,176, as against a production during the previous year of 3,420 square yards valued at Rs. 14,122. The sales effected by the society increased from Rs. 12,684 to Rs. 21,904. An amount of Rs. 6,517 was disbursed as wages to carpet weavers, spinners, hankers and twisters. About 18,960 lb. of woollen yarn were scoured and 20,410 lb. of woollen yarn dyed in the central dyehouse. The woollen yarn was dyed in a variety of shades, but it would appear that subdued shades dyed on white wool are now mostly in demand.

120. *Dharmajigudem Cumbli Weavers' Co-operative Purchase and Sale Society, Limited.*—The membership and share capital of this society increased from 32 to 55 and from Rs. 32 to Rs. 83 respectively. The society received an additional working capital of Rs. 500 from the subvention funds and in addition borrowed an amount of Rs. 1,200 from the central bank. By the close of the year, the society had repaid a sum of Rs. 715 and an amount of Rs. 585 was due for collection from its members. The society purchased 1,604 cumblies valued at Rs. 988 as against 722 cumblies valued at Rs. 728 in the previous year. The society sold 1,158 cumblies for Rs. 1,242 as against 406 cumblies valued at Rs. 368 in the previous year. At the end of the year, the society had on hand 689 cumblies valued at Rs. 686. The members of the society spun and supplied woollen yarn to the Ellore Pile Carpet Society, and during the year a quantity of 3,596 lb. of yarn was spun. The society was supplied from the Government of India grant with a small hand-driven willowing machine for cleaning wool before distribution to the members.

121. *Kanumolu Blanket Weavers' Co-operative Purchase and Sale Society, Limited.*—The membership and share capital of this society increased from 35 to 55 and from Rs. 77 to Rs. 147, respectively. The society received an additional working capital of Rs. 500 from the Government of India subvention grant, and borrowed an amount of Rs. 600 from the central bank for financing its operations, whilst at the close of the year an amount of Rs. 435 was outstanding on loans to members. The society purchased 1,508 cumblies valued at Rs. 2,156 as against a production of 547 cumblies valued at Rs. 765 in the previous year. One thousand three hundred and sixty-nine cumblies valued at Rs. 1,887 were sold, leaving a stock of 239 cumblies valued at Rs. 469 on hand at the end of the year.

122. *Kudithini Cumbly Weavers' Co-operative Purchase and Sale Society, Limited.*—The membership and share capital of this society were unaltered during the year. The society was given an additional working capital of Rs. 500, whilst an amount of Rs. 1,850 was borrowed by the society from the central bank, and this amount, together with the working capital, was utilized for advancing short-term loans to the members for stocking wool at remunerative rates during the shearing season. The society repaid the loan to the central bank and at the end of the year an amount of Rs. 200 was due for collection from members. The cumblies woven by the members of this society are of fine texture and are in good demand. Eight hundred and fifteen cumblies valued at Rs. 2,277 were purchased from the members and 784 cumblies valued at Rs. 2,230 were sold during the year. At the end of the year there were 239 cumblies valued at Rs. 764 on hand. The weavers earned about Rs. 1,466 as wages as against Rs. 740 in the previous year.

123. *Bislahalli Weavers' Co-operative Purchase and Sale Society, Limited.*—The membership of this society increased from 21 to 31 and its share capital from Rs. 42 to Rs. 95. The society received an additional working capital of Rs. 500 from the subvention funds, and also borrowed Rs. 4,580 from the central bank. The society repaid the loan to the bank by the end of the year, but there was an amount of Rs. 1,374 due to be collected from the members. The society manufactured 436 cumblies valued at Rs. 602 and disposed of 528 cumblies valued at Rs. 659. At the end of the year the society had on hand, 349 cumblies valued at Rs. 498. All the cumblies woven by the members of this society have been marketed through the Cumbly Sales Depot at Bellary.

124. *Doddagatta Cumbly Weavers' Purchase and Sale Society, Limited.*—The membership of the society increased from 56 to 65, but its share capital declined from Rs. 655 to Rs. 495. The society received a further working capital of Rs. 1,000 from the subvention funds and borrowed a sum of Rs. 3,000 from the central bank. At the end of the year the society owed Rs. 1,902 to the central bank, whilst a sum of Rs. 1,530 was outstanding from the members. The turnover improved during the year. Five thousand nine hundred and ninety-six cumblies valued at Rs. 7,736 were purchased from members and 5,704 cumblies valued at Rs. 7,488 were disposed of, leaving 441 cumblies valued at Rs. 609 on hand at the end of the year. The weavers earned about Rs. 3,000 by way of wages. The cumblies manufactured by this society find a good sale on the various tea estates.

125. *Salkapuram Cumbly Weavers' Co-operative Purchase and Sale Society, Limited.*—The society was given a further amount of Rs. 1,000 as working capital from the subvention funds during the year and borrowed a sum of Rs. 300 from the central bank. An amount of Rs. 407 was due for collection from the members at the end of the year. Five hundred and nineteen felted cumblies valued at Rs. 1,525 were purchased and 305 valued at Rs. 1,102 disposed of. At the end of the year, the society had on hand 214 felted cumblies valued at Rs. 461.

126. *Cumbly Sales Depot, Bellary.*—The depot receives cumblies for sale from the four cumbly weavers' co-operative societies in the Ceded districts and effects sales of cumblies for cash and also through district co-operative sales societies on consignment basis. The depot received 1,634 cumblies valued at Rs. 3,923 from the cumbly societies and sold 1,540 cumblies valued at Rs. 3,471 as against 1,059 cumblies valued at Rs. 1,928 in the previous year. At the end of the year, the depot had on hand a stock of 519 cumblies valued at Rs. 1,262.

127. *Government Textile Institute.*—The Institute continued to provide instruction in the supervisor course, power spinning and weaving (two years), supervisor course, dyeing and finishing (one year) and artisan courses (one year each) in hand loom weaving,

jacquard weaving, bleaching, dyeing and finishing, pile carpet weaving, knitting, sericulture and ericulture. In addition, part-time classes in spinning and weaving for mill apprentices, as well as the pupil-teacher course, were conducted. On the 31st March 1940, there were undergoing training in the Institute, 28 pupils in the supervisor, power spinning and weaving, first year, 26 in the second year, and nine in the supervisor course, dyeing and finishing. In the artisan courses, there were 28 students undergoing training in weaving, seven in bleaching, dyeing and finishing, three in knitting, and one each in jacquard weaving, and pile carpet weaving. There were two mill apprentices under training, one in weaving, first year, and one in weaving, second year. Three pupils joined the pupil-teacher course, two being attached to the dyeing and finishing section and one to the power spinning and weaving section. During the year, a fee of Rs. 2 per mensem for ten working months in a year was charged for admission to the supervisor courses. It was not possible to devote any considerable degree of attention to research work at the institute owing to lack of staff. But a foot-treadle charka for twisting aloe fibre, a frame loom for weaving cloth suitable for making neckties, and a small table loom fitted with a dobby for weaving ribbons with figured effect, were constructed. The local engineering establishments and two carpenter contractors have been encouraged to take up the manufacture of textile appliances and accessories required for use in the vocational weaving classes of the general educational schools under the control of the Director of Public Instruction and in the textile schools aided by this department.

128. *Gold-thread manufacture.*—The proprietors of the Sree Lakshmi Silk Manufacturing Works, Peddapuram, installed a small gilding machine for gold-thread manufacture and arranged to construct in their workshop, a gilding machine of a higher capacity with the assistance of the staff of the Textile Institute. They have also, on the advice of the department installed a wire drawing machine, and a lametta flattening machine for preparing silver wire and lametta instead of obtaining them from Surat. During the year under review, 5,000 tolas of gold thread of 2,000 yards quality were prepared on the gilding machine installed in this factory, and it is understood that the proprietors are constructing another gilding machine of 25 spindles for preparing gold thread for sale in outside markets.

129. *Aided textile and needle-craft schools.*—These schools continued to be under the supervision of the Principal, Government Textile Institute. The Seva Sadan, Madras, which has been providing instruction in needle-craft subjects, revived the handloom weaving section in the institution during the year, whilst the Immaculate Conception Convent Girls' Industrial School, Coimbatore, arranged for the provision of instruction in handloom weaving, bleaching and dyeing in addition to needle-craft. The pupil-teachers training sections attached to the C.S.M. Girls' Industrial School (renamed the Seton school of Needlework and Embroidery), Kilpauk, and the American Arcot Mission Industrial School, Palmaner, imparting instruction in needlework and dressmaking, continued to function satisfactorily during the year. With the proposed introduction of pre-vocational training classes in general educational schools for girls, the demand for trained teachers is likely to increase. An amount of Rs. 18,500 was sanctioned as maintenance grant to the textile and needle-craft schools, and a sum of Rs. 1,252 was disbursed as capitation grant.

130. *Assistance to jails.*—As in previous years, visits to the textile manufacturing sections of the jails and the provision of technical advice in regard to their working formed part of the work of the textile branch. The Central Jails at Coimbatore and Bellary were visited by the Principal, whilst the Senior Certified School, Chingleput, was inspected by the Textile Inspector. Arrangements were made for the installation in the Bellary Jail of a hand operated milling machine for the finishing of cumblies.

131. *Indian Merchandise Marks Act.*—In accordance with G.O. No. 665, Development, dated 15th March 1938, mention has to be made in the annual administration report of the department as to whether the provisions of section 12 of the Indian Merchandise Marks Act have been violated. A circular was issued to all District Magistrates calling for a report as to whether the provisions of this section of the Act had been violated by any of the weaving mills in their jurisdiction during the year under review. The District Magistrates have reported that there has been no violation of section 12 of the Indian Merchandise Marks Act by any of the weaving mills during the year.

132. *Effects of the war on handloom weaving industry.*—The outbreak of war had its repercussions on the handloom weaving industry of the Province owing to the curtailment of export business in hand-woven fabrics and the shortage of dye-stuffs. Owing to the possibility of imports of synthetic dyes being restricted, the question of reviving the use of natural dyes obtained from plants indigenous to India was taken up. Experiments were conducted at the Government Textile Institute with natural dye yielding products of indigenous growth, the use of which was prevalent prior to the advent of synthetic dyes. Dye trials were conducted at the Textile Institute on a laboratory scale, and data regarding the process of extraction of the dye-stuff or colouring matter from the natural products were noted, and recipes for obtaining different shades were drawn up and shade cards prepared for cotton, silk and wool. It must be recognised that the process of dyeing with indigenous dyes is laborious, and the cost of dyeing higher as compared with dyeing with modern synthetic dyes, whilst the content of colouring matter in the natural product is generally variable. Indigenous dyes may, however, be of value to the dyers in this Province in the event of acute difficulty being experienced in

obtaining supplies of imported dyes. Accordingly since the close of the year under report, arrangements have been made for the printing and distribution of leaflets; in English and the vernacular, containing information as to the methods of extraction of colouring matter from natural products and recipes for different shades, and their relative fastness. The question of arranging for the supply of adequate quantities of imported dyestuffs for the handloom weavers at reasonable prices has engaged the close attention of Government since the outbreak of the war. The position is more acute in Madras than in any other Province since about 55 per cent of the yarn consumed by the handloom weavers is represented by dyed yarn. The handloom weavers in Madras, in fact, absorb about 25 per cent of the total quantity of dyes consumed by the handloom weavers in India. It is hoped that it will be possible before long to take over a proportion of Messrs. Chemdyes' stocks of dyestuffs for distribution to the handloom weaving industry of the Province.

133. *Hand-made blankets for army purposes.*—In February, the Government of India notified that they were prepared to place on behalf of His Majesty's Government, orders for army blankets, the yarn used to be hand-spun and the blankets hand-woven. As a result of a conference held at Delhi in February, it was decided provisionally to allot to Madras an order for 24,000 blankets. It was not possible for the small number of cumbly weaving co-operative societies to undertake the supply of such a large quantity of blankets to standard specification within a limited period. Government, therefore, issued a Press Communiqué inviting offers from persons who were in a position to supply not less than 5,000 blankets within a period of six months and who were prepared to place orders as far as possible with the cumbly weaving co-operative societies and to work under such supervision as the Provincial Government might consider it necessary to exercise. It was stated in the Press Communiquè that the Government would be prepared to assist any persons who might be entrusted with the execution of the order or part of it, with advice in regard to the blending of wool to give the correct shade of army grey and on other technical points. A number of sample blankets, representing a much higher quality and standard than any previously woven on handlooms in this Province, have been prepared since the close of the year from wool carefully selected from the supplies available from the Salem, Anantapur and Kurnool areas, and as far as possible, wool sheared from young lambs only one year old was selected. The prospects of obtaining orders do not, however, seem to be at all hopeful, as though the specimen blankets have been found to be satisfactory in texture, weave and finish, they are considered to be too harsh to the feel, owing to the lack of softness in South Indian wool, to be acceptable for army requirements.

134. *Utilization of electric power in small-scale textile industries.*—The use of electricity by small-scale industrialists may

enable them to achieve a higher degree of economic and social advance than would be the case if they continued to resort exclusively to hand-processes, and such development would avoid also any undesirable concentration of human labour in large factories. A master weaver in Ganapaty village near Coimbatore has purchased and set up a power loom for weaving shirtings with two-fold mercerised yarn. There are two small power loom concerns in Erode and they appear to be working satisfactorily. The proprietors of a handloom weaving concern in Mangalore have installed re-conditioned power looms and are preparing sarees with two-fold mercerised yarns for sale in the Bombay market. One of the partners of this concern has undergone training at the Government Textile Institute. In Salem district, electricity is being employed for working knitting machines and swivel looms for producing lamp wicks and tapes for pavadais. An ex-student of the Textile Institute has purchased a re-conditioned power loom from Bombay with a view to establishing a small combined hand and power loom concern.

SERICULTURE.

135. *Staff.*—Sri K. T. Achaya continued as Sericultural Expert throughout the year. The Sericultural Expert toured for 76 days outside Kollegal taluk during the year and visited all the important sericulture centres in the Province. He attended the first All-India Sericulture Conference held at Bangalore on the 13th and 14th December 1939, and the meeting of the Imperial Sericulture Committee at Mysore on the 18th December 1939.

136. *Grant-in-aid by the Government of India for the development of the sericulture industry.*—The scheme for the production and distribution of disease-free cellular seed and for the conduct of research on silk-worm diseases sanctioned by the Government of India continued in operation during the period under review. The full sanctioned staff of three farm managers, one clerk, nine moth testers, seven operatives on moth testing work, two mulberry cultivators and one pathology assistant for research, was employed during the year. The new scheme for the production and distribution of disease-free cross-breed seed in Kollegal taluk sanctioned by the Government of India was given effect to on the 15th May 1939, though owing to the delay in promulgating the special rules governing the recruitment of the staff, the posts of five operatives and one clerk could not be filled up until later in the year. In May, two operatives from the Hosur Silk Farm, and one each from the Palmaner and Thadaguni Silk Farms were withdrawn for cross-breed work in Kollegal. The amount provided for 1939-40 under the Government of India subvention scheme was Rs. 23,004.

137. *Aided grainages.*—Two more aided grainages were brought into operation during the year, and they began to function from the 1st September 1939. The ten aided grainages have been

established at the important rearing villages of Hosamalangi, Alahalli, Tagarapuram, Chilakvadi, Honderbalu, Singanallur, Kamakarai, Kongerhalli, Kannur and Chennalinganahalli. The ten aided grainages tested and distributed 685,480 layings during the year. The output of the grainages was affected to a certain extent on account of the introduction of cross-breed seeds, the preparation of which calls for technical skill. The graineurs are, however, gradually acquiring the necessary degree of skill and improved results may be expected next year.

138. *Research on diseases of silk-worms.*—The more important items of research work which were undertaken and completed during the year comprised (i) the conduct of experimental rearings on the incidence of contamination and the effect of ventilation, environment and other factors in relation to the pebrine disease in the mulberry silk-worms, and (ii) the eradication of the pebrine disease by the application of certain chemicals. One experiment showed that the disease could be spread through infected conicals which had been previously used for funnelling diseased moths. It was ascertained from a second experiment, which was a continuation of one conducted in the previous year, that the pebrinised litter and excreta could be used as manure for mulberry plantations and that the leaves obtained from such plantations when fed to healthy worms did not bring infection in their train. Another series of experiments were started in order to ascertain how long the infection persists in a highly infected room.

139. *Peripatetic rearing party.*—The party which consisted of one rearer, fourteen moth testers and one silk reeling demonstrator, of which nine moth-testers were provided under the Government of India subvention scheme, carried on operations in important rearing villages of the Kollegal taluk. The party tested 1,878,782 moths during the year in addition to preparing and distributing cross-breed seeds on a commercial scale. With the introduction of the cross-breed worms, there is little testing work to be carried out with pure Mysore seed cocoons as the rearers are practically giving up the rearing of the pure Mysore race of worms in favour of the higher and quicker yielding cross-breed worms.

140. *Cross-breed seed supply.*—Three cross-breed seed producing centres were opened in the important rearing villages of Kunthur, Kunaghalli and Mangalam, and were placed in charge of experienced moth testers. There were prepared and distributed during the year under review, 956,581 disease-free cross-breed seeds (657,419 by Government grainages and 299,162 by aided grainages) representing 66 per cent of the entire seed requirements of the taluk as against 11 per cent in the previous year. There is a keen demand for ' Sirkar ' cross-breed seeds even at a higher price as the rearers appreciate the good quality of these seeds and the economic advantages of rearing them as they yield an increased quantity of cocoons with richer silk content, and moreover, they can be reared in a shorter number of days. The

present average yield is 55 lb. of cocoons for 100 cross-breed seeds as against 49 lb. in 1937–38. On many occasions, rearers have harvested as much as 75 lb. of cocoons for 100 cross-breed layings.

141. *White-seed cocoon supply.*—Many selected rearers are now producing white seed cocoons, though the main source of supply of white cocoons is the Government silk farms at Hosur, Thadaguni and Palmaner. All efforts to secure white univoltine seed from Japan failed. With great difficulty a quantity of 20 oz. of white univoltine seed was procured from Shanghai, but the delay in transport which occurred owing to the abnormal conditions prevailing, resulted in the complete hatching of the seed before arrival at Kollegal, not a single worm being saved out of the seeds for rearing. It was not also possible to obtain any univoltine seed from Kashmir or the Punjab. It was therefore necessary to depend entirely on the available univoltine seed whose purity is being maintained as far as possible by artificial methods.

142. *Coonoor Silk Farm.*—Six rearings of Mysore silk-worms and five rearings of eri silk-worms were successfully conducted during the year. Altogether 93½ lb. of mulberry cocoons and 150 lb. of eri cocoons were produced. The rearing of cross-breed seeds was carried on successfully, but the most useful work done at this farm was in the rearing of eri cocoons and the production of eri seeds for distribution to the district centres. As a result of the application of lime to the cultivation, the mulberry trees grew up very well and resisted all fungus growth. Manurial and cultural experiments in grafting, budding and cross-polination were continued.

143. *Palmaner Silk Farm.*—One thousand six hundred and sixty-six disease-free layings were reared in this farm and 517 lb. of cocoons counting 284,225 were produced. Most of the cocoons which were white were used for cross-breeding work in Kollegal with successful results. Eighty-one bundles of seed cuttings were supplied by this farm to the surrounding villages. A certain amount of interest was shown in the rearing of eri silk-worms by the villagers around Palmaner and most of the cocoons were sent to the Mysore Spun Silk Mills, Limited, at Chennapatna. Two students were under training in this farm during the year.

144. *Hosur Silk Farm.*—Forty-seven thousand two hundred and thirty-eight lb. of mulberry leaves were produced on this farm, whilst 30 rearings were conducted with 8,269 disease-free layings from which 2,365 lb. 6 oz. of cocoons were obtained. Out of the latter, 2,084 lb. 6 oz. were white cocoons numbering 1,067,853, and the rest were cross-breed cocoons. The white cocoons were all utilized successfully for cross-breed work in Kollegal and the cross-breed cocoons were used for reeling. The staff of the farm have been instrumental in creating an interest in sericulture around Berikai. Sixty-one cart-loads of mulberry cuttings were distributed among the several district centres and 80 bundles of cuttings were sent to the Textile Expert to the Government of the

Central Provinces and Berar, Nagpur. The foreman of this farm, who is a Botanist, has been taking special interest in budding experiments and the plants budded have come up very well, the size and shape of the budded plant appearing to be superior to the parental plants.

145. *Thadaguni Farm.*—The mulberry under cultivation yielded 24,858 lb. of leaves. Thirty-six rearings were conducted during the year with 5,438 disease free layings which yielded 1,862 lb. 5 oz. of cocoons numbering 927,063. Out of these, 4,270 pure white disease-free layings were reared yielding 736,785 cocoons which were used for cross-breeding work with satisfactory results, the remainder being cross-breed and Mysore cocoons. The farm established a record in securing a yield of 84 lb. 6 oz. of cocoons for 100 layings of cross-breed seeds with a minimum number of 22 days for rearing. Experiments carried on during the year showed that there was little difference in the yield of leaves when the mulberry was manured with sunnhemp compost, horsegram, green manure, or farm manure.

146. *Silk reeling.*—Many country charka reelers have carried out improvements to their primitive reeling machines by attaching buttons and pulleys, and this has improved the quality of the silk to a considerable extent. One silk reeler at Singanallur village has installed a five basin reeling machine with a single turner to revolve all the basins, and he has also attached buttons and pulleys and arranged for water to be boiled as economically as possible with a view to reeling quality silk at the lowest possible price.

147. *Silk-worm ligature gut.*—With the encouragement of the Director-General of Medical Services, the manufacture of silk-worm gut for surgical purposes was taken up in the previous year. The cross-breed worms which are now being reared in large numbers in the Kollegal taluk were found to give guts of the length required by the medical authorities, i.e., 12 inches, and 268,107 guts of three different varieties were supplied during the year against an indent for 358,006 guts placed by the Medical Store Depot, Madras. The indent will be complied with in full by the end of June 1940 as well as a further order for 108,000 guts which was received subsequently. The Government sanctioned during the year a scheme for the further development of this industry which seems destined to become of great importance now that war has broken out and it is difficult to obtain supplies of gut from overseas.

148. *District sericulture work.*—The five sericultural demonstrators were stationed at (i) Kudligi in Bellary district, (ii) Berikai in Salem district, (iii) Pudupetta in North Arcot district, (iv) Tenkasi in Tinnevelly district, and (v) Kshirasagaram in Kuppam, Chittoor district. Berikai where there are more than 40 acres under mulberry is the most promising of these centres. The rearers are mostly Muhammadans who have taken well to the industry and many of them are being trained in silk reeling also. Five thousand seven hundred and seventy-five disease-free layings were

supplied from Kollegal and sold to the rearers and these layings have produced 2,310 lb. of cocoons which yielded 210 lb. of raw silk. It is expected that the mulberry plantations at this centre will soon increase to 100 acres. Since the department is at present dependent upon the Mysore sericulture areas for seed cocoons, endeavours will be made to develop the Berikai centre as a seed cocoon area in order that the Province may become more self-contained. At the Kudligi centre, eri-worms were mostly reared as the people have not taken to mulberry cultivation. At the Pudupettai centre, 29,590 seed cocoons were produced by two families and 15 lb. of eri cocoons were produced by four families. At the Kshirasagaram centre, there are over five acres of mulberry owned by a ryot who is extending the plantation and is also rearing eri-worms for the supply of cocoons to the Mysore Spun Silk Mills at Chennapatna. At Tenkasi, some well-to-do landlords have planted mulberry in small plots of land and the area appears to be suitable for sericulture. The rearers and reelers in the different areas are assisted by the department in the marketing of their cocoons and silk.

149. *General.*—The rainfall in the Kollegal area was 37·63 inches as against 32·43 inches in the previous year, and a normal rainfall of 40 inches. The months of December, January, February and March were very dry, and in the absence of rain the rearing of silk-worms was affected to a certain extent. The area under mulberry cultivation in the Kollegal taluk was estimated at 5,720·39 acres in the period under review. There has been a steady improvement in the prices of cocoons and silk from the end of November and if the favourable market conditions continue until the planting season in June 1940, the acreage under mulberry will probably undergo a considerable expansion. A number of students were trained during the year in the microscopic examination, grainage technique, silk-worm rearing and silk reeling in the various farms, as also in the extraction and sorting and grading of silk-worm ligature guts. About 1,310 saplings raised by the Forest department were supplied to mulberry cultivators, but it is too early to arrive at any conclusion as to the possibilities of tree mulberry plantations in this dry area.

Engineering Section.

150. *General.*—The work of the engineering section consists mainly of the conduct of pumping and boring operations, both in connexion with agricultural operations and rural water-supply, the systematic inspection, under the compounding fee system, of engine installations and industrial machinery already at work, the purchase and erection of industrial machinery and pumping plants and the investigation of applications for loans under the Land Improvements Loans Act, as well as the valuation of machinery and plant offered as security, under the State Aid to Industries Act. In addition, the section provides technical advice to the public on matters relating to industrial plant and machinery.

151. *Staff.*—Sri N. M. Adyanthaya continued as Industrial Engineer throughout the year and was assisted by four Assistant Industrial Engineers, one in charge of the Industrial Engineering Workshop, Madras and one each in charge of the Bezwada, Tanjore, and Coimbatore divisions, the Industrial Engineer holding direct charge of the Madras subdivision comprising the districts of Madras and Chingleput. The three senior Assistant Industrial Engineers—Sri Rao Sahib C. S. Ramachandra Ayyar, Sri P. K. S. Ramanujam Pillai and Sri N. Aiyakannu Achari—retired from service during the year. They were succeeded by supervisors Sri P. Govinda Menon, Sri Ch. Ranga Rao and Sri R. Subrahmanya Ayyar, who were appointed to the charge of the Industrial Engineering Workshop, Washermanpet, Madras and the Bezwada and Tanjore divisions respectively. In G.O. No. 2217, P.H., dated 21st June 1939, Sri N. M. Adyanthaya, Industrial Engineer was appointed Secretary to the Rural Water-supply Committe, whose final report was submitted to Government shortly before the close of the year.

152. *Boring.*—The department maintained 14 Armstrong power drills, 1 air compressor drill and 106 hand-boring sets. The fifteen additional hand-boring sets manufactured solely for work connected with the rural water-supply scheme were allotted early in the period under review to the divisions—nine sets to the Coimbatore division, two sets to the Tanjore division, two sets to the Bezwada division and two sets to the Madras subdivision—and they were at work throughout the year. The following table exhibits the territorial distribution of the applications received for boring, the number of feet bored in each of the divisions and other relevant particulars :—

Division.	Applications pending on 1st April 1939.	Applications received during 1939-40.	Applications disposed of during 1939-40.	Applications pending on 1st April 1940.	Total number of feet bored.	Total number of borings put down.	Total number of borings successful.
Bezwada	32	84	100	16	14,103	187	150
Tanjore	28	58	62	24	18,576	241	192
Coimbatore	22	110	106	26	10,834	138	118
Madras	13	38	41	10	6,326	107	62
Total ..	95	290	309	76	49,839	673	522

It will be seen that the total number of borings put down and the depth bored during the year were 673 and 49,839 feet respectively as against 759 and 58,248 feet respectively in the previous year. There was a reduction in the number of borings put down and the depth bored in the Bezwada and Tanjore divisions. The number of borings put down in the Coimbatore division was also slightly less though there was an appreciable

increase in the total number of feet bored. In the Madras subdivision, the number of borings put down and the feet bored increased by over 100 per cent. The decreases in the Bezwada and Tanjore divisions were mainly due to the not infrequent idleness of sets engaged under the rural water-supply scheme. Seventy-eight sets were lent to Collectors and worked under their orders and in some cases owing to want of timely instructions and lack of coolies or materials the sets were not operated continuously. Another circumstance which contributed to the idleness of many of the sets was the delay and difficulty experienced in obtaining supplies of steel pipes, whilst in some cases the time taken in obtaining an analysis of the water was also considerable. Circulars and instructions have since been issued by the Collectors in consultation with the department with a view to minimizing the delays referred to. The percentage of successful borings was 77·56 as against 80·63 in the previous year. In addition to the 15 additional boring sets manufactured solely for the rural water-supply scheme, 63 boring sets belonging to the department were at the close of the year engaged exclusively on operations in connexion with the rural water-supply scheme. The amount expended on boring operations by the users of the departmental sets during the year is estimated at Rs. 1,76,545. Of the 673, borings put down, those for agricultural purposes numbered 312. The deepest of the borings completed during the year by a hand-boring set was 480 feet and by a power drill was 1,020 feet.

153. *Artesian borings.*—At the close of the previous year, the department had to its credit 176 artesian bore-holes. During the year under review 15 fresh artesian springs were tapped. Of these, nine were in the East and West Godavari districts, discharging fresh water at rates varying from two to 150 gallons per minute at ground level, five in the South Arcot district and one in Kistna district. Special mention may be made of the following artesian borings: A boring at Vemulapalli, Ramachandrapuram taluk, struck a spring at 400 feet below ground level discharging fresh water at 150 gallons per minute at ground level, and enabling an area of 30 acres to be brought under cultivation and an increased income of Rs. 1,000 per annum to accrue to the landholder. A trial bore to a depth of 219 feet was conducted in the village of Garladibba, Bandar taluk, Kistna district, under the rural water-supply scheme, and salt water persisted up to a depth of 190 feet. When the bore reached a depth of 210 feet, a strong fresh water spring was met with and the water rose to ground level, the spring proving to be an artesian spring giving a discharge of about three gallons per minute at ground level. A cement trough nine feet diameter and 20 feet deep is to be constructed around the bore up to ground level so that the water may be made available for the use of the villagers who have had to go a mile to get fresh water

for drinking purposes. This is the first artesian spring tapped in the Kistna district.

154. *Sub-artesian springs.*—Amongst the successful sub-artesian springs or springs which do not naturally rise to the ground level, the following may be mentioned: At Sreekurmam, a noted pilgrim centre in the Chicacole taluk, a 6-inch ground boring was put down to a depth of 206 feet below ground level, and a good spring was tapped which is yielding 18 gallons per minute, thus relieving the acute water scarcity. In a 6-inch bore-hole put down at Santi Asramam, East Godavari, to a depth of 163 feet below ground level, a fresh water spring was tapped at 160 feet discharging eight gallons per minute at 30 feet. An eight inches to four inches boring conducted at Dowlaishwaram, East Godavari, to a depth of 184 feet for drinking water supply, tapped a good fresh water current, supplying 12 gallons per minute. The water scarcity at Nallamkelapalli, Kurnool district, was relieved by a boring put down to a depth of 135 feet in a well 72 feet deep, a small sub-artesian current being tapped. Eight borings were put down during the year for the Poonamalle Health Unit, and of these five proved successful. Among the more important agricultural borings put down during the year may be mentioned the following: A 4-inch boring put down at Dwarapudi for a landowner to a depth of 300 feet tapped a strong sub-artesian current discharging 50 gallons per minute at 5 feet below ground level. As a result of this boring the landowner proposes to bring 20 acres of his land under irrigation by constructing a well 25 feet deep and installing a power pump and he expects to derive an increased income of Rs. 1,000 per annum therefrom. A 6-inch boring conducted at Sitanagaram, Chintalapudi taluk, to a depth of 225 feet below ground level tapped a good fresh water spring at 180 feet below ground level. The water-level rose up to 16 feet from ground level and is discharging five gallons per minute at that level, enabling the landholder to bring under cultivation six additional acres of land. A well boring was conducted to a depth of 109 feet in a well, eight feet diameter and 29 feet deep in Penamalur, Bezwada taluk, which used to dry up in summer. A good sub-artesian spring was tapped at about 90 feet below ground level which, when tested, gave a discharge of 30 gallons per minute into the well and the water-level rose up to 15 feet from ground level. The landowner is having one acre of seed beds and two acres of plantains cultivated and expects to derive an annual income of Rs. 600 against less than Rs. 50 from the land prior to the boring. The Manager, South Vallur Estate, put down a boring through private agency in a well at Vallur to a depth of 90 feet as there was no water in it in summer for the use of the garden around it. As very hard rock was met with at 90 feet, the boring contractor could not go beyond this depth and it was abandoned. The boring was then continued by a departmental hand-boring set and immediately below the hard rock, which continued from

90 feet to 102 feet below ground level, sandy strata was met with and a good sub-artesian spring gave a discharge of 90 gallons per minute into the well. The owner of the estate expects to realize an additional annual income of Rs. 1,000 from his Batavia garden near the well as a result of the boring.

155. *Work of the power drills.*—Six bore wells were put down in the Ramnad district under the rural water-supply scheme and four for the Srivilliputtur Municipality in order to augment the drinking water supply to the municipality. With the aid of power drills, two borings were put down for the Collector of Vizagapatam, two for the Executive Engineer, Dowlaishwaram, and one for the Collector of Nellore for drinking water supply under the rural water-supply scheme and all these borings proved successful. Two successful borings were put down at Rajahmundry for a private individual. A deep boring was conducted for the Pollachi Municipality at Hardinge Market. The boring in the well was taken down to 446 feet from ground level, but as the yield was found to be only 3 gallons per minute at 300 feet, a separate ground boring was put down to a depth of 350 feet which yields a supply of 50 gallons per minute. The quality of the water tapped is good and the supply has relieved the water scarcity in the shandy. The municipality proposes to erect an air lift pump and electric motor over the second bore-hole at a cost of Rs. 2,000. Four power drill borings were put down—two for the Collector of Cuddapah and two for the Collector of Anantapur—for drinking water supply under the rural water-supply scheme and all these proved successful, yielding an adequate supply. At present nine power drills are working for Collectors and five for the public. In order to augment the number of power drills which is inadequate to meet the demand, a new Diesel engine driven drill has been ordered from England. It is expected that this power drill will be much more economical in operation than the existing steam-driven drills.

156. *Torpedoing operations.*—At the beginning of the year, twelve applications were pending and nine more were received during the year. Eleven were disposed of, leaving ten on hand at the end of the year. In several cases, the torpedoing operations were instrumental in increasing the supply of water from bore-holes owing to the exposure of fissures.

157. *Pumping sets.*—The department maintained 22 pumping sets for hiring out to ryots to pump water to their crops during periods of drought or for well sinking. The number of applications pending at the commencement of the year was six. Fifty-one applications were received during the year and 56 were disposed of. A pumping set continued to be employed at the Central Jail, Trichinopoly, to pump out water from wells for the use of the prisoners in the jail. A pumping set was engaged for a

period of about two months by the Revenue department for pumping out water in connexion with bridge construction in the North Arcot district.

158. *New investigations.*—There were at the commencement of the year, 17 pending applications for information and advice. Three hundred and eighteen applications were received and 322 were disposed of during the year.

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

Division.	Pending on 1st April 1939.	Received during the year 1939-40.	Disposed of during the year 1939-40.	Pending on 1st April 1940.	Remarks.
Bezwada	5	27	28	4	Twenty-four pumping. Two agricultural. One industrial. One application refunded.
Tanjore	1	16	16	1	Fourteen pumping. Two industrial.
Coimbatore ..	1	26	23	4	Twenty two-pumping. One industrial.
Madras	1	3	3	1	One pumping. Two industrial.
	8	72	70	10	

The capital invested in the above plants, including the cost of building amounted to Rs. 51,098. The horse-power of the largest and smallest plant erected during the year in each division was as follows :—

Division.	Largest plant B.H.P.	Smallest plant B.H.P.
Bezwada	19	..
Tanjore	6	1
Coimbatore	8	..
Madras	34	30

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

Division.	Acreage brought under cultivation.	Probable enhanced income accruing therefrom.
	ACS.	RS.
Bezwada	..	..
Tanjore	*14	300
Coimbatore	..	..
Madras	25	500

* Already under irrigation but power pumping resorted to for the first time.

Among the erections completed during the year, mention may be made of the following: A battery of six Pinto chekkus and an electric motor to drive them was erected for the Triplicane Urban Co-operative Society and Stores, Limited, Madras. A pumping plant consisting of a 34 B.H.P. Ruston Hornsby oil engine and a 5" × 4" Ruston centrifugal pump was erected at Merattur, Ponneri taluk, Chingleput district, for a private landowner. A 15 B.H.P. A.C. electric motor and Ingersol Rand two-stage air compressor pump were installed at the Imperial Sugarcane Station, Chettipalayam, Coimbatore, over a boring put down last year by a departmental power drill. An electric automatic water-supply unit with 82 gallons pressure tank and ten taps was installed over a bore-well put down by the department at Moovalur near Mayavaram, Tanjore district.

160. *Compounding system.*—Under this system, the owners of private installations are entitled to have their plants inspected and overhauled three times a year on payment of a small fixed fee per annum and also at other times, if special requisitions are received, for which however a small additional fee is charged. The number of such plants compounded during the year under review was 434 as against 458 in 1938-39. The following statement shows the number of plants under maintenance in the four divisions :—

Division.	Industrial plants.	Pumping plants.	Combined plants.	Electrical plants.	Total.
Bezwada	32	74	1	1	108
Tanjore	71	63	14	29	177
Coimbatore ..	17	102	7	..	126
Madras	6	12	5	..	23
Total ..	126	251	27	30	434

The largest plant compounded was one of 168 B.H.P. and the smallest one of $2\frac{1}{2}$ B.H.P. The value of the installations compounded during the year exceeded Rs. 20 lakhs. The compounding fee system has been extended to the maintenance of bore-wells put down by the department and an arrangement entered into with the District Board, Tanjore, under which the departmental mechanics inspect and maintain the bore-holes for an annual fee of Rs. 2 per bore-hole. There are at present 100 bore-holes receiving periodical inspection under this scheme. Although the inspections have been systematically carried out, the system has not on the whole given the desired results owing partly to the delay in the supply of spare parts and partly to the lack of adequate staff to carry out the repairs.

161. *Sugarcane crushing mills.*—The department was in possession of eight power-driven cane-crushing mills, three with engines and five without engines. All the eight mills were fully engaged during the crushing season. Nine applications were received during the year and eight of them were disposed of.

Three thousand two hundred and fifty tons of cane were crushed and about 23,850 maunds of jaggery were produced in the Hospet taluk of Bellary district, the total amount realized by the owners therefrom being Rs. 37,078.

162. *Sugar manufacture.*—The department maintains two sugar centrifugals and sets of pans which are primarily intended for demonstration purposes. The demonstrations of white sugar manufacture by the open pan system at Tiruppalur, Malabar district, and of improved jaggery at Peravali, West Godavari district, are referred to elsewhere in this report.

163. *Services rendered to co-operative societies.*—The plants of the Kallakurichi, Rishivandam, Vadalur, Pudur, Kalyanpur and Hindupur Co-operative Societies were under departmental supervision during the year for a nominal fee of Rs. 5 in each case. The selection of sites as a preliminary to putting down borings for the Madura Mills Co-operative Housing Society, and the Kalyanpur Co-operative Society, Buntwal, was carried out during the year. The application of the Kalliaga Co-operative Society, Munnar, for a loan in connexion with the installation of a pumping plant was also investigated.

164. *Services rendered to departments of Government.*—During the year under review, the value of services rendered to the Agricultural, Police, Revenue, Public Works, Jail, Forest, Public Health and other departments in the various divisions amounted to Rs. 36,969-13-11 as shown below as against Rs. 26,459-9-8 in 1938-39.

Division.	Value of services rendered.		
	RS.	A.	P.
Bezwada	21,519	15	8
Tanjore	6,011	13	1
Coimbatore	9,019	1	2
Madras subdivision	419	0	0
Total ..	36,969	13	11

165. *Loans for purchase of pumping plants.*—The grant of loans under the Land Improvement Loans Act has been restricted to cases where there is a reasonable prospect that by means of such loans, the lands of the ryot could be improved and his income increased, and where investigation has proved that the source of water-supply is unfailing. No loans were granted during the year owing partly to the dearth of water in some of the wells, and partly to the inadequacy of the security offered in certain cases.

166. *Special investigations.*—A new type of bore-well pump designed by the Industrial Engineer during the year was manufactured in the Industrial Engineering Workshop. This

pump is expected to prove very suitable for use in Indian villages. An improved type of under-reamer for use in hand-boring sets was designed during the early part of the year and after trials in the field, arrangements were made for its supply to the divisions as part of the standard equipment. The experiments in regard to the evolution of a small-scale plant for the preparation of malted foods from cholam and of machinery for the production of sand paper are referred to elsewhere in this report. The lining of bore-holes with cement pipes, instead of steel pipes, was taken up during the year, and new tools for lowering the cement pipes and for jointing them were designed. By the close of the year, two bore-holes had been successfully lined with cement pipes and these will be watched carefully. The collection of data of boring operations for incorporation in district and taluk bore-hole maps with a view to the mapping of underground water tables was continued. The mapping of important artesian basins in the districts of East and West Godavari and South Arcot was completed, and the mapping of the Ceded districts is in progress.

167. *Industrial Engineering Workshop.*—The total value of work orders executed in the workshop during the year under review was as follows :—

Head.	Amount realized. 1939-40.			1938-39.		
	RS.	A.	P.	RS.	A.	P.
i. Pumping and boring ..	58,223	15	0	63,949	4	0
ii. Inter-departmental ..	788	7	0	13	7	0
iii. Other Government departments and local bodies	21,868	14	0	7,870	5	0
iv. Manufacture of 15 hand boring sets.	..			22,949	14	0
v. Private parties	846	8	0	3,710	11	0
Total ..	81,727	12	0	98,493	9	0

The year's working resulted in a net profit of Rs. 8,172 as against a profit of Rs. 5,714 in the previous year.

INDUSTRIAL EDUCATION.

168. *Staff.*—Mr. W. Fyfe continued as Inspector of Industrial Schools throughout the year, except for a period of one month from 15th May 1939 when he was on leave and I held additional charge of his post. In G.O. No. 71, Development, dated 8th January 1940, Mr. Fyfe was appointed Personal Assistant to the Director of Industries and Commerce in addition to his duties

as Inspector of Industrial Schools. Mr. Fyfe continued to discharge the duties of Secretary of the Technological Diploma Examination Board. The Inspector of Industrial Schools continued to act as an official visitor to 11 Central Jails and the Senior Certified School, Chingleput, and he also visited during the year the Junior Certified Schools at Ranipet and Bellary.

169. *State Technical Scholarships.*—The number of scholarships tenable at a time for study outside India is four of the value of £216 each per annum. During the year there were four vacancies and one of them was diverted in G.O. No. 1181, Development, dated 5th September 1939, for the deputation to Japan of Sri V. B. Chitra, Superintendent, Crafts section, School of Arts and Crafts, Madras, to study the small-scale and cottage industries of that country. For the remaining three vacancies, applications were invited from the managements of existing industrial establishments and promoters of projected industries, for the nomination of candidates for training in foreign countries and eleven proposals were received for sending their nominees for training in the industries in which they were engaged. In the meanwhile, however, war broke out in Europe and the question of whether or not any new scholarships for study abroad should, in the circumstances, be awarded, had not been decided by the close of the year.

170. *Scholarships tenable at the Victoria Jubilee Technical Institute, Bombay.*—The number of scholarships tenable at a time at this Institute is two of the value of Rs. 50 each per mensem and they are awarded for the study of Textile Manufacture, the course extending to four years. Of the two scholars under training at the Institute, one completed his course during the year and the vacant scholarship was awarded to a student of the weaving community belonging to the Madura district who was already undergoing training at the Institute. A subsidy of Rs. 200 per annum was paid by Government to the Institute on behalf of each Madras Government scholar under training.

171. *Scholarships tenable at the Andhra University.*—The number of scholarships tenable at the Andhra University is six of the value of Rs. 30 each per mensem and they are available for study in the course leading to the degree of B.Sc. (Hons.) in Technology with specialization in pharmaceutical chemistry or sugar technology. Five scholarships fell vacant during the year of which one was diverted and awarded to Sri W. V. Balasundara Rao, in G.O. No. 1656, Development, dated 30th June 1939, for study at the Imperial Agricultural Research Institute, New Delhi, of the different races of Indian yeasts and the remaining four were awarded to fresh candidates. Sri W. V. Balasundara Rao, however, left the Institute in the middle of the course and the amount of scholarship paid to him has been ordered to be recovered.

172. *Post-graduate scholarships tenable at the Indian Institute of Science, Bangalore.*—The number of scholarships tenable at a time at the Institute is twelve of the value of Rs. 45 per mensem and they are awarded to graduates in chemistry or physical science for research in the various departments of study at the Institute for a period of three years. Three scholarships fell vacant during the year and two were filled up—one in the Department of General and Organic Chemistry and the other in the Department of Electrical Technology. The third was kept vacant as the candidate to whom it was awarded did not avail himself of the scholarship. At the end of the year the scholarships were distributed as shown below:—

General and Organic Chemistry	4
Bio-Chemistry	4
Electrical Technology	3

173. *Industrial scholarships.*—Under the provisions of the Code of Regulations for Industrial Schools, sixty new scholarships tenable in each case for a period not exceeding five years and ranging in value from Rs. 1-8-0 to Rs. 7-8-0 per mensem were as usual awarded with effect from 1st July 1939 to pupils learning trades in various industrial schools recognized by the department. A bonus equal to two months' average scholarship was also granted to such of the pupils as satisfactorily completed the prescribed courses of study during the year. The object of these scholarships is to encourage deserving pupils who are in need of assistance to remain long enough in an institution to acquire a working knowledge of their trade.

174. *Technological Diploma Examination Board.*—The Board constituted in G.O. No. 1274, Development, dated 17th May 1938, met twice during the year to consider the results of the two examinations held under its auspices and various other subjects. Six new industrial concerns were recognized during the year as suitable for giving practical training to the successful candidates in the various diploma courses. The Chairman and the member of the Board representing electrical engineering and the printing trade inspected the P.S.G. & Sons Charity Industrial Institute, Peelamedu, Coimbatore, and the Institute was affiliated to the Board in the following subjects: mechanical engineering, electrical engineering and printing technology. During the year, Sri D. V. L. Narasimha Raju, a member of the Board died, and in his place Mr. G. B. Gourlay, Director, Messrs. Parry & Co. Ltd., Madras, was appointed.

175. *Government School of Technology, Madras—Staff and general.*—Sri M. V. Jagannatha Ayyangar and Sri N. S. Rajan continued to act as Principal and Senior Lecturer respectively during the year and they were confirmed in their respective posts.

The school provides courses of instruction in mechanical engineering (five years), electrical engineering (four years), plumbing (two years), electric wiring (two years) and light metal casting (one year), as well as courses in mechanical drawing for wood workers, metal workers, brick-layers, masons and plumbers, each of two years duration. Students who satisfactorily complete the mechanical and electrical engineering courses are awarded the L.M.E. and L.E.E. diplomas, respectively, while those who complete the printing course are awarded the L.P.T. diploma. The annual prize day was held on the 27th March 1940 when Mr. G. G. Armstrong, Chairman, Madras Port Trust, presided and distributed the diplomas and prizes.

176. *Admissions.*—Admissions to the various courses of study are restricted to bona fide apprentices and workmen who are actually engaged in the trade which they wish to learn. The number of new admissions during the year was 390 as against 341 in the previous year, of which 83 were admitted to the electrical engineering course, 35 to the mechanical engineering course, 53 to the printing course and the remainder distributed among the other courses such as, wiring, plumbing, and vernacular drawing classes. The strength of the school on the 31st March 1940 was 816 as against 883 in the previous year. The average number of classes held during the week was 103 against 96 in the previous session.

177. *Examinations.*—With the constitution of the Technological Diploma Examination Board, the school ceased to conduct the examinations in engineering and printing subjects. Seventy-two students qualified themselves for the L.E.E., 22 for the L.M.E. and 10 for the L.P.T. diploma. In composing and proof-reading, 18 came out successful and in machine-minding 19 passed. The electrical wiring competency examination was conducted jointly by Sri C. V. Krishnaswami Chetti, retired Electrical Engineer, Corporation of Madras, and Mr. A. C. D. Rozario, Electrical Engineer, Electricity Department. Two hundred and twenty-four students, including 56 school candidates appeared for the examination and 135 were awarded competency certificates, of whom 36 were school students. Mr. E. H. Coe of Messrs. Richardson and Cruddas conducted the examination in plumbing and minor sanitary science and 37 students, who were declared to have passed, were awarded certificates. The school continued to be the centre for the Province for the City and Guilds of London Institute Technological Examinations for which 409 candidates appeared for the various technological subjects and 173 came out successful. The school conducted the Victoria Jubilee Technical Institute entrance examination and the examination of the Textile Institute, Manchester.

178. *Scholarships.*—In addition to the 12 Government scholarships of the value of Rs. 15 each per mensem tenable at the school for a period not exceeding five years, the Commissioner of

Labour awarded four non-residential scholarships to students belonging to the depressed classes, while the trustees of the Sri Venkateswara Hostel continued to award eight scholarships of the value of Rs. 8 each per mensem, during the year. The District Board of East Godavari awarded one scholarship of the value of Rs. 20 per month to a candidate nominated by it. Scholarships of the value of Rs. 10 per mensem from the Dr. S. Rangachari Endowment Fund were awarded to four students. One student belonging to the Ganjam district, Orissa, was in receipt of a loan scholarship awarded by the Rajah of Parlakimedi. The Muhammadan Educational Association of South India, Madras, and the Reddi Mahajana Sangam, Chittoor, awarded also a few scholarships to students belonging to the Muslim and Reddi communities, respectively, studying in the school. Half-fee concessions were granted to 48 students during the year.

179. *Careers of ex-students.*—The Principal continued to maintain an employment bureau with a view to assisting passed students to secure suitable employment. The majority of the students who were apprentices in the larger workshops are reported to have been absorbed by them on the completion of their course of training. The Electricity Department has also absorbed in their works establishment some of the passed electrical engineering students and others have secured suitable employment in different engineering workshops, factories and mills. More than a dozen students of the school have enrolled themselves for training in the Indian Air Force and about four have joined the Jubbulpore Ordnance Factory.

180. *Preparatory section.*—In this section, selected boys who have passed Form I and are below 15 years of age are given a three years course of general education heavily biased towards industry to prepare them to take up apprenticeships in workshops. The number of new admissions to this section during the year was 50 and its strength at the end of the year was 112 as against 123 in the previous year. Thirty-two students who satisfactorily completed the course of training were awarded certificates.

181. *Perambur Branch School.*—This school is attached to the Madras and Southern Mahratta Railway Workshops and caters for the apprentices and workmen employed in the workshops. The courses of instruction provided in the school are (i) senior five-year course in mechanical engineering, (ii) junior three-year course in mechanical engineering and (iii) two-year drawing course for fitters and carriage builders. The number of new admissions to the school was 83 and its strength at the end of the year was 157 as against 121 in the previous year. The final year examinations were as usual conducted by the railway officials and 21 students who came out successful were awarded certificates.

182. *Casting and metal working class.*—The class, which was started in April 1937, continued during the year. The course of training extends to one year and students are given instruction in the preparation and manufacture of articles of brass and other metallic alloys using modern moulding processes. Twenty-two students were admitted to the course and sixteen of them completed their training satisfactorily and were awarded certificates. The retention of this class on a temporary basis was sanctioned up to the end of March 1941. The expenditure incurred on this class during the year was Rs. 2,950–14–8 and the receipts realized by sale of articles manufactured by the students amounted to Rs. 218–10–6.

183. *Sports.*—The school which is a member of the Madras Collegiate Athletic Association, participated in the Inter-Collegiate tournaments and sports. During the year the school football team achieved distinction by winning all the four tournaments in football, open to the colleges, viz., M.C.A.A. League, Wilson Cup, Professors Cup and Jabbar Cup, a record never achieved before by any other school or college. The hockey team won the Panagal Cup tournament during the year.

184. *Finance.*—The total expenditure on the School of Technology during the year was Rs. 81,537 and the receipts were Rs. 29,266, including the contribution made by the Madras and Southern Mahratta Railway Company, towards the cost of the teaching staff of the Perambur School. The net cost to Government in maintaining the school was Rs. 52,271 or Rs. 48–2–10 per student per year.

185. *Government Industrial School, Madura.*—Sri V. Raghava Ayyar continued as Superintendent up to 19th July 1939 when Sri A. R. Duraisami Ayyar succeeded him and remained in charge of the school until the end of the year. This school which caters for the needs of the southern districts of the Province provides instruction in metal working and wood working trades in courses extending over five years, and also a course in electrical wiring which extends over two years.

186. *Admissions and withdrawals.*—During the year, 151 candidates sought admission to the school, but only 47 actually joined. There were five withdrawals chiefly due to the inability of the parents or guardians of the apprentices to maintain them. The strength of the school at the end of the year was 123 as against 109 in the previous year. During the year a system of wages for all the students in the long courses was introduced in lieu of the scholarships awarded to a few up to then.

187. *Examinations.*—The annual and final examinations for the year were conducted by the Superintendent of the school subject to the approval of the results by the Inspector of Industrial Schools. Of the 20 final year students who presented themselves for the various examinations, 16 were declared to have passed—five in general mechanics, one in cabinet making and 10 in

electric wiring. Of these 14 are reported to have secured suitable employment in factories, mills and workshops.

188. *Hostel.*—The hostel attached to the school functioned satisfactorily. The vegetarian and non-vegetarian messes were efficiently managed by the students themselves.

189. *Financial position.*—The receipts and expenditure of the school for the year were Rs. 13,567 and Rs. 32,768 respectively. The latter figure includes an expenditure of Rs. 5,352 incurred during the year on the payment of wages. The net cost to Government of maintaining the school was Rs. 19,201 as against Rs. 17,000 fixed by the Retrenchment Committee. The excess is mainly due to the introduction of the system of payment of wages to all students in lieu of scholarship to a few. The average cost of training per pupil was Rs. 156–1–8 as against Rs. 129–11–0 in the previous year.

190. *Other Government industrial and trade schools.*—The Government Industrial Schools at Calicut and Bellary and the Government Trade School at Mangalore continued to function satisfactorily during the year. These schools provide instruction in the metal working and wood working trades. At the Calicut school there are also classes in electric wiring and casting and light metal work. The strength of these schools at the end of the year was 135 at Calicut, 76 at Bellary and 50 at Mangalore. The annual and final examinations were conducted by the boards of examiners, appointed by Government, consisting of the superintendent of each school and one professional gentleman of the locality not connected with the school. Thirteen students satisfactorily completed the course at Calicut, nine at Bellary and seven at Mangalore and these were awarded certificates. Most of the passed students are reported to have secured suitable employment. The boards of visitors and selection committees constituted for each school continued to function satisfactorily. The Madura, Calicut and Mangalore schools participated in the All-India Khadi and Swadeshi Exhibition held at Madras in December 1939. The hostel attached to the Bellary school functioned satisfactorily. The number of boarders in the hostel during the year was 28 and the mess rate per head per month averaged about Rs. 6. During the year a system of payment of wages to all students was introduced in the schools at Calicut and Bellary.

The receipts and expenditure of these schools for the year were—

School.	Receipts.	Expenditure.		Net cost.
		Recurring.	Non-recurring.	
	Rs.	Rs.	Rs.	Rs.
Calicut	12,443	27,784	1,258	15,341
Bellary	12,963	23,100	404	10,137
Mangalore ..	3,956	13,100	..	9,144
	29,362	63,984	1,662	34,622

The increase in the net cost was mainly due to the fact that two new additional courses were opened during the year at Calicut, to the introduction of the system of payment of wages to students, to the high price of raw materials owing to the war, and to the falling off in orders received owing to the unsettled conditions which prevailed during the latter half of the year.

191. *Aided industrial schools.*—The Inspector of Industrial Schools continued to supervise the non-textile schools and the Principal, Government Textile Institute, the textile schools. The recognition of two schools, namely: Municipal Industrial School, Kumbakonam, and All Saints Industrial School, Puthur, was withdrawn during the year. One new school was recognized, i.e., the Harijan Industrial School, Conjeeveram, for providing instruction in agriculture and subsidiary industries, including bee-keeping, poultry-farming, cotton-weaving and paper-making. An additional course of instruction in paper-making was introduced in the Sri Krishnasram Industrial School, Guntur. The Melrosapuram Agricultural School has taken up the growing of flowers for which there is a ready demand in the Madras market. At the close of the year there were 76 recognized industrial schools, excluding those managed by Government direct. On the 31st March 1940, there were 8,108 pupils receiving instruction in the schools (including Government institutions) as against 8,055 in the previous year. Of these, 2,901 were non-Brahman Hindus, 2,483 Indian Christians, 1,043 Depressed Classes, 706 Brahmans, 538 Muhammadans, 133 Europeans and Anglo-Indians, 88 criminal tribes, 13 aboriginal and hill tribes, three Buddhists and 200 others. An amount of Rs. 94,828 was distributed in the form of maintenance grant (including Rs. 3,052 capitation grant) representing an average of Rs. 21–10–0 per pupil per annum. A further grant of Rs. 1,438 was distributed as equipment grant and Rs. 1,150 as building grant to certain schools. The teachers' training section in cabinet making attached to the St. Joseph's Industrial School, Tindivanam, continued to function satisfactorily during the year.

Leather Trades Institute, Madras.

192. *Staff.*—Sri K. Seshachallam Choudhury continued as Leather Research Chemist and to function as Superintendent of the institute during the year, except for a period of two months from the 6th June when he was on leave and Sri P. Siviah Choudhury was in charge of the institute, in addition to his other duties. Sri P. Siviah Choudhury continued as temporary Tanning Expert throughout the period under review.

193. *Advice and assistance to tanners.*—At the Leather Trades Institute, Madras, advice and assistance was given to tanners on a wide range of tanning questions and problems, including arrangement of leaching pits, manufacture of chamois and suede leathers, preparation of pigment finishes and their application in the manufacture of chrome upper leathers for export, manufacture

of machine belting leather from local heavy tanned buff hides, improving the colour of bark tanned hides, process of deliming hides, manufacture of sheep skins for glove leather by the alum tannage, manufacture of chrome sheep lining leather on a cottage basis, manufacture of chrome sole leather on cottage basis, manufacture of roller skins for the textile trade, method of avoiding stains in bark tanned hides, process of dyeing and finishing skins on a cottage basis, process of preparing belts from locally tanned leather, and manufacture of book binding leather on a cottage basis. The Tanning Expert carried out a demonstration and gave a series of lectures on the manufacture of leather and leather goods on a cottage basis at the rural demonstration centre at Mangalagiri, Tinnevelly district. A young man from this centre was given a special course in the manufacture of leather goods for a period of three months at the institute and he is now supervising the leather section of the St. Joseph's Institute for Home Industries, Mangalagiri. At the request of a local tanner, three tanneries at Ranipet were visited with a view to ascertaining the cause of certain defects which had manifested themselves in the hides turned out in the tanneries. As a result of detailed investigation commencing from the raw hides, the cause of the defects and a method of overcoming them were explained to the tanner. The Tanning Expert visited the Central Jail, Vellore, in order to select samples of leather for the jail and to suggest improvements in the manufacture of boots for the Police Department. The Tanning Expert also continued to inspect and pass the consignments of leather sent periodically to the Central Jail by the suppliers in Madras.

194. *Experiments and investigations.*—The following is a summary of the experimental work carried out at the institute during the year:—

(i) *Pickling.*—The experiments on the pickling of hides for the export trade were completed and the results have been embodied in a bulletin entitled "The Pickling of Hides and Skins" which was published in English and Tamil shortly after the close of the year.

(ii) *Leather for water-buckets.*—The experiments on the preparation of improved leather for water-buckets were also completed during the year and a bulletin embodying the results has been published in English and Tamil.

(iii) *Synthetic tans.*—The study of the proper use of synthetic tans referred to in last year's report was completed during the period under review, and a bulletin embodying the results of the experiments and the conclusions arrived at will shortly be published.

(iv) *Study of the South Indian tannage.*—The tanning experiments were completed during the year and a study of the scientific control of the tanning and examination of the quality of leathers obtained is now in progress.

(v) *The use of indigenous tanning materials—(a) Divi Divi.*—Further experiments were conducted with a view to bringing up the colour to that of South Indian leather tanned with other materials, whilst experiments on the tanning of hides by using divi divi in combination with other materials were carried out with a view to determining the optimum proportions of the different materials required to yield a satisfactory class of leather from the standpoints of quality and cost.

(*b*) *Terminalia Arjuna.*—Further experiments on the tanning of hides by blending with avaram and myrobalans were conducted. The leather obtained by blending with avaram is satisfactory, the colour being equal to that of ordinary South Indian tanned leather, though the feel is not so full.

(*c*) *Myrobalans.*—Experiments on the use of myrobalans as a main tanning material were continued with a view to ascertaining whether leather of good quality could be produced at a reasonable cost. The experiments were still in progress at the close of the year.

(vi) *Curing of hides and skins.*—Experiments on the curing of skins and hides with common salt and sodium sulphate and with and without the addition of preservatives were continued during the year. The effect of storage during rainy weather on the quality of the leather produced from the hides and skins so cured was subjected to study. The experiments were not completed during the period under review as the cured hides and skins will have to be stored for at least six months before they are taken up for tanning.

(vii) *Manufacture of pickers.*—In view of the fact that pickers are imported in considerable quantities for the textile trade, experiments were conducted with a view to preparing a suitable pelt of the requisite tensile strength and working out a method for the manufacture of pickers on a cottage basis. The results obtained so far have been fairly promising and the experiments are being continued.

(viii) *Leather diaphragms for acetylene lamps.*—At the request of the Lighthouse department, the experimental manufacture of leather diaphragms for acetylene lamps was conducted on a laboratory scale and as the results obtained were promising, tannery experiments have been taken up.

195. *Leather Working Class.*—Government sanctioned with effect from 1st April 1939, the extension of the period of the course of the leather working class from one to two years and an increase in the strength of the class from 12 to 24 students. The class was at full strength from July. Fifty per cent of the youths admitted were from the City of Madras and the rest came from

the districts of Chingleput, North Arcot, Malabar, Nellore, East Godavari, West Godavari, Guntur, Bellary and Cuddapah. The receipts from the sale of leather goods manufactured in class amounted to Rs. 513. Leather articles to the value of Rs. 215 were lost in the fire at the All-India Swadeshi and Khadi Exhibition, Madras in January 1940 and goods to the value of Rs. 139 were lent to the Central Industrial Museum, Madras and the Cuddapah Rural Upliftment Exhibition Van. One of the boys who completed his course in this class is managing a cottage tannery at Peteru, Repalle taluk, Guntur district, and another is in charge of the vocational class in leather goods manufacture of the Government Higher Elementary School, Masulipatam.

196. *Leather chemistry and general chemical work.*—The Leather Research Chemist, who is also in charge of the institute, continued to devote a portion of his time to general industrial work in addition to his duties in the Leather Trades Institute, and he was engaged towards the close of the year on the conduct of a demonstration of the manufacture of white sugar from palmyrah sweet toddy direct at Tiruppalur, Palghat taluk, Malabar district. One hundred and twelve samples of tanning materials, water used in tanneries, chrome liquors, tan liquors, leathers and effluents were analysed in the laboratory of the institute during the year. The laboratory experiments on Terminalia arjuna were completed and the results will shortly be published. The study of Terminalia balerica and Terminalia tomentosa as tanning materials are still in progress. As stated in last year's report, considerable interest is now being taken in the cultivation and production of wattle bark locally. Eight samples of locally grown wattle bark of different degrees of dryness and of different ages were received from the Forest Utilization Officer and five samples from other sources, for analysis. The samples examined were found to be not inferior to the imported wattle bark. The question of the purification of effluents from tanneries to the standard laid down for sewage effluents continued to receive attention during the year, and a conference, which was attended by the Tanning Expert in the absence on leave of the Leather Research Chemist, was held at Madras to consider what steps could suitably be taken in the matter. A committee of five members was formed to carry out a detailed study of the problem and the committee will visit a number of tanneries in the Province before drawing up its report.

School of Arts and Crafts.

197. *Staff.*—Sri D. P. Roy Choudhury, M.B.E., continued as Principal of the School of Arts and Crafts up to 21st March 1940 when he proceeded on leave and Sri M. V. Jagannatha Ayyangar, Principal, Government School of Technology, Madras was placed in full additional charge of the school. Sri V. R. Chitra, Superintendent, Crafts Section was granted leave on average pay for four months and seven days in continuation of the school

vacation from the 2nd July 1939 to enable him to proceed to Japan to study the organization, and technique of the small scale and cottage industries of that country. Sri Chitra returned to Madras on the 10th November 1939.

198. *Strength and attendance.*—The number of students on the rolls on the 31st March 1940 was 293 as against 258 in the previous year. The average attendance was 227 as against 207 and the percentage of attendance during the year was 77·5 as against 80·2 in the previous year.

199. *General.*—The general drawing and design class of the Crafts section of the school was reorganized by attaching the former to the Fine Arts section. In the new designing class instruction is now given in cotton painting, printing and batik work, lacquer work, painting on wood, papier mache decoration, leather work, and decoration on leather. Owing to the length of the courses, the strength of most of the sections of the school has been comparatively poor in the fourth and fifth year classes since most of the students who join the crafts sections belong to the artisan classes and when they had learned the essentials of their craft, they gave up studying in the school and practised their trade in order to earn a livelihood. Thus many of the students were missing the valuable instruction that is given in the final year classes. In order to overcome this difficulty, it was decided to shorten the period of training in some of the crafts sections by rearranging the syllabuses and increasing the working hours per day. The duration of the courses in wood working and engraving have therefore been reduced from five to four years and those in metal work and goldsmithy from five to three years, and revised syllabuses for each of the courses have been introduced. With the introduction of the revised courses, the hours of work have been increased from five to six per day and the students attend the classes from 9 a.m. to 4 p.m. with one hour interval. The Government sanctioned during the year the provision of training in picture-frame moulding as part of the existing wood working course. Government ordered during the year that in future, fees at half rates in force in the Fine Arts section should be charged to students in the general drawing class, the Principal of the School being empowered to exempt bona fide poor students from the levy of fees up to $33\frac{1}{3}$ per cent of the total strength of the class. It was also ordered that students coming from outside the Province to study in the Fine Arts section should in future be charged a fee of Rs. 6 a month in lieu of that of Rs. 5 previously levied from them.

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

Year.	Number appeared.	Number passed.	Percentage.
1937–38	27	16	59
1938–39	24	16	67
1939–40	30	18	60

The annual school examinations were conducted in April and the students of the Arts and Crafts sections who had completed their training and passed the examinations were awarded diplomas. The Cotton Memorial Prize, a gold medal, was awarded to a student of the Fine Arts section whilst the Rao Bahadur N. R. Balakrishna Mudaliyar's gold medals were awarded to two students in the Drawing and Design section of the school.

201. *Stipends and scholarships.*—The number of scholarships and stipends awarded to students in the school from various sources was 54 as shown below :—

(i) Scheduled Classes Industrial Scholarships ..	20
(ii) School stipends including three in the ceramic section and one in the enamelling section ..	19
(iii) District Board Scholarships	6
(iv) Victoria Technical Institute Scholarships ..	4
(v) Dr. S. Rangachari Scholarships	3
(vi) Sri Venkateswara Scholarship	1
(vii) Bihar Government Scholarship	1
	54

Of the Government scholarships referred to above, a special scholarship of the value of Rs. 15 per mensem was sanctioned for one year for the benefit of a student of the Visvakarma Samajam, Tiruvangad, Tellicherry for training in enamelling.

202. *Finance.*—The expenditure for the year amounted to Rs. 59,448–5–9 as compared with Rs. 54,561–6–7 in the previous year. The net cost of the school was Rs. 50,789–15–7 as against Rs. 45,670–5–7 in the previous year.

203. *Annual exhibition.*—The Government constituted during the year, a committee for the selection of pictures and exhibits for the annual exhibition of the School of Arts and Crafts. The Committee selected 163 pictures and certain handicraft articles for display at the annual exhibition of the school which was held during the month of March. For the first time, a fee of one anna each in the mornings and two annas each in the evenings was charged for admission to the exhibition, though parties of school children in charge of a teacher were admitted free. The attendance at the exhibition was smaller than in previous years owing possibly to the levy of an admission fee. The value of the articles sold at the exhibition was also less amounting to Rs. 437 as against Rs. 1,000 in the previous year. The Crafts section of the school participated in the All-India Swadeshi and Khadi Exhibition held at Madras in December and January, and unfortunately property to the value of Rs. 456–1–0 was lost through the fire which destroyed a greater part of the exhibition.

204. *Advisory Board.*—The Government had hitherto been appointing for a term of three years at a time a few Honorary Visitors to the School of Arts and Crafts. The function of these visitors was to pay occasional visits to the school individually and to enter their remarks in the Visitors' Book. The question of devising a system which would ensure more regular visits and enable better assistance to be rendered to the school was taken up during the year and Government decided to constitute an Advisory Board for the school with a Chairman, a Secretary and five members. The Advisory Board was constituted only on the 16th March 1940 and no meeting was held during the year under review.

PROGRAMME OF WORK FOR 1940–41.

205. I. *General.*—Continuance of efforts to obtain a reasonable proportion of the orders for materials and stores required for purposes of the war which are placed by the Department of Supply.

II. *Statistics.*—(*a*) Institution of a forecast of area and yield in respect of each variety of tobacco.

(*b*) Compilation of the statistical analysis and interpretation of the data relating to the purchase of stores by the several departments of Government.

(*c*) Construction of monthly index numbers of retail prices of commodities in the Province of Madras.

(*d*) Analysis of the results of crop cutting experiments in order to determine the normal yields of principal food crops and sugarcane.

III. *Engineering.*—(*a*) Completion of the experiments instituted with a view to the manufacture of a small-scale malt preparation plant.

(*b*) Conduct of further work on the evolution of experimental machines for manufacturing sand-paper on a cottage industry basis.

(*c*) Conduct of large scale trials on the lining of boreholes with cement pipes.

(*d*) Continuance of the mapping of underground water tables in certain districts.

(*e*) Carrying out of further improvements to the deep well pump designed by the Industrial Engineer and conduct of experiments with a view to its adaptation for bullock drive for agricultural purposes.

(*f*) Conduct of electric resistance tests to ascertain the flow of underground water in tank beds in Madakasira taluk of the Anantapur district.

IV. *Industrial education.*—(*a*) Examination of the question of providing facilities for the training of technical personnel for war purposes.

(*b*) Continuance of efforts to secure orders for various articles of wood and iron for army purposes for the Government and aided industrial schools in the Province.

V. *Textiles.*—(*a*) Installation of power looms in the Textile Institute, Madras.

(*b*) Setting up of a muffle furnace for the gold-thread manufacturing section of the Textile Institute.

(*c*) Acquisition and putting into operation of a diamond polishing machine for correcting worn out dies of the wire drawing machine in the gold-thread manufacturing section of the Textile Institute.

VI. *Sericulture.*—(*a*) Organizing the supply and distribution of cross-breed and disease-free layings in increased quantities.

(*b*) Developing the manufacture, and extending the sale of silk-worm ligature guts.

(*c*) Conduct of further research on the diseases of silk-worms.

(*d*) Conduct of further experiments on the refrigeration of cocoons and seeds.

(*e*) Conduct of experiments on the manurial aspects of mulberry cultivation.

(*f*) Conduct of propaganda work in connexion with the extension of the area under mulberry cultivation in the Kollegal taluk and in the Berikai area in Salem district.

VII. *Kerala Soap Institute, Calicut.*—(*a*) Continuance and development of the experiments on the preparation of (i) cosmetic articles, (ii) insecticides, fungicides and sprayers, and (iii) essential oils.

(*b*) Organization of the manufacture and supply of fish liver oil.

(*c*) Conduct of experiments on the destructive distillation of coconut shells with a view to recovering the acetic acid and tar.

VIII. *Leather Trades Institute.*—(*a*) Continuance of the experiments on the tanning of hides with divi divi in combination with other materials.

(*b*) Continuance of the experiments on the use of myrobalans as a main tanning material.

(*c*) Continuance of the investigation in regard to improved methods of curing.

(*d*) Conduct of experiments on the manufacture of pickers.

(*e*) Conduct of tannery experiments with a view to the manufacture of leather diaphragms for [illegible] lamps.

IX. *School of Arts and Crafts, Madras.*—(*a*) Introduction of instruction in picture-frame moulding.

(*b*) Framing of proposals for appointing a design teacher on the staff of the school for the purpose of imparting instruction in design in the Crafts section, and to assist in the introduction of improved designs in cottage industries.

(*c*) Examination of the question of providing instruction in certain other craft industries.

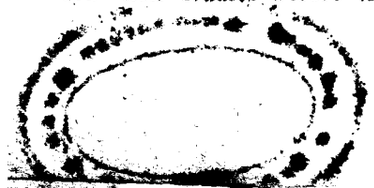
Receipts and Expenditure.

206. The following statement exhibits the receipts and expenditure of the department during the year 1939–40. Details are exhibited in Appendix I.

Item.	1938–39.	1939–40.	Decrease (—) or Increase (+).
	Rs.	Rs.	Rs.
Expenditure ..	15,50,984	14,21,879	— 1,29,105
Receipts	5,72,315	5,56,433	— 15,882
Net cost ..	9,78,669	8,65,446	— 1,13,223

It will be observed that there has been a decrease, both under expenditure and receipts during the year under review as compared with the previous year.

Expenditure.—There has been a decrease in the expenditure under the heads, Direction, District Engineering, Industrial Scholarships, Industrial Schools, School of Technology, Leather Trades Institute, Textile Institute, Sericulture, Kerala Soap Institute, Industrial Engineering Workshop, Grants-in-aid to Industrial Schools and Handspinning Movement and Charges in England—Other than on stores to the extent of Rs. 1,45,822 as compared with that of the previous year. On the other hand there has been an increase in the expenditure under School of Arts and Crafts, Miscellaneous Experiments, Grant for the Handloom Industry and Charges in England on Stores to the extent of Rs. 16,972. An expenditure of Rs. 1,32,612 was incurred under the head "Grants for the Hand-spinning movement" against Rs. 1,82,090 in the previous year. There was an expenditure of Rs. 1,13,209 under the heads "Grants for the Handloom, Sericulture, and Small Scale Cottage and Woollen Industries" as against Rs. 1,04,076 in the previous year. The amount of Rs. 1,13,209 was set off by a similar amount under receipts. The reduction in expenditure under "Direction" was mainly due to the decrease in the value of shares subscribed by Government in private industrial concerns, and under Industrial Scholarships to the reduction in the number of scholars and rates of scholarships and to the fact that some scholarship-holders discontinued their studies before the completion of their course.



The decrease under "Industrial Schools" was due to a reduction in expenditure on the purchase of machinery apparatus and materials for the Industrial Schools at Bellary and Madura, and that under "School of Technology" was due to restricted expenditure under "Pay of Establishment—Temporary—Part-time Lecturers and Demonstrators," and smaller expenditure under "Rates and Taxes" and "Fees to Examiners." The reduction in expenditure under "Leather Trades Institute" was due to smaller expenditure on "Experimental research." The purchase of yarn-testing machines during 1938–39 helped to swell the total under the head "Textile Institute." There was a reduction under "Sericulture," owing to certain special expenditure having been incurred in the previous year. The reduction in expenditure under "Kerala Soap Institute" was due to the fact that owing to the war the full requirements of box boards could not be obtained and it was found difficult to obtain chemicals, perfumes and containers, etc., in the usual quantities. The reduction in expenditure under "Industrial Engineering Workshop" was due to smaller expenditure incurred under "Stores and Materials" during the year. The reduction under "Grants-in-aid to Industrial Schools" was due to the smaller provision sanctioned under "Building and Equipment Grants," and also to the fact that one industrial school did not utilize the building grant earmarked for it, while the reduction in expenditure under "Grants for the Handspinning Movement" was due to the decrease in the production of Khadi by the All-India Spinners' Association. The reduction in expenditure under "Charges in England—Other than on Stores" was due to the fact that no officer of the department availed himself of leave out of India and that no state technical scholars were under training in Europe during the year. The reduction in expenditure under "District Engineering" scarcely calls for comment. The increase in expenditure under "School of Arts and Crafts" was due to payment of passage money, railway fare and subsistence allowance to Sri V. R. Chitra in connexion with his deputation to Japan, payment to the Madras Corporation, of arrears of property-tax and also enhanced property-tax for 1939–40, to participation in the All-India Khadi and Swadeshi Exhibition and to the additional expenditure incurred in connexion with the annual school exhibition, while the increase under "Miscellaneous Experiments" was due to larger expenditure incurred in respect of the Leather Goods Manufacturing Class in the Leather Trades Institute. The increase under "Grants for Handloom Industry" was attributed to the purchase and erection of the calendering and finishing plant, whilst the increase under "Charges in England on Stores" was due to the increased cost of stores indented for.

Receipts.—There was a reduction in the total receipts of the department during the year as compared with that of the previous year. The decrease was mainly due to the fall in receipts under the heads "Industrial Schools" and "Industrial Engineering

Workshop." In the case of the former the reduced receipts were due to a decrease in the volume of orders received by the industrial schools, whilst in the latter case, the fall in outside orders compared to the previous year, was mainly responsible for the reduction under receipts. An adjustment in the previous year of an amount of Rs. 11,222 to the head "Recoveries of Overpayments," being the excess amount disbursed to the All-India Spinners' Association in the previous year was responsible for swelling the amount shown against this head in the previous year. On the other hand, increased receipts are noticeable under the heads "Sericulture," "Kerala Soap Institute" and "Printers' Ink," the increase under "Sericulture" being mainly due to extra receipts realized by the manufacture and sale of silk-worm guts for the Medical Stores Depot, Madras, and that under "Kerala Soap Institute" resulting from the increased sales of soap. The receipts under "Printers' Ink" represented the purchase price of the assets of the defunct ink factory realized from the Radhoswamy Satsang Sabha, Madras (Dayalbagh Ink Factory, Madras) on behalf of Sri B. K. S. Chowdhury.

Net cost of the department.—The net cost of the department decreased by Rs. 1,13,223 as compared with that of the previous year, despite a fall of nearly Rs. 15,900 in the net receipts.

APPENDIX I.

Statement showing the Receipts and Charges of the Department of Industries and Commerce for the year 1939–40.

Receipts.	1938–39.			1939–40.			*Expenditure.*	1938–39.			1939–40.		
	Rs.	A.	P.	Rs.	A.	P.		Rs.	A.	P.	Rs.	A.	P.
							43. *a. Industries—Industries—*						
Pumping and Boring	70,189	2	6	64,320	6	3	A. Direction	1,29,303	13	7	1,19,977	14	6
Industrial installations	2,189	8	0	1,557	0	0	B. District Engineering	3,15,841	1	4	3,14,266	15	6
Industrial schools	81,903	15	2	69,617	15	9	C. Industrial scholarships	20,201	4	7	17,338	8	0
School of Arts and Crafts	5,348	11	0	5,023	15	0	D. Industrial schools	1,06,275	8	11	98,512	15	1
Textile Institute	1,848	1	10	1,681	7	5	E. School of Technology	83,940	12	8	81,509	4	5
Sericulture	5,694	10	6	13,009	7	5	F. Leather Trades Institute	18,991	1	0	17,296	8	3
Kerala Soap Institute	1,85,882	15	6	1,99,266	7	7	G. School of Arts and Crafts	54,539	1	7	59,553	15	2
Industrial Engineering Workshops	1,00,207	5	6	80,413	1	0	H. Textile Institute	50,165	3	7	46,631	13	1
Sugarcane mills	2,710	0	0	2,160	0	0	J. Sericulture	33,135	13	10	31,218	13	6
Rents of buildings	46	8	0	154	12	0	K. Kerala Soap Institute, Calicut.	1,79,498	2	4	1,61,608	7	11
Printers ink	..			3,000	0	0	Experiments on oils, fats, etc., at the Kerala Soap Institute, Calicut.	11,495	15	0	8,433	13	10
Grant for handloom industry ..	77,660	4	0	83,421	1	11	L. Industrial Engineering Workshop.	92,342	11	2	77,222	10	10
Grant for sericultural industry ..	16,376	0	7	17,860	5	3	M. Miscellaneous experiments including grant for sericultural industry.	37,113	15	2	40,782	6	0
Grant for small-scale cottage and woollen industries.	10,040	0	2	11,927	8	4							
Other receipts	7,394	8	10	6,465	1	10							
Total ..	5,67,491	11	7	5,59,878	9	9							
Recoveries of overpayments ..	11,796	8	8	778	0	2	43. *c. Industries—Grants-in-aid—*						
Collection of payments for services rendered.	3,600	0	0	3,647	10	0	A. Grants-in-aid to Industrial Schools.	1,22,056	7	0	1,06,476	3	0
Receipts in England	140	5	4	..			B. Grants for handloom industry.	77,660	4	0	83,421	1	11
Gain by exchange	0	8	4	..			D. Grants for the hand-spinning movement.	1,82,089	15	0	1,32,611	12	6
	5,83,029	1	11	5,64,304	3	11	Total ..	15,14,651	2	9	13,96,863	3	6
Deduct Refunds ..	10,714	8	2	7,870	11	8	Expenditure in England on stores.	22,544	13	3	24,972	9	10
							Expenditure in England other than on stores.	13,589	14	5	..		
Net Receipts ..	5,72,314	9	9	5,56,433	9	3		15,50,785	14	5	14,21,835	13	4
Net cost of the department ..	9,78,669	7	9	8,65,445	12	9	Loss or gain by exchange ..	198	3	1	43	7	8
Total ..	15,50,984	1	6	14,21,879	5	0	Total ..	15,50,984	1	6	14,21,879	5	0

APPENDIX II.

Statistics relating to Government and Recognized Industrial Schools for 1939-40.

Serial number, name and place of the institution.	Number on rolls on 31st March.		Mechanical Engineering.		Electrical Engineering.		Wood working trades.		Rattan work.		Textiles, cotton.		Textiles, wool.		Other textile trades.		Lace embroidery and needle work.		Other subjects (specified in remarks column).		Remarks.
	1939.	1940.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
GOVERNMENT INSTITUTIONS.																					
1 Government School of Technology, Madras.	1,145	1,102	127	22	341	72	..	..	..	..	..	..	..	..	..	..	..	..	634	159	Printing .. .. 10 Electric Wiring .. 36 Plumbing .. .. 37 Drawing .. 7 Preparatory .. 32 Metal Casting .. 16 Railway Trade School 21 Total .. 159
2 School of Arts and Crafts, Madras.	258	293	..	..	..	..	67	..	..	..	..	..	..	..	..	..	..	..	226	..	
3 Government Textile Institute, Madras.	109	103	..	..	..	..	..	..	..	..	103	..	..	..	..	..	..	..	..	..	
4 Government Industrial School, Calicut.	99	135	55	5	..	..	30	3	..	..	..	..	..	..	..	..	..	..	51	5	Metal Casting .. 4 Oil tending .. 1
5 Government Trades School, Mangalore.	47	50	41	3	..	..	9	4	..	..	..	..	..	..	..	..	..	..	..	..	
6 Government Industrial School, Bellary.	74	76	58	6	..	..	18	3	..	..	..	..	..	..	..	..	..	..	..	..	
7 Government Industrial School, Madura.	109	123	..	..	33	10	25	1	..	..	..	..	..	..	..	..	..	..	65	5	Metal Work.
AIDED SCHOOLS (BOYS).																					
8 C.N.T. Institute, Vepery, Madras.	433	438	148	13	144	16	20	..	..	..	27	..	..	..	..	..	..	..	99	..	Drawing.
9 Anjuman Industrial School, Madras.	83	94	..	..	..	..	30	9	30	9	..	..	7	3	..	..	27	13	..	..	
10 Orr's Assisted Industrial School, Madras.	53	75	38	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	37	..	Three Rs. in Tamil.
11 Ramakrishna Mission Industrial School, Madras.	54	45	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	45	20	Automobile Engineering.
12 Gokulam Cottage Industrial School, Madras.	90	184	..	..	..	..	24	14	..	..	55	..	..	..	..	..	..	..	105	60	Bee-keeping .. 55 Eri silk .. .. 35 Paper making .. 15
13 A.A.M. Industrial School, Katpadi.	113	121	..	..	..	..	118	..	..	..	..	..	..	..	..	..	..	..	3	..	Motor Mechanics.
14 Anjuman Industrial School, Vellore.	85	94	..	..	..	..	94	6	..	..	..	..	..	..	..	..	..	..	..	..	
15 Anjuman Industrial School, Melvisharam.	61	45	..	..	..	..	45	1	..	..	..	..	..	..	..	..	..	..	..	..	
16 Anjuman Industrial School, Tiruppattur.	37	41	..	..	..	..	41	2	..	..	..	..	..	..	..	..	..	..	..	..	
17 Don Bosco Industrial School, Vellore.	42	58	..	..	..	..	58	..	..	..	..	..	..	..	..	..	..	..	..	..	
18 St. Joseph's Industrial School, Tindivanam.	64	75	12	..	..	..	63	8	..	..	..	..	..	..	..	..	..	..	..	..	
19 Danish Mission Industrial School, Panruti.	72	84	..	..	..	..	55	5	..	..	29	..	..	..	..	..	..	..	..	..	
20 C.S.M. Agricultural School, Melrosapuram.	66	67	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	67	11	Agriculture and allied trades.
21 A.A.M. Industrial School, Velacheri.	24	24	..	..	..	..	24	5	..	..	..	..	..	..	..	..	..	..	..	..	
22 Kodambakkam Industrial School, Kodambakkam.	36	39	10	5	..	..	20	..	9	..	..	..	..	..	..	..	..	..	..	..	
23 Victory Memorial Blind School, Poonamallee.	84	63	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
24 Lady Willingdon Leper Settlement, Tirumani.	49	15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
25 St. Joseph's Industrial School, Coimbatore.	98	142	53	13	..	..	89	11	..	..	..	..	..	..	..	..	..	..	..	..	
26 P.S.G. & Sons Charity Industrial Institute, Peelamedu.	235	194	66	5	56	26	29	..	..	..	26	..	..	..	..	..	..	..	17	3	Printing.
27 U.L.C.M. Rural Reconstruction School, Guntur.	30	24	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	24	11	Agriculture and allied trades.
28 American Mission Cabinet Making School, Guntur.	42	38	..	..	..	..	38	4	..	..	..	..	..	..	..	..	..	..	..	..	

APPENDIX II—*cont.*

Statistics relating to Government and Recognized Industrial Schools for 1939-40—*cont.*

Serial number, name and place of the institution.	Number on rolls on 31st March.		Mechanical Engineering.		Electrical Engineering.		Wood working trades.		Rattan work.		Textiles, cotton.		Textiles, wool.		Other textile trades.		Lace embroidery and needle work.		Other subjects (specified in remarks column).		Remarks.
	1939.	1940.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
AIDED SCHOOLS (BOYS)—*cont.*																					
29 Commonwealth Trust Engineering Works, Mangalore.	11	7	7	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
30 National Industrial School, Rajahmundry.	78	95	27	..	..	..	34	4	..	..	..	..	..	..	..	..	..	..	4	13	Paper making.
31 Sri Krishna Parisramalayam Industrial School, Kavutaram.	32	23	..	..	..	..	23	2	..	..	..	..	..	..	..	..	..	..	..	..	
32 C.M.S. Industrial School, Vidyanagar.	22	13	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13	2	Leather work.
33 St. Joseph's Industrial School, *Gundadala.*	117	83	..	..	..	..	83	10	..	..	..	..	..	..	..	..	..	..	..	..	
34 Municipal Technical Institute, Masulipatam.	51	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
35 Pasumalai Trades School, Pasumalai.	55	59	18	1	..	..	24	3	..	..	..	..	..	..	..	..	..	..	17	3	Printing.
36 C.S.M. Industrial School, *Dindigul.*	49	46	6	..	..	..	29	3	..	..	..	..	..	..	..	..	11	4	..	..	
37 St. Joseph's Industrial School, *Ootacamund.*	64	51	..	..	..	..	51	2	..	..	..	..	..	..	..	..	..	..	..	..	
38 District Board Industrial School, Sivaganga.	40	44	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	44	17	Agriculture.
39 St. Theresa's Industrial School, Salem.	45	47	10	..	..	..	37	4	..	..	..	..	..	..	..	..	..	..	..	..	
40 St. Francis Xavier's Industrial School, Tanjore.	104	117	..	..	..	..	79	13	..	..	38	7	..	..	..	..	..	..	..	..	
41 St. Mary's Industrial School, Kumbakonam.	78	80	10	1	..	..	70	5	..	..	..	..	..	..	..	..	..	..	..	..	
42 Municipal Industrial School, Kumbakonam.	Recognition withdrawn.																				
43 Board Industrial School, Tanjore.	35	46	16	..	..	..	30	..	..	..	..	..	..	..	..	..	..	..	..	..	
44 S.P.G. Art Industrial School, *Nazareth.*	118	90	18	3	..	..	52	9	..	..	..	..	..	..	..	..	20	6	..	..	
45 St. Joseph's Industrial School, Adaikalapuram.	52	54	..	..	..	..	23	2	..	..	10	2	..	..	..	..	21	3	..	..	
46 C.M.S. Industrial School for the Blind, Palamcottah.	46	46	..	..	..	..	..	..	20	..	15	2	11	7	..	..	..	..	..	..	
47 St. Ignatius Industrial School, Tuticorin.	25	28	..	..	..	..	28	2	..	..	..	..	..	..	..	..	..	..	..	..	
48 St. Joseph's Industrial Institute, Tuticorin.	44	41	..	..	..	..	20	..	..	..	..	..	..	..	..	..	..	..	21	..	Toy Making.
49 Methodist Mission Industrial School, Karur.	103	96	5	..	..	..	57	15	3	..	26	12	..	..	..	..	..	..	5	..	Leather.
50 St. Joseph's Industrial School, Trichinopoly.	106	123	72	11	..	..	41	9	..	..	..	..	..	..	..	..	..	..	..	..	
51 All Saints' Industrial School, Puthur.	30	24	..	..	..	..	..	24	2	..	..	..	..	..	..	..	..	..	..	..	
52 Servindia Agricultural and Industrial School, Mayanur.	40	59	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	59	14	Agriculture.
53 St. Aloysius Industrial School, Vizagapatam.	21	14	..	14	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
54 The Bharadwaja Ashram, Adoni.	8	24	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	24	24	Paper Making.

APPENDIX II—*cont.*

Statistics relating to Government and Recognized Industrial Schools for 1939-40—*cont*

Serial number, name and place of institution.	Number on rolls on 31st March.		Mechanical Engineering.		Electrical Engineering.		Wood working trades.		Rattan work.		Textiles, cotton.		Textiles, wool.		Other textile trades.		Lace embroidery and needle-work.		Other subjects (specified in remarks column).		Remarks.
			Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	Number on rolls.	Number passed out.	
	1939.	1940.																			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
AIDED SCHOOLS (BOYS)—*cont.*																					
55 Sri Krishnasram Industrial School, Guntur	24	36	..	..	..	..	18	..	..	..	..	..	..	..	..	..	..	..	18	2	Paper making and Cement work.
56 V. S. Rajagopalan's Radio Institute, Madras.	28	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
57 Village Industries Institute, Gopalapuram, Malabar district.	24	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
58 London Mission Weaving School, Erode.	42	45	..	..	..	..	..	..	..	..	45	45	..	..	..	..	..	..	..	..	
59 Harijan Industries School, Conjeeveram	..	16	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	16	..	Agriculture.
AIDED SCHOOLS (GIRLS).																					
60 Seton School of Embroidery and Needle work.	95	115	..	..	..	..	..	..	..	..	..	..	..	..	..	..	115	61	..	..	
61 Sevasadan Industrial School, Chetput.	101	80	..	..	..	..	..	..	10	..	9	..	..	..	..	..	61	7	..	..	
62 St. Bridget's Industrial School, Nungambakam.	38	63	..	..	..	..	..	..	..	..	..	..	..	..	..	..	63	8	..	..	
63 St. Anne's Industrial School, Rayapuram.	55	52	..	..	..	..	..	..	..	..	28	4	..	..	..	..	24	2	..	..	
64 St. Thomas Industrial School Mylapore.	31	26	..	..	..	..	..	..	..	..	..	..	..	..	..	..	26	4	..	..	
65 C.S.M. Lace School, Chingleput.	51	57	..	..	..	..	..	..	..	..	..	..	..	..	..	..	57	12	..	..	
66 Methodist Mission Industrial School, Ikkadu.	65	43	..	..	..	..	..	..	..	..	..	17	3	..	..	..	..	29	5	..	..
67 St. Antony's Industrial School, St. Thomas' Mount.	52	50	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	50	7	..	..
68 Methodist Mission Industrial School, Dharapuram.	..	22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	22	2	..	..
69 Immaculate Conception Convent Industrial School, Coimbatore.	36	33	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	38	4	..	..
70 St. Joseph's Orphanage Industrial School, Guntur.	8	41	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	41	4	..	..
71 St. Joseph's Industrial School, Madura.	34	37	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	37	13	..	..
72 Nazareth Convent Industrial School, Ootacamund.	24	28	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	28	..	..	..
73 Leipzig Mission Women's Industrial School, Mayavaram.	Recognition withdrawn.																				
74 R.C. Lace School, Vadakangulam.	32	30	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	30	5	..	.
75 Hindu Girls School, Kudangulam.	17	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	54	..	..	..
76 Holy Cross Convent Industrial School, Tuticorin.	54	54	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	54	54	..	..
77 Holy Cross Convent Industrial School, Trichinopoly.	54	50	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	50	8	..	..
78 St. Joseph's Convent Industrial School, Bellary.	32	68	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	68	10	..	..
79 A.A.M. Women's Industrial School, Palmaner.	67	60	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	60	20	..	..
80 Commonwealth Embroidery School, Calicut.	37	33	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	33	7	..	..
81 St. Vincent Girls' Industrial School, Calicut.	32	37	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	37	7	..	..
82 Sacred Heart Convent Industrial School, Anjengo.	22	25	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25	1	..	..
83 O.E.L.M. Girls' Industrial School, Nayudupet.	83	44	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	44	12	..	..
84 Lalitha Gana Parisramika Kalasala Rajahmundry.	..	67	..	..	..	..	..	..	..	..	..	21	..	..	..	..	..	46	..	..	..
85 Saradaniketnam, Guntur.	..	62	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	62	..	..	..

APPENDIX III.

Statistics relating to Government and Recognized Industrial Schools for the year 1939–40.

Serial number, name and place of institution.	Number on rolls on 31st March 1940.	Total recurring cost (excluding expenditure on new buildings and equipment).	Receipts from		Receipts and expenditure to the nearest rupee.											
			Fees, etc.	Sales.	Total, columns (4) and (5).	Net recurring cost, column (3) *minus* column (6).	Net recurring cost per pupil, column (7) ÷ column (2).	Recurring grants from Department of Industries.			Recurring grants from other departments or public bodies.	Total recurring grants, columns (9), (10), (11) and (12).	Balance of recurring cost met by managers' funds, column (7) *minus* column (13).	Non-recurring.		
								Maintenance.	Scholarships.	Stipends.				Expenditure on new buildings.	Building grant.	Equipment grant.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
		RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.		RS.	RS.	RS.	RS.	RS.	RS.
GOVERNMENT INSTITUTIONS.																
1 Government School of Technology, Madras.	1,102	84,488	29,484	..	29,484	55,004	49	..	4,390	..	..	4,390	50,614	..	..	..
2 School of Arts and Crafts, Madras.	293	59,448	1,318	3,827	5,145	54,303	185	..	2,150	..	..	2,150	52,153	..	..	..
3 Government Textile Institute, Madras.	103	46,631	..	529	..	46,102	447	..	3,302	..	..	3,302	42,800	..	..	..
4 Government Industrial School, Calicut.	735	23,936	408	12,035	12,443	11,493	85	..	5,175	..	..	5,175	6,318	..	..	..
5 Government Trade School, Mangalore.	50	13,100	10	3,946	3,947	9,153	183	..	320	..	..	320	8,833	..	..	..
6 Government Industrial School, Bellary.	77	23,503	..	12,963	12,963	10,540	136	..	3,823	..	..	3,823	6,717	..	..	..
7 Government Industrial School, Madura.	123	27,414	348	13,139	13,487	13,927	113	..	5,352	..	..	5,352	8,575	..	..	..
AIDED SCHOOLS (BOYS).																
8 C.N.T. Institute, Vepery, Madras.	438	54,215	23,406	3,832	26,238	27,977	63	5,700	808	..	..	6,508	21,469	..	..	..
9 Anjuman Industrial School, Madras	94	30,927	..	6,566	6,566	24,361	259	5,050	507	..	..	5,557	18,804	..	..	..
10 Orr's Assisted Industrial School, Madras.	75	2,955	..	..	..	2,955	39	1,300	..	..	..	1,300	1,655	..	..	
11 Ramakrishna Mission Industrial School, Mylapore, Madras.	45	17,673	1,310	6,024	7,334	10,339	229	2,700	241	..	..	2,941	7,398	..	..	..
12 Gokulam Cottage Industrial School, Madras.	184	2,651	84	180	264	2,387	12	1,000	..	..	..	1,000	1,387	..	..	..
13 A.A.M. Industrial School, Katpadi.	121	2,27,264	..	76,446	76,446	1,50,818	1,246	3,600	226	..	..	3,826	1,46,992	..	..	..
14 Anjuman Industrial School, Vellore.	94	17,472	..	8,354	8,354	9,118	97	2,200	1,151	..	..	3,351	5,767	..	..	..
15 Anjuman Industrial School, Melvisharam.	45	10,111	158	1,720	1,878	9,233	205	1,490	158	..	..	1,648	7,585	..	..	..
16 Anjuman Industrial School, Tiruppattur.	41	4,417	..	1,453	1,453	2,964	72	1,000	160	..	..	1,160	1,804	..	..	..
17 Don Bosco Industrial School, Vellore.	58	7,590	..	3,480	3,480	4,110	72	800	146	..	..	946	3,164	..	..	..
18 St. Joseph's Industrial School, Tindivanam.	75	57,472	..	3,314	3,314	54,158	722	4,300	1,092	..	..	5,392	48,766	..	..	..
19 Danish Mission Industrial School, Panruti.	84	22,667	..	4,315	4,315	18,352	218	2,200	86	..	..	2,256	16,096	..	..	..
20 C.S.M. Agricultural School, Melrosapuram.	67	7,226	..	641	641	6,585	98	1,092	..	..	..	1,287	5,298	..	..	1,615
21 A.A.M. Industrial School, Velacheri.	24	5,142	..	1,959	1,959	3,183	132	600	126	..	..	726	2,457	..	..	..
22 Kodambakkam Industrial School, Kodambakkam.	39	11,538	..	4,763	4,763	6,775	173	950	..	..	..	950	5,825	..	..	375
23 Victory Memorial Blind School, Poonamallee.	63	6,606	..	..	..	..	..	..	..	..	..	..	..	..	..	..
24 Lady Willingdon Leper Settlement, Tirumani, Chingleput district.	15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
25 St. Joseph's Industrial School, Coimbatore.	142	88,415	119	58,462	58,581	29,834	210	2,550	369	..	..	2,819	27,015	..	..	..
26 P.S.G. & Sons Charity Industrial Institute, Peelamedu.	194	18,116	4,140	3,625	7,765	10,351	53	1,100	4,011	..	..	5,111	5,240	..	..	..
27 U.L.C.M. Rural Reconstruction School, Guntur.	24	5,215	..	970	970	4,245	177	900	56	..	..	956	3,289	..	..	..
28 American Mission Cabinet Making School, Guntur.	38	21,651	5	7,393	7,398	14,253	307	1,150	161	..	..	1,311	12,942	..	..	..
29 Commonwealth Trust Engineering Works, Mangalore.	7	842	..	..	..	842	120	380	32	..	..	412	430	..	..	..
30 National Industrial School, Rajahmundry.	95	5,396	..	..	..	5,396	56	1,200	..	..	..	1,200	4,196	..	..	..
31 Sri Krishna Parisramalayam Industrial School, Kavutharam.	23	2,556	33	70	103	2,453	106	500	48	..	..	548	1,905	..	..	..

APPENDIX III—*cont.*

Statistics relating to Government and Recognized Industrial Schools for the year 1939–40—*cont.*

Serial number, name and place of institution.	Number on rolls on 31st March 1940.	Total recurring cost (excluding expenditure on new buildings and equipment).	Receipts from		Receipts and expenditure to the nearest rupee.											
			Fees, etc.	Sales.	Total, columns (4) and (5).	Net recurring cost, column (3) *minus* column (6).	Net recurring cost per pupil, column (7) ÷ column (2).	Recurring grants from Department of Industries. Maintenance.	Recurring grants from Department of Industries. Scholarships.	Recurring grants from Department of Industries. Stipends.	Recurring grants from other departments or public bodies.	Total recurring grants, columns (9), (10) and (12).	Balance of recurring cost met by managers' funds, column (7) *minus* column (13).	Non-recurring. Expenditure on new buildings.	Non-recurring. Building grant.	Non-recurring. Equipment grant.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
AIDED SCHOOLS (BOYS)—*cont.*																
32 C.M.S. Industrial School, Vidyanagar.	13	3,115	..	724	724	2,391	183	450	9	..	..	459	1,932	..	..	..
33 St. Joseph's Industrial School, Gundadala.	83	13,979	..	4,829	4,829	9,150	110	2,000	501	..	..	2,501	6,649	..	..	..
34 Municipal Technical Institute, Masulipatam.	53	10,204	..	..	..	10,204	192	2,749	..	..	..	2,749	7,455	..	..	833
35 Pasumalai Trades School, Pasumalai.	59	38,472	386	19,735	20,121	18,351	311	1,150	491	..	..	1,641	16,710	..	..	..
36 C.S.M. Industrial School, Dindigul.	46	24,244	..	7,704	7,704	16,540	359	1,700	198	..	..	1,898	14,742	..	..	..
37 St. Joseph's Industrial School, Ootacamund.	51	42,657	..	17,907	17,907	24,750	485	1,100	290	..	..	1,390	23,360	..	..	..
38 District Board Industrial School, Sivaganga.	44	6,431	..	564	564	5,867	133	1,100	..	..	..	1,100	4,767	..	..	..
39 St. Theresa's Industrial School, Salem.	47	7,902	..	1,384	1,384	6,518	138	1,300	112	..	..	1,412	5,106	..	..	..
40 St. Francis Xavier's Industrial School, Tanjore.	117	32,955	..	9,724	9,724	23,231	198	2,000	222	..	..	2,222	21,009	..	..	..
41 St. Mary's Industria School, Kumbakonam.								Recognition withdrawn.								
42 Municipal Industrial School, Kumbakonam.	80	25,707	..	10,15[illegible]	10,151	15,556	194	1,750	331	..	..	2,081	13,475	..	..	..
43 Board Industrial School, Tanjore.	46	11,226	..	..	..	11,226	244	1,400	..	..	..	1,400	9,826	..	..	..
44 S.P.G. Art Industrial School, Nazareth.	90	24,006	..	8,678	8,678	15,328	170	3,900	224	..	..	4,124	11,204	..	..	..
45 St. Joseph's Industrial School, Adaikalapuram.	54	5,686	..	1,511	1,511	4,175	77	1,450	..	..	..	1,450	2,725	..	..	..
46 C.S.M. Industrial School for the Blind, Palamcottah.	46	46,658	..	3,645	3,645	13,013	282	900	266	..	..	1,166	11,847	..	..	..
47 St. Ignatius Industrial School, Tuticorin.	28	3,584	..	440	440	3,144	112	700	92	..	..	792	2,352	..	..	..
48 St. Joseph's Industrial Institute, Tuticorin.	41	7,853	..	1,448	1,448	6,405	156	900	..	..	..	900	5,505	..	..	..
49 Methodist Mission Industrial School, Karur.	96	23,107	..	5,055	5,055	18,052	188	2,800	971	..	..	3,771	14,281	..	..	..
50 St. Joseph's Industrial School, Trichinopoly.	123	1,13,665	..	60,378	60,378	53,287	433	3,000	1,157	..	..	4,157	49,130	..	..	..
51 All Saints' Industrial School, Puthur.	24	6,204	..	4,732	4,732	1,472	61	650	..	..	..	650	822	..	..	..
52 Servindia Agricultural and Industrial School, Mayanur.	59	5,398	..	1,174	1,174	4,224	71	1,840	153	..	1,993	1,993	2,231	2,520	1,150	..
53 St. Aloysius Industrial School, Vizagapatam.	14	32,309	..	15,743	15,743	16,566	1,183	1,400	..	..	..	1,400	15,166	..	..	..
54 The Bharadwaja Ashram, Adoni.	16	602	..	7	7	598	37	150	..	192	..	342	256	..	..	230
55 Sri Krishnasram Industrial School, Guntur.	36	6,640	..	..	..	6,640	184	800	..	..	300	1,100	5,540	..	..	..
56 V. S. Rajagopalan's Radio Institute, Madras.	43	8,523	7,243	..	7,243	1,280	29	..	..	..	..	..	..	..	..	..
57 Village Industries Institute, Gopalapuram, Malabar district.	72	276	75	..	75	201	2	..	..	..	..	..	..	..	..	..
58 London Mission Weaving School, Erode.	45	4,290	..	214	214	4,076	90	1,200	22	..	..	1,200	2,876	..	..	..
59 Harijan Industrial School, Conjeeveram.	16	1,339	..	..	..	1,339	83	..	..	..	..	..	1,339	..	..	..
AIDED SCHOOLS (GIRLS).																
60 Seton School of Embroidery and Needlework, Kilpauk.	115	8,692	911	3,396	4,307	4,385	38	1,380	69	300	..	1,809	2,576	..	..	..
61 Seva Sadan Industrial School, Chetput.	80	9,804	203	1,971	2,174	7,630	95	1,500	8	..	..	1,508	6,122	..	..	..

APPENDIX III—*cont.*

Statistics relating to Government and Recognized Industrial Schools for the year 1939–40—*cont.*

Serial number, name and place of institution.	Number on rolls on 31st March 1940.	Total recurring cost (excluding expenditure on new buildings and equipment).	Receipts from		Receipts and expenditure to the nearest rupee.											
			Fees, etc.	Sales.	Total, columns (4) and (5).	Net recurring cost, column (3) *minus* column (6).	Net recurring cost per pupil, column (7) ÷ column (2).	Recurring grants from Department of Industries.			Recurring grants from other departments or public bodies.	Total recurring grants, columns (9), (10), (11) and (12).	Balance of recurring cost met by managers' funds, column (7) *minus* column (13).	Non-recurring.		
								Maintenance.	Scholarships.	Stipends.				Expenditure on new buildings.	Building grant.	Equipment grant.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
AIDED SCHOOLS (GIRLS)—*cont.*		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.			Rs.	Rs.			Rs.
62 St. Bridget's Industrial School Nungambakam.	40	11,428	..	..	..	11,428	285	1,600	..	..	..	1,600	9,828	..	..	..
63 St. Anne's Industrial School, Royapuram.	52	5,336	..	502	502	4,834	92	1,000	99	..	..	1,099	3,735	..	..	..
64 St. Thomas' Industrial School, Mylapore.	26	8,120	..	1,035	1,035	7,085	272	700	139	..	..	839	6,246	..	..	..
65 C.S.M. Lace School, Chingleput.	57	2,780	..	710	710	2,070	36	500	..	..	..	500	1,570	..	..	..
66 Methodist Mission Industrial School, Ikkadu.	46	8,687	..	2,775	2,775	5,912	128	1,000	34	..	..	1,034	4,878	..	..	..
67 St. Antony's Industrial School, St. Thomas' Mount.	50	6,240	..	365	365	5,875	117	600	..	..	..	600	5,275	..	..	..
68 Methodist Mission Industrial School, Dharapuram.	22	3,438	..	1,426	1,426	2,012	91	550	..	..	..	550	1,462	..	..	..
69 Immaculate Conception Convent Industrial School, Coimbatore.	38	8,256	..	1,184	1,184	7,072	186	700	159	..	..	859	6,213	..	..	..
70 St. Joseph's Orphanage Industrial School, Guntur.	21	2,826	168	283	451	2,375	113	..	..	..	..	..	2,375	..	..	..
71 St. Joseph's Industrial School, Madura.	37	1,850	..	..	..	1,850	50	500	23	..	..	523	1,327	..	..	..
72 Nazareth Convent Industrial School, Ootacamund.	28	7,621	..	1,718	1,718	5,903	210	700	37	..	..	737	5,166	..	..	..
73 Leipzig Mission Women's Industrial School, Mayavaram.							Recognition withdrawn.									
74 R.C. Lace School, Vadakankulam.	30	1,784	..	22	22	1,762	58	500	..	..	..	500	1,262	..	..	..
75 Hindu Girls' School, Kudankulam.	20	888	..	156	156	732	36	..	..	..	..	..	732	..	..	..
76 Holy Cross Convent Industrial School, Tuticorin.	54	3,136	..	..	..	3,136	58	900	61	..	..	961	2,175	..	..	..
77 Holy Cross Convent Industrial School, Trichinopoly.	51	3,234	..	185	185	3,049	59	700	64	..	..	764	2,285	..	..	..
78 St. Joseph's Convent Industrial School, Bellary.	72	5,284	47	..	47	5,237	72	1,650	105	..	..	1,755	3,482	..	..	..
79 A.A.M. Women's Industrial School, Palmaner.	70	5,006	170	161	331	4,675	66	1,540	136	456	..	2,132	2,543	..	..	..
80 The Commonwealth Embroidery School, Calicut.	33	2,840	..	684	684	2,156	65	700	56	..	..	756	1,400	..	..	..
81 St. Vincent Girls' Industrial School, Calicut.	37	4,823	..	283	283	3,540	95	600	48	..	..	648	2,892	..	..	..
82 Sacred Heart Convent Industrial School, Anjengo.	25	3,381	..	..	..	3,381	135	400	65	..	..	465	2,916	..	..	..
83 O.E.L.M. Girls' Industrial School, Nayudupet.	70	7,503	..	2,898	2,898	4,605	65	500	..	..	..	500	4,105	..	..	..
84 Lalithagana Parisramika Kalasala, Rajahmundry.	67	4,525	..	..	..	4,525	67	..	..	..	..	..	4,525	..	..	..
85 Sree Saradha Niketanam, Guntur.	20	3,150	..	76	76	3,074	153	..	..	..	..	..	3,074	..	..	..

APPENDIX IV.

Statistics relating to Recognized Industrial Schools for the year 1939–40.

Serial number and name of the institution.	Subjects in which instruction is provided.	Number of candidates passed out in the year.	Particulars as far as available as to the after-career of the passed candidates.	Approximate total value of work turned out.	Sale-proceeds of school manufacture during the year.
(1)	(2)	(3)	(4)	(5)	(6)
AIDED SCHOOLS (BOYS).				RS. A. P.	RS. A. P.
1 C.N.T. Institute, Vepery, Madras ..	(a) Mechanical engineering. (b) electrical engineering, (c) electric mechanics, (d) electric wiring, (e) workshop mechanics, (f) carpentry, (g) oil engine driving.	....	....	....	....
2 The Anjuman Industrial School, Madras.	(a) Carpentry and rattan work, (b) carpet-weaving, (c) tailoring.	(a) 18, (b) 3, (c) 13.	All are employed ..	4,590 4 11	5,000 11 0
3 Orr's Assisted Industrial School, Madras.	(a) Workshop theory and practice, mechanical engineering, machine drawing, (b) Rs. 3 English and Tamil.	(a) 38, (b) 37..	Nil.	Nil.	Nil.
4 The Ramakrishna Mission Industrial School, Madras.	Automobile engineering	20	Sixteen are employed as mechanics.	6,400 0 0	6,024 0 0
5 Gokulam Cottage Industrial School, Madras.	(a) Bee-keeping, (b) carpentry, (c) eri silk and paper-making.	74	....	781 0 0	176 0 0
6 A.A.M. Industrial School, Katpadi ..	(a) Carpentry and cabinet-making, (b) blacksmithy and motor mechanics.	....	....	2,100 0 0	1,715 0 0
7 The Anjuman Industrial School, Vellore.	Cabinet-making	46	All are employed ..	7,528 15 7	8,353 13 9
8 The Anjuman Industrial School, Melvisharam.	Do.	1	Employed	2,321 10 4	1,720 1 5
9 The Anjuman Industrial School, Tiruppattur.	Do.	2	Employed in the school ..	1,486 14 5	1,452 13 0
10 Don Bosco Industrial School, Vellore ..	Carpentry and cabinet-making	Nil	....	3,680 5 2	3,480 5 2
11 St. Joseph's Industrial School, Tindivanam.	Cabinet-making and blacksmithy and fitting ..	8	All are employed	28,226 0 0	27,727 0 0
12 Danish Mission Industrial School, Panruti.	(a) Weaving, (b) carpentry	(a) Nil, (b) 5 ..	....	....	....
13 C.S.M. Agricultural School, Melrosapuram.	Agriculture and allied trades	11	All are employed	861 0 0	641 4 9
14 A.A.M. Industrial School, Velacheri ..	Carpentry and cabinet-making	5	Two are employed ..	2,269 0 0	1,959 0 0
15 Kodambakkam Industrial School, Kodambakkam.	(a) Carpentry, (b) smithy, (c) rattan work ..	(b) 5	All are employed	4,771 11 10	4,762 10 0
16 Victory Memorial Blind School, Poonamallee.	Cotton weaving and rattan work	....	....	....	....
17 Lady Willingdon Leper Settlement, Tirumani.	Carpentry	....	....	....	....
18 St. Joseph's Industrial School, Coimbatore.	Carpentry and fitting	24	All are employed	61,000 0 0	58,462 5 1
19 P.S.G. & Sons Charity Industrial Institute, Peelamedu.	(a) Mechanical engineering, (b) electrical engineering, (c) wood-working, (d) printing, (e) weaving.	(a) 5, (b) 26, (d) 3.	Thirty-three are employed.	4,08,113 4 11	4,01,685 4 2
20 U.L.C.M. Rural Reconstruction School, Guntur.	Agriculture and allied trades	11	..	1,095 0 0	1,044 0 0
21 American Mission Cabinet-making School, Guntur.	Cabinet making	4	Three are employed ..	9,660 0 0	8,900 0 0
22 Commonwealth Trust Engineering Works, Mangalore.	Elementary, applied mechanics and machine drawing.	7	Working as improvers ..	....	....
23 National Industrial School, Rajahmundry.	(a) Carpentry, (b) smithy, (c) book-binding and paper-making.	(a) 7, (b) nil, (c) 13.	Eight are employed ..	....	....
24 Sri Krishna Parisramalayam Industrial School, Kavutaram.	Carpentry	2	One is employed	750 0 0	200 0 0
25 C.M.S. Industrial School, Vidyanagar ..	Leather work	2	....	1,191 0 0	723 14 10
26 St. Joseph's Industrial School, Gundadala.	Carpentry	10	All are employed ..	6,700 0 0	5,494 0 0
27 Municipal Technical Institute, Masulipatam.	(a) Mechanical, (b) electrical engineering, (c) artizan course.	21	.... ..	6,932 8 7	5,342 9 8
28 Pasumalai Trades School, Pasumalai, Madura.	(a) Carpentry, (b) Printing, (c) general mechanics.	(a) 3, (b) 3, (c) 1.	Employed	25,074 2 8	19,734 11 9
29 C.S.M. Industrial School, Dindigul ..	(a) Carpentry, (b) blacksmithy, (c) tailoring. ..	(a) 3, (b) nil, (c) 4.	Trying for employment ..	8,096 2 6	7,740 1 6
30 St. Joseph's Industrial School, Ootacamund.	Cabinet-making	2	All employed	29,000 0 0	26,275 5 1
31 District Board Industrial School, Sivaganga.	Agriculture and animal husbandry, weaving, spinning, etc.	17	Two are employed ..	1,143 7 7	592 5 3
32 St. Theresa's Industrial School, Salem ..	(a) Cabinet-making and carpentry, (b) smithy..	(a) 4, (b) nil ..	Three are employed ..	1,870 0 0	1,383 11 11
33 St. Francis Xavier's Industrial School, Tanjore.	(a) Cabinet-making, (b) cotton-weaving ..	(a) 13, (b) 7 ..	Some are employed ..	10,145 0 0	9,724 0 1
34 St. Mary's Industrial School, Kumbakonam.	(a) Cabinet-making, (b) smithy and fitting ..	(a) 5, (b) 1 ..	Three are employed in the school and the rest employed outside.	....	....
35 Municipal Industrial School, Kumbakonam.	Recognition since withdrawn.		....	....	....
36 Board Industrial School, Tanjore ..	Carpentry and general mechanics	....	....	5,409 9 6	4,287 10 0
37 S.P.G. Art Industrial School, Nazareth ..	(a) Carpentry, (b) black-smithy, (c) tailoring ..	(a) 9, (b) 3, (c) 6.	Fourteen are employed .	8,678 5 6	8,678 5 6
38 St. Joseph's Industrial School, Adaikalapuram.	(a) Carpentry and cabinet making, (b) weaving (c) tailoring.	(a) 2, (b) 2, (c) 3.	All are employed ..	2,713 13 2	1,510 15 3
39 C.M.S. Industrial School for the Blind, Palamcottah.	Cotton weaving and gardening	9	All are in the school undergoing further training	3,766 6 9	3,695 6 0
40 St. Ignatius Industrial School, Tuticorin.	(a) Carpentry, (b) rattan work	(a) and (b) 2 ..	Both employed	509 12 0	439 12 0
41 St. Joseph's Industrial Institute, Tuticorin.	Carpentry and toy-making	....	....	4,346 0 0	1,448 0 0
42 Methodist Mission Industrial School, Karur.	(a) Carpentry, (b) blacksmithy, (c) rattan work (d) leather work, (e) weaving.	(a) 15, (e) 12..	Some are employed ..	5,104 11 6	5,104 11 6
43 St. Joseph's Industrial School, Trichinopoly.	(a) Carpentry, (b) fitting and turning, (c) motor mechanism.	(a) 9, (b) 11, (c) nil.	Nil.	69,542 0 8	60,378 2 3

APPENDIX IV—*cont.*

Statistics relating to Recognized Industrial Schools for the year 1939-40—*cont.*

Serial number and name of the institution.	Subjects in which instruction is provided.	Number of candidates passed out in the year.	Particulars as far as available as to the after-career of the passed candidates.	Approximate total value of work turned out.	Sale-proceeds of school manufacture during the year.
(1)	(2)	(3)	(4)	(5)	(6)
AIDED SCHOOLS (BOYS)—*cont.*				RS. A. P.	RS. A. P.
44 All Saints' Industrial School, Puttur ..	Cabinet-making	2	Employed in South Indian Railway.	2,500 0 0	1,800 0 0
45 Servincia Agricultural and Industrial School, Puttur.	(*a*) Agriculture, (*b*) textiles weaving, (*c*) bee-keeping, (*d*) poultry farming.	(*a*) to (*d*) 14 ..	10 are employed ..	1,154 0 11	1,008 10 8
46 St. Aloysius' Industrial School, Vizagapatam.	Mechanical engineering motor works	3	All are employed ..	11,283 0 0	8,042 0 0
47 The Bharadwaja Ashram, Adoni ..	Paper-making	24	4 employed	....	7 4 6
48 Sree Krishnasram, Industrial School, Guntur.	Carpentry ; paper making and cement work ..	2	....	17,900 0 0	16,038 0 0
49 V. S. Rajagopalan's Radio Institute, Madras.	Radio servicing and maintenance	17	....	....	....
50 Village Industries Institute, Gopalapuram, Malabar District.	Paper-making	....	....	....	....
51 London Mission Weaving School, Erode.	Cotton weaving	23	Few employed	231 8 0	213 11 0
52 Harijan Industrial School, Conjeeveram.	Agriculture and other trades	....	....	....	....
AIDED SCHOOLS (GIRLS).					
53 Seton School of Embroidery, Kilpauk.	Embroidery, needle-work and dress-making ..	61	6 employed	3,540 3 3	3,395 13 6
54 Seva Sadan Industrial School, Chetput.	Needle-work and dress-making and embroidery and weaving.	17	7 are employed	2,241 7 8	1,974 4 0
55 St. Bridget's Industrial School, Nungambakkam.	Dress-making and embroidery	8	7 employed	1,600 0 0	990 0 0
56 St. Anne's Industrial School, Rayapuram.	Cotton-weaving and embroidery	51	Appeared for Higher Grade Examination.	848 0 0	503 0 0
57 St. Thomas' Industrial School, Mylapore.	Needle-work and embroidery	4	....	1,324 8 0	1,034 14 0
58 C.S.M. Lace School, Chingleput	Embroidery, and dress-making	12 ..	Nil	704 0 0	710 3 3
59 Methodist Mission Industrial School, Ikkadu.	(*a*) Embroidery, (*b*) weaving	(*a*) 5, (*b*) 3 ..	7 employed in the Factory.	2,219 8 8	2,774 12 2
60 St. Antony's Industrial School, St. Thomas' Mount.	(*a*) Embroidery, (*b*) needle-work	(*a*) 5, (*b*) 2 ..	One undergoing higher grade training.	1,230 0 0	364 13 0
61 Methodist Mission Industrial School, Rayapuram.	Embroidery and dress-making	2	One employed	1,426 0 0	1,423 0 0
62 Immaculate Conception Convent Industrial School, Coimbatore.	Needle-work and bleaching	4	2 are employed	1,337 0 0	1,130 0 0
63 St. Joseph's Orphanage Industrial School, Guntur.	(*a*) Needle-work and dress-making, (*b*) embroidery.	(*a*) 3, (*b*) 1 ..	2 employed	33 10 3	233 1 3