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School of Arts, Madras

Recording with remarks the report
of the Committee appointed to consider
certain questions connected with
the reorganization of the —

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G.O., No. 500, 11th October 1900.

OCTOBER.

School of Arts, Madras.

Recording, with remarks, the report of the committee appointed to consider certain questions connected with the —.

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கொள்ளப்பட்ட நான்.

செப்பனிட்ரு முடித்த நான்.

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GOVERNMENT OF MADRAS.

EDUCATIONAL DEPARTMENT.

READ—the following papers:—

From E. THURSTON, Esq., Secretary, School of Arts Committee, to the Chief Secretary to Government, dated Madras, 25th September 1895.

* The Hon'ble Dr. D. Duncan (President).
The Hon'ble Mr. C. S. Crole.
The Hon'ble Mr. G. L. Chambers.
Mr. J. Adam.
Mr. C. E. Phipps.
Mr. C. Seton.
Mr. E. Thurston (Secretary).

I have the honour, by direction of the committee * appointed by G.O., No. 471, dated 7th June 1895, and G.O., No. 709, dated 22nd August 1895, to submit the report of their Proceedings. Mr. Adam was unable to attend many of the meetings, and Mr. Seton was only able to be present at the last meeting.

2. *Objects of the School.*—The committee first discussed the opinion expressed by Government † in connection with the view held by the Director of Public Instruction, that the School of Arts is designed to afford instruction in certain industries which are capable of artistic treatment. To Government it appears that—

- (a) the primary object of the institution is rather to turn out trained hands who, after a course of practical and theoretical teaching, shall be in a position to command immediate employment by the manufacturer who supplies the public with the particular articles in the design and making of which they have been educated. If this object is to be attained, it is essential that only *such* arts and industries as are carried on locally should form subjects of instruction in the school;
- (b) the function of the School of Arts is not so much to create a demand or supply the public, as to train artizans to perform with intelligence and accuracy the higher and more delicate operations of established manufactures.

3. It was pointed out by members of the committee familiar with the working of railway workshops and established manufactures on a large scale that, in their workshops or factories, the children of the artizans commence to learn their father's craft from a very early age, and, as they grow up, readily gain employment in a higher or lower position according to their ability. A decided opinion was expressed that manufacturers were more likely to engage as operatives those who had been brought up and trained amid an industry carried out on a large scale, than ex-pupils of a School of Arts and Industries, where industries are carried out on a far smaller scale than is required for commercial purposes. To carry out the objects suggested by Government satisfactorily, and so to train the pupils that at the end of their curriculum they should at once, without any intermediate stage of apprenticeship, be able to command employment in one of the existing factories, it would be necessary to very greatly increase the size and scope of the workshops, and to augment the teaching staff of the School of Arts and Industries.

4. The committee are of opinion that, in the present financial condition of Government, the Madras School of Arts and Industries cannot take any active part in connection with established industries, except in so far as it is able to show where improvements are both necessary and possible. A more important function of such a

school, in a country where the people are wanting in enterprise and not accustomed to starting great movements for themselves, would be to act as a pioneer in arousing an interest in, and imparting sound theoretical and practical instruction in, such new industries as are adapted to the requirements of, and capable of development in, the country. By the adoption of such a policy, the Madras School of Arts and Industries, would help materially in promoting the industrial welfare of the country by attracting the attention of the capitalist and providing a source of livelihood in new fields for employers, overseers and operatives. To sum up in a few words the main objects of the school, these should be—

- the maintenance of a high standard of design and decoration;
- the development of fresh industries adapted to the requirements of the country;
- the improvement of existing trades, through the dissemination of information, without entering into competition with them;
- the improvement of such existing arts and industries as are suffering from degradation owing to European competition or other influences.

The preparation of accurate statistics as to the nature and condition of the various arts and industries of Southern India is the function of a Technical Institute, and not of a School of Arts and Industries. The committee have therefore omitted it from the list of the main objects of the school, though they recognise the importance of the subject.

5. In a review * of a report by the Superintendent of the School of Arts on the

* G.O., No. 463, Rev., dated 24th April 1895. arts and industries of the North Arcot, Salem, Tanjore, Trichinopoly and Madura districts, it is stated by Government that,

"while Mr. Havell's researches have not resulted in the discovery of any new industries (a result which was hardly perhaps to be anticipated), they serve to establish a number of useful facts in regard to the condition and distribution of industries already known." It is, the committee consider, most desirable that the survey of the arts and industries of Southern India, commenced by Mr. Havell and published in the Proceedings of the Board of Revenue and Journal of Indian Art, should be continued systematically, and the results eventually brought together, for convenience of reference, in book form.

6. *Railway Workshops and Government Brick-fields.*—The committee were asked to ascertain how far the instruction given at the School of Arts and Industries can be supplemented by sending students to the Railway workshops, Government brick-fields, &c. A statement dealing fully with the subjects comprised in the course of training at the Railway workshops, and the conditions on which pupils are received at these workshops, is given in Appendix G. With reference to the Government brick-fields, Mr. H. Irwin, C.I.E., Consulting Architect to Government, writes as follows:—

"The work carried on at the brick-fields is—

Brick-making.	Terra-cotta, more or less ornamental.
Roofing tiles.	Fire-clay bricks and tiles.
Flooring tiles.	Earthen pipes.

"All this is done by piece-work, and affords a certain amount of technical instruction. The children of the work-people, who learn from their parents and guardians, eventually grow up into the business without costing Government anything for special instruction, which the staff could not afford time to give. To bring in outsiders not connected with the work-people themselves would cause delay and loss in the manufacture of material. There would, further, be loss of material, friction with the work-people, and worry and trouble with the staff; and, unless Government provided a special teaching staff, the teaching of outsiders would not be efficiently carried out. If a class was established at the brick-fields, it would have to be kept distinct from the regular work. A great deal of the work also is done at night, especially during the hot months, in firing the kilns and keeping them going. I see no good object in teaching people not connected with the industries, and quite sufficient

instruction is afforded to young lads who are. I think that the objects of Government, so far as the industries carried on at the brick-fields are concerned, are quite fulfilled by the present arrangements. I should not care to have the School of Arts boys on the spot unless a special staff was provided to teach them. At the same time I should, of course, do my best to meet the wishes of Government in the matter."

7. *Decorative Work for Buildings.*—The committee are informed by Mr. Holder that "decorative work for buildings practically ceased from the time Mr. Chisholm left the school. Stained glass-work was continued for a short while by Mr. Havell, but, as orders were few and far between, and as private individuals started business on their own account, it had to be discontinued. The only other sort of decorative work for public buildings which was continued, and still exists, is terra-cotta, but the orders for this class of work also have not been numerous owing to the brick-fields taking up the manufacture."

How large a share in the decoration of public buildings can be undertaken by Schools of Art is shown by the record *
 * Proceedings, Art Conference, Lahore, 1894, (incomplete as it is) of work done in connection with sculpture and design, for the ornamental details of public buildings in Bombay, at the Jamsetji Jhijibhoy School of Art, which was founded to give instruction in the decorative arts, and at which the instruction is given in such a way as to fit the pupils for securing permanent employment as designers and decorators.

8. The committee cannot but deplore the fact that the Madras School of Arts and Industries has practically ceased to take any part in the decoration of public buildings in Madras, and, though they have not been called upon to formulate any scheme, they would urge on Government the importance of dovetailing the school with the department of the Consulting Architect to Government, so that, in future, the school may assist in the work of keeping design and decoration up to an adequate artistic standard.

9. The committee note that Government † considers that "the retention of pottery and carpet-weaving among the industries taught at the School of Arts and Industries is open to criticism. There

† Paragraph 6, G.O. No. 471, dated 7th June 1895.
 is practically no field of employment for a skilled carpet-weaver, and both Mr. Havell and Mr. Holder speak unfavourably of the results of the instruction hitherto given in making pottery. As at present managed, both these industries appear to be little more than manufacturing departments and it is no part of the business of the school to maintain factories."

10. *Pottery.*—In connection with pottery, a series of questions was submitted to Mr. Holder, the Officiating Superintendent of the School of Arts and Industries. These questions, with the replies thereto, are given in Appendix A. The committee note that at the present time only eleven students are undergoing instruction in the pottery classes; that the bulk of the work (which includes considerable orders for Government departments) is turned out by workmen and coolies; and that, since 1884, two students have gained employment as pottery instructors in art and industrial schools in Travancore and Mysore, and some passed students have gone out as instructors. Keeping in view the facts that the pottery industry, as carried out at the School of Arts and Industries, does not at present clash with private enterprise, and that the industry is one which is capable of further development, the committee are of opinion that it is the duty of the school to continue to act as a pioneer, and to assist in keeping the industry alive and in developing it on such lines as may be considered expedient. The committee fear that, if it was decided to abandon the industry in its present state of infancy, this course would act prejudicially to the future chances of the industry, and the argument be used, in favour of an absence of scope for it, that it was undertaken by Government and given up as a failure. That it is not a failure is shown by Mr. Holder's statement that "there is a decided demand for such articles (stoneware), as also for tiles, fire-bricks and terra-cotta ornaments both among natives and Europeans."

11. In reply to one of the questions of the committee, Mr. Holder stated that "one drawback to the improvement of glazed pottery is want of a proper body for delicate colours and glazes, which can only be obtained by repeated experiments, needing a large outlay. If this could be obtained, an attempt might be made to supply local demands for crockery." The committee learn from Mr. Spoor, the gentleman in charge of the cement works of Messrs. Arbuthnot & Co., in connection with bodies and glazes, that not only is a knowledge of the physico-chemical composition of the various clay-bodies necessary, but also a knowledge of the chemical composition of the various glazes, which diffuse and combine with the body at different temperatures. The requisite composition of the various glazes is determined by the composition of the wares on which they are to be laid, so that they vitrify at even temperatures. Otherwise one might easily have a very fusible clay burning itself to a shapeless mass before the enamel had even attained to red heat, or *vice versa*; or one might apply an enamel which would not flux or combine at all with the body of the ware to be glazed. For the manufacture of fire-clay goods, clays of a certain definite composition are required, which, owing to this composition, will not fuse at high temperatures. For the manufacture of building-bricks, clays are required which will burn hard at low temperatures. For pottery purposes, clays are required which will burn regularly without splitting under the action of fire. The natives have managed to produce a brick which nobody can build with without carefully putting it under a sealed cover of chunam. Experience has also taught the natives what clays are best adapted for the manufacture of chatties. But, for the purposes of manufacture of a higher class of clay articles, and for the proper utilization of the materials available in Southern India, an accurate knowledge of the physico-chemical composition of the clays is essential.

12. The museum of the School of Arts and Industries and the Government Museum contain collections of clays of economic value from various localities in Southern India, but the practical value of these clays cannot be determined in the absence of chemical analyses. A knowledge of their chemical composition would open the door to private enterprise, and be the first step towards the employment of these minerals for commercial purposes. The importance of having the necessary quantitative analyses of those clays, which are likely to be used for such purposes, carried out, commends itself to the committee.

13. In reply to the question, whether in the case of pottery of artistic design only the best samples are selected for sale, or whether both good and indifferent are disposed of, Mr. Holder replied that "according to the present system of keeping accounts in the school, every article, good, bad or indifferent, unless actually damaged, is brought to account. Those that could not readily be sold here (at the school) have hitherto been put up to auction at reduced rates." The committee consider that the practice of placing on the market articles which profess to possess artistic treatment, whether good, bad or indifferent, is indefensible and opposed to one of the primary objects of the school, viz., the advancement, not the degradation, of art. "It is for us," Dr. Hendley said in his address to the Art Conference, Lahore, 1894, "to ascertain whether it is possible to try to teach both purchasers and producers to differentiate the good from the bad, and, if we cannot directly guide the dealers, at all events to see that our schools of art and museums only supply and purchase the best examples, and do all they can to discourage the sale of indifferent ones." It is, then, essential, not only in the interests of art, but for the prestige of the school, that in those departments which are engaged in art as opposed to purely industrial work, only samples of good design and workmanship should be selected for sale to the casual purchaser or to the middleman. If the selection is carefully made, this will help "to ensure a higher standard and thus indirectly force the less educated middleman to keep and sell only good work." The selection of only samples of good design and workmanship will no doubt lead to some waste of material and the formation of an unsaleable stock, but

* G.O., No. 758, 8th October 1894.

these, as Government pointed out * in its review of the annual report of the School of Arts, 1893-94, "are matters of trifling importance, provided that a high standard of workmanship is maintained in the school."

14. *Type Collection*.—A type collection or photographs of art wares (wood-carving, pottery, metal-ware, lacquer-ware, &c.) which can be obtained at the School of Arts and Industries by purchase on the spot, or reproduced to order, should be exhibited at the school; and a duplicate set of types and photographs should be exhibited in the art section of the Government Museum, which is rich in exhibits illustrative of South Indian art, and should act as a medium for advertising the art work executed at the school.

15. *Carpet-weaving*.—In connection with carpet-weaving the committee submitted a series of questions to Mr. Holder. The questions, with replies thereto, are given in Appendix B. It appears from the statement relating to the sale of carpets, that the distribution since the industry was started in 1889 has been as follows:—

Sold to private individuals	{ European	..	..	..	..	22
	{ Native	..	..	..	..	11
Sold to firms	..	..	..	..	..	6
Sold by auction	..	..	..	..	..	2
Sent to the Indo-Colonial Exhibition	..	..	..	..	..	1
In stock	..	..	..	..	..	1

The committee note that no students trained in the carpet-weaving class have at any time obtained employment as weavers outside the school, but that they join the class merely for the sake of the scholarship, which enables them to continue their studies in the drawing classes. In view, however, of the proposal for the establishment of a school of dyeing, the committee consider that the carpet-weaving industry should not be abolished, at any rate for the present, and would suggest the advisability of attention being paid to the improved manufacture of small, cheap rugs of good design instead of to the manufacture of large and costly pile-carpets. The committee understand that there is a steady demand for such articles in Europe, and that Japan has lately entered into competition with India in the supply of them.

16. *Technical School*.—Among the points with which the committee were invited to deal specially was—"Whether a technical school should be added to the School of Arts, and, if so, what subjects should be taught in it." The committee hold that the school is already a technical school. This being so, the question remains "whether the objects of the industrial side of the school should be changed or not." As a basis for the discussion of this question, the Secretary submitted a list (Appendix C) of sixty-four subjects in which instruction is imparted in connection with "technical education" in England and other countries. Analysis of this list yields the following results:—

Fifty-two subjects were disposed of by the committee, on the financial consideration referred to in paragraph 4, as being already supplied by Government and private enterprise.

Four subjects (farriery, foundry-work, mining, dairy-farming and dairying) are not provided for. The remarks of the committee thereon will be found in Appendix (Nos. 28, 56, 57, 58).

Two subjects (domestic and commercial economy) might, the committee suggest, form the subjects of courses of lectures in the new theatre, if there is any real demand for them.

Five subjects (electrical engineering, tailoring, dress-making, cookery and tanning), which Government suggests * as falling within the scope of the industrial side of the School of Arts, were set apart by the committee for special consideration. With tanning, the kindred subject of leather manufactures was discussed by the committee.

One subject (dyeing of textile fabrics) was set apart by the committee for special consideration.

17. (a) *Electrical Engineering*.—The subject of electrical engineering is dealt with in a note (Appendix D) by Mr. R. Ll. Jones, Professor of Physical Science at the Presidency College, to whom as an expert the committee referred the question. They agree with Mr. Jones that, as facilities exist already at the Presidency College for instruction

in the theory and practice of electrical measurements, and arrangements are in progress for the experimental study of dynamos, electric lighting, &c. Government would involve itself in a needless outlay in attempting to include electrical engineering among the subjects to be taught at the School of Arts and Industries, more especially as the committee understand that the course of electrical engineering is to be thrown open to students other than those preparing for the University degree.

18. (b) *Tailoring and Dress-making*.—As a guide to the requirements of a thorough course of theoretical and practical training in tailoring and dress-making, the committee had before them the syllabuses drawn up in connection with the Government Technical Examinations. The main question in connection with tailoring which presented itself was—Supposing that instruction in tailoring is undertaken by Government, what will the class of person turned out do as a means of earning a living when the course of training is completed? They must, it would seem, either become journeymen-tailors and work for wages with one of the established firms who turn out first-class clothing, or they must set up in business on their own account. The first of these alternatives it does not appear necessary to discuss, as the firms are quite capable of carrying on their business without the assistance of Government. If the latter alternative had to be adopted, the man must either possess some capital, or do work on a small scale, and enter into much the same field of work as the long-established darzi.

19. Quite apart from the general view of the committee that neither tailoring nor dress-making is a suitable industry for Government to embark in, it seems to them that these subjects can only be properly learnt either at the big firms or by the establishment of a tailoring and dress-making department by Government in competition with established private enterprise, which, to be of real value as a training ground, would involve very considerable outlay in connection with salaries of staff, including expert cutters, and cost of material. One of the firms in Madras, it may be noted, employs a European cutter on Rs. 350 per mensem, a maistry on Rs. 50 per mensem, and a staff of tailors. The committee are informed that no firm is likely to engage a cutter unless he is a European, trained in one of the big tailoring depots in Europe, and possessing a knowledge of all the latest improvements. If, however, Government resolves to undertake instruction and thorough practical training in these subjects, a class of tailoring might, as an initial step, be started in connection with the Army Clothing Department, and further developed later on if the prospects are hopeful. The committee understand that dress-making is carried on at the Military Female Orphan Asylum, and Government might, with the approval of the Governors, provide for the expansion of the industry and throwing the classes open to the public at that institution.

20. *Cookery*.—The committee do not consider that cookery is a subject, instruction in which should be undertaken by Government; and the results of the lectures delivered during the last cold season do not indicate that much real interest is taken in the subject. To attempt to influence cookery for the requirements of natives, and of Europeans and Eurasians belonging to the upper and middle classes, appears useless, as their wants are already adequately provided for; and, if instruction in cookery is to be imparted to Europeans and Eurasians belonging to the poorer ranks, it seems to the committee that classes might be appropriately started at the Military Female Orphan Asylum and by the Eurasian and Anglo-Indian Association. In connection with the important subject of cookery in its application to hospitals and sick-nursing, the committee are informed that classes are given by the Matron Superintendent of the Government General Hospital during the course of training given to hospital nurses.

21. *Dyeing of Textile Fabrics*.—A large number of local dyers and others were examined by the committee, and their evidence is given in Appendix E. The committee believe, from the evidence before them, that there is a distinct field for the establishment, in connection with the School of Arts and Industries, of a school of dyeing, printing and weaving, according to the most advanced knowledge of the time, and adapted for both employers and operatives. They believe further that the establishment of such a school might, by attracting the attention of capitalists, help to check the importation of cheap and vulgar European manufactures with debased

Indian design. There appears to be every reason to believe that the classes would be largely attended from the commencement both by native dyers and their sons and by Europeans; and it is within the knowledge of the committee that one firm would send at least ten Europeans to receive instruction at the school. It would be necessary that the school should be completely equipped with dye-houses, chemical laboratory, &c., and that the staff should include a European dyeing expert to teach the theory and practice of dyeing.

22. At the Lahore Conference, 1894, it was resolved that "a serious danger threatens the Indian tinctorial industries through the rapidly increasing consumption of aniline dyes;" and that "some action might be taken, through the medium of local bodies, to show to dyers and others in what respects aniline dyes are harmful." During the five years 1890 to 1895, 3,192,304 lb. of aniline and alizarine dyes were imported into the Madras Presidency. These dyes are, in fact, so firmly established in the Indian market that no measure short of a prohibitive import duty can arrest their employment. It seems to the committee that, even allowing that these dyes are to be utterly condemned from an æsthetic point of view, distinct practical good would result from educating the hitherto self-taught native dyers in the proper way of selecting and manipulating them, neither of which points they at present, from want of special training, understand. Quite apart, however, from the teaching of improved methods of dyeing with artificial dyes, one object of the school should be to try and improve the at present laborious process of manufacture of the indigenous vegetable dyes, for it is universally admitted by the native dyers that they only use the artificial dyes because they are cheap and quick in operation.

23. The committee suggest that Professor Hummel, of the Leeds School of Dyeing, should be entrusted with the selection of a trained instructor, as well as of such portion of the equipment of the school and laboratory as may not be obtainable in India.

24. *Tanning and Leather Manufactures.*—The committee learn that there is no existing Government tannery, though two boilers, now lying unused on the Fort glacis, and two 75-horse-power engines, which are still packed in their cases, were acquired for this purpose a few years ago. In the course of their enquiry in connection with tanning and leather manufactures, the committee had the advantage of hearing the views (Appendix F) of Captain E. S. Forestier-Walker, R.A., Ordnance Officer in charge of the Madras Arsenal Workshops, and of several native tanners, and gentlemen interested in the trade in hides and skins. It may be at once stated that, in the opinion of the committee, these are industries which all the facts point to as deserving of serious attention; but they await some action on the part of Government to start them, by proving them to be feasible. The committee understand that Captain Forestier-Walker, who was sent on special duty to Europe four years ago to learn all about the tanning and currying industries, is to meet the Inspector-General of Ordnance at Cawnpore in November to settle, for some years to come, the supply of leather to the Military Department; and it would be distinctly advantageous, from the Madras point of view, if he was in a position to explain that the Madras Government was taking steps to bring the Presidency supplies up to the standard required by the Military Department. How large these supplies are is shown by the statements in Appendix F relating to the exports and imports of hides and skins. The most significant facts relating to the Madras trade in these articles brought out in these statements are that, during the last five years, no less than 85,760.340 Indian maunds (of 82½ lb.) of dressed or tanned skins were exported to foreign countries, and that, during the same period, 256,083 maunds of raw skins were imported from the North-West Provinces, and a smaller, but considerable, quantity from the Punjab and Central Provinces. These large imports of raw skins from Northern India furnish strong proof of the superiority of Madras tanning. The leather used at the Madras Arsenal Workshops is at present obtained, not in the local market, but from Cawnpore, and Sion near Bombay; but Captain Forestier-Walker considers that, though the Madras tanneries do not at present turn out leather of the kind which is required for the purposes of the Military Department, it would be possible to manufacture good leather, capable of competing successfully against that of Bombay, in some selected

spot in Southern India. The spot should, as pointed out by General McLeod,* be carefully selected with reference to quantity and quality of water-supply, hides and skins, tanning material, labour and freight. The committee note that General McLeod objected to the establishment of a Government tannery on the grounds that (a) the purchase of green hides is a trade that is only learnt by long experience and practice, and the Military officer in charge of a Government tannery would not be in the running as a buyer against trained experts, (b) if a tannery is established, it will be nine months and more before a single hide is handed over to the currier, and the pay of the complete establishment will be running on all this time. Neither of these objections, however, seems to be a sufficiently weighty argument when the establishment of an important industry is at stake, and in view of the fact that the possibilities of Madras tannage have already been solved in a practical manner in the city of Madras.

25. For the purposes of the supply of accoutrements (harness, saddlery, &c.) to the Armies of Madras and Burma, about 250,000 lb. of leather are required annually, and Mr. Murugesam Mudaliar, who has had many years' experience of the leather trade, stated in his evidence that 300,000 lb. of hides of the required quality could be supplied monthly from the Ceded Districts, Hyderabad, and Bangalore. There is, therefore, no difficulty in connection with the supply of raw material.

26. The speciality of Madras is the tanning of light hides, goat and sheep skins. The evidence of the native experts who were examined before the committee shows that Madras skins of good mark are considered high class and realise a high price in the foreign market; and that, if more complete tanning was required, Madras could produce it. From the statement in Appendix F, it appears that leather manufactures (exclusive of boots and shoes) to the value of Rs. 6,65,828 were imported into the Madras Presidency during the last five years. Want of enterprise and fear of undertaking pecuniary risk have apparently prevented the starting of leather manufactories in Madras. The managing partner, Messrs. Moses & Co., who imports leather from London for the manufacture of boots and shoes, harness, &c., thinks that, if machinery was employed, the quality of the local leather might be improved for the purposes of manufacture. The employment of machinery for the various stages of manufacture (currying) is considered by those engaged in the trade to be essential.

27. The process of tanning light hides and skins carried out by the native tanners is confessedly defective and wasteful, and it is admitted that there is not a good demand for tanned heavy hides, which are, in consequence, exported raw and re-imported in the manufactured state. The committee believe that the interests of the native tanning industry would be materially advanced by the establishment of a school of tanning in connection with the School of Arts and Industries; and agree with Captain Forestier-Walker that, with a view to attracting an interest in the subject, it would be expedient to commence with popular lectures, and supplement them by theoretical and practical courses conducted on the same lines as those at the Yorkshire College. Attached to the staff of the school there should be an expert chemist, to carry out water analyses, to examine the properties of barks and other tanning agents, to teach the natives how to make solutions of bark of the proper strength, to investigate the processes which take place in the bark vats, &c. There is, the committee believe, a distinct opening in Madras for the manufacture of many leather articles, but instruction is necessary before such manufactures can be started, and they suggest that the school of tanning should further undertake instruction in leather manufactures with a view to the establishment of a local industry with hides and skins tanned in Madras, instead of, as at present, with material imported from Europe and Northern India.

28. There is no evidence, so far as the committee are aware, why a Government tannery should not be established at Kodambakam, south of Madras, or at Trivutur, north of Madras, at both of which places there is an excellent water-supply.

29. It is admitted by those (both employers and operatives) engaged in the existing dyeing, tanning and leather industries, that the methods are defective and

capable of improvement, and that they would willingly, in their own interests, come and be instructed if schools were started in Madras. The establishment of schools of dyeing, printing and weaving, tanning and leather manufactures is therefore recommended by the committee. This recommendation must, however, not be regarded as a final settlement of the question of the subjects to be taught in the industrial side of the School of Arts and Industries. Rather is it one of the steps in connection with a scheme for the development by Government of industrial training. The committee are of opinion that, in course of time, if the establishment of the schools now suggested is proved, after fair trial, to have had a direct beneficial influence on the industries concerned, instruction and practical training in other industries suitable to the requirements of the country should be taken in hand, with due care to select industries in which employment will be found possible, and "not to move too far in advance of the times, or to anticipate too much the real progress of the country in manufactures and commerce." Industries which seem to hold out a prospect of eventual successful development are button-making, gold-thread making, soap-making, paper-making, and woollen manufactures.

30. The establishment of the proposed classes would necessitate the provision of additional buildings for class-rooms and laboratories. The committee understand that there is land available on the site at present occupied by the Women and Children's Hospital, which was set apart for the College of Engineering, and that the property between the School of Arts and the Ice Factory, lately occupied by Messrs. Barrie & Co., may still be available. As an alternative, the committee would suggest that the three compounds between the Government Museum and Cassanajor's road should be purchased as a site for a thoroughly efficient technical school, thus bringing all the allied institutions close together. The tramway will materially improve the facilities for communication in the city of Madras.

* G.O., No. 481, 25th June 1891.

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31. *Literary Education of Pupils.*—The committee consider that the usefulness of the School of Arts and Industries is very much hampered by the low educational attainments, and in many cases the entire absence of general education, of the pupils which prevents them from understanding and profiting by the instruction given. They understand that it is proposed to restrict admission to the school in future to pupils who have passed the compulsory subjects of the third standard. No pupil should, the committee think, be admitted to the school until he has passed the primary examination, and all literary education should be obtained outside the school, to allow of which the hours of the classes at the school must be arranged.

32. *Wood-Engraving.*—In submitting samples of wood-engravings executed at the School of Arts and Industries for inspection by the committee, Mr. Holder wrote to the effect that "there are at present thirty-two students now in the class, but this gives no idea of the popularity of the work. I have applications for admission almost every week, but allow none who have not passed the elementary examination in free-hand drawing. This only for general students. In the case of apprentices, I have made further restrictions, the principal one being that I allow only those to join the class to whom engraving will be of use in their industrial work, e.g., goldsmiths and silversmiths. Carpenters, modellers and others I do not allow. If there were no restrictions, there would be no end to admissions, and the numbers would become too great for a single teacher to manage." From the evidence of Mr. Holder—whose policy of restriction the committee consider unsound—and the further evidence of the barbarous wood-cuts with which the Madras School Book Series, published under official authority, and other Madras publications, are illustrated, it is clear that there is a distinct call for the expansion of the wood-engraving classes at the School of Arts and for the augmentation of the teaching staff.

33. *Control of the School.*—The committee note that Government† entirely concurs with the resolution of the Lahore Art Conference that "Schools of Arts must be maintained, and the Conference

† Paragraph 10 (ii), G.O., No. 471.

fails to see how they can be supported, or be of use, unless retained as Government

institutions." The question of the future control of the School of Arts and Industries was touched on by the committee, though the President was of opinion that it was not included among the questions which the committee were invited to consider. Two members were in favour of the school being placed under the charge of a small board of trustees principally composed of merchants. The members referred to have embodied their views in a note printed with this report. Four members of the committee held that within recent years an attempt was made—not with conspicuous success—to manage the school through the medium of a committee; and they suggested that, if the Superintendent is not to be entirely entrusted with the administration of the school, a council with consultative functions, such as exists in connection with the Law College, composed of men interested in, and having some knowledge of, the arts and industries carried on at the school, might be appointed by Government. A separate note by Mr. Adam is appended to the report.

34. To sum up, the conclusions arrived at by the committee are—

- (1) The main objects of the School of Arts and Industries should be—
 - (a) the maintenance of a high standard of design and decoration;
 - (b) the development of fresh industries, adapted to the requirements of the country;
 - (c) the improvement of existing trades, through the dissemination of information, without entering into competition with them;
 - (d) the improvement of such existing arts and industries as are suffering from degradation owing to European competition and other influences.
- (2) The school should co-operate with the Department of the Consulting Architect to Government in the work of keeping the design and decoration of public buildings up to an adequate artistic standard.
- (3) The pottery and carpet-weaving departments should not at present be abolished.
- (4) In those departments of the school which are engaged in art, as opposed to purely industrial work, only work of good design and workmanship should be selected for sale.
- (5) Electrical Engineering is provided for at the Presidency College, and it is unnecessary to include it among the subjects to be taught at the School of Arts and Industries.
- (6) Tailoring, dress-making and cookery are not suitable industries for Government to embark in.
- (7) A school of dyeing, printing and weaving should be established in connection with the School of Arts and Industries.
- (8) A Government tannery should be established in a suitable locality, and a school of tanning and leather manufactures opened in connection with the School of Arts and Industries.
- (9) New buildings would have to be provided for the proposed new schools.
- (10) No pupil should be admitted to the School of Arts and Industries until he has passed the Primary examination; and all literary education should be obtained outside the school.
- (11) The wood-engraving classes at the school should be expanded.
- (12) The survey of the arts and industries of Southern India, commenced by Mr. Havell, should be continued systematically, but not by the Superintendent of the School of Arts and Industries.

Up to this point the committee were unanimous. As to the future management of the School of Arts and Industries, opinions were divided, four members advocating the continuance of the present system, while three were in favour of a radical change.

NOTE ON THE CHANGE OF MANAGEMENT REQUIRED FOR THE
EFFICIENT WORKING OF THE MADRAS SCHOOL OF ARTS
AND INDUSTRIES AS A TECHNICAL SCHOOL.

To the fourth question in paragraph 6 of the Government Order in regard to the improvement of the Madras School of Arts and Industries, the committee has made answer that it holds that the school in question is already a technical school. We have subscribed to that statement, which is correct as far as it goes. It should have been added, however, that it is a very bad technical school, and quite unworthy of Madras. The teaching staff is untrained and inefficient. Out of nineteen teachers, only one is certificated. The subjects are ill-chosen. The scope of instruction supplied is inadequate to the wants of the present day. The pupils are, in the main, grossly illiterate. The articles turned out in the industrial department are, partly owing to ignorance in the choice of materials, and partly owing to defective knowledge on the part of the staff, of a character and quality calculated to bring discredit on the school and to injure the cause of technical education in the Madras Presidency. In point of fact, the industrial department has, as suspected by Government, largely degenerated into an inferior manufactory worked by paid labour. There are 18 workmen on monthly wages, and 47 coolies paid by the day, besides 83 paid apprentices. In making these remarks, we particularly refer to the tile and pottery work, and to the carpet weaving. In the former the clay is bad, being largely contaminated with iron, the pressure is insufficient, while cooly labour is unduly resorted to. Inferior tiles are turned out, and the repute of this species of industrial education suffers. So it is with the other branches alluded to.

2. Besides the defects above indicated, the instruction imparted is marked by an indefiniteness of aim, which we find has long been admitted. In plain English, the curriculum and the management are alike impractical. To the cursory or inexperienced glance, they may look well enough on paper, but they bear no proper relation to the industrial wants of the day in Southern India.

3. The report of the present committee supplies proposals which, in our opinion, may be palliatives, but can never act as, in any way, a satisfactory and efficient remedy. This can be found only in a radical change in the management.

4. The school has hitherto been managed as an ordinary Government institution by a Principal, under the name of Superintendent, who is subject to the control of the Director of Public Instruction.

5. The Madras School of Arts and Industries, like sister institutions elsewhere in India, was originally started "with the object of improving the taste of the native public as regards beauty of form and finish in the articles in daily use among them" (*sic*). The consequence has been that the main qualification required of the Superintendent has been artistic taste. In the next place, it was intended that it should pay commercially. Efforts to this end have continued up to the present day. The pursuit of art and of commercial success are quite enough to ruin any technical school. These defects, therefore, account for the failure, in this school, of the scheme devised, in 1886, by Sir M. E. Grant Duff for giving increased prominence to commercial, industrial and technical education as opposed to literary studies.

6. Then, again, the Department of Public Instruction in Madras, which has had the school under its immediate control for the best part of forty years, concerns itself, not so much with teaching, as with testing the results of teaching. The late Mr. Grigg made no secret of this. For, applying the experience of literary education to the development of technical education, he laid down the axiom, which is still acted upon, that "to institute public examinations in any suitable branches of knowledge is to create a demand for instruction in them." It seems to us that a system resting on examinations in this way may do very well in its application to literary instruction which works in with University education, or which leads to employment in the service of Government. It is, however, obviously unadapted to instruction in science applied to industries. The producer, the capitalist, the employer, the factory manager, or the operative, care nothing at present for certificates granted by the Director of Public

Free-hand Outline Drawing	121	59	1
Design	38	10	4
Geometrical Drawing	84	33	..
Painting	33	8	..
Modelling	6	3	..
Wood Engraving	..	2	..
Copper Plate Engraving	..	5	..
<i>Jeweller's work.</i>			
Jeweller's work	3	1	..
Silversmith's work	9	..	..
<i>Wood-work and Metal-work.</i>			
Cabinet Making	8	8	..
<i>Textile fabrics.</i>			
Carpet Weaving	4	..	..
Total	309	129	14

No candidate for pottery. Total number of individual candidates 235, which means that the school is practically only a drawing school.

9. We are entirely at one with the author of the "Note on Technical Education in India" which was prepared for the use of the Viceroy in 1886, when he lays it down that "for the establishment of schools the Madras scheme trusts much to private

and the people with which it has to deal.

13. It seems to us, therefore, perfectly futile for Government to hope that a technical school, any more than technical education in general, can by any possibility be made to flourish, as long as it is managed under rules framed for the administration of literary education. The two things are utterly dissimilar. The latter leads to the University. The other branches away from it, its end and aim being the factory, the workshop and the counting-house. It appears, therefore, not only hopeless, but unfair to saddle the Director of Public Instruction, who is imbued with the traditions of University life, with a task to the execution of which he can bring neither knowledge nor practical experience.

14. The President of our Committee is the Director of Public Instruction, and he opposes the idea of managing the Madras School of Arts and Industries through a Board of Trustees responsible to Government, principally on the ground that it is a Government institution, and the rules do not permit of the change. As to this, we can only make answer that the rules in question were framed with special reference to literary education, that they are totally unworkable when applied to technical education and, lastly, that the Government which made them can easily alter them so as to suit the special subject.

15. Then, again, it is objected that it would not be possible to obtain the services of non-officials. The reply to this is that the commercial community is directly

by the Council of the Technical Institute before Government. The Director, now before the Committee, calls in question that Council, in respect of their knowledge even of the very limited acquaintance with the subject which a special institution like this." He is, of course, entitled to his opinion as to the superiority of the Educational department in such a matter. We leave this personal question without discussion, and would merely suggest that Government should test his assertions by reference to facts, which are readily available, and in the presence of which such statements will not hold water for an instant.

21. In our opinion the Council of the Victoria Technical Institute should assume the guidance of technical education, and should be the body from which all certificates should issue. There is not the smallest objection to the Director being appointed a member of the Council and a Trustee of the school, but he should certainly not continue to occupy the present anomalous position of control and management of a special subject, of which he is, to a large extent, necessarily ignorant.

22. While avoiding, as far as may be, the discussion of matters of detail, and the attendant danger of raising false issues thereby, we think that we may be permitted to lay it down that the backbone of instruction is efficient teachers. Just as Government must, for long, control and finance technical education, so must it rely for many years to come on European teachers as heads of all main branches of it. It ought also, it is submitted, to depose *art* (so-called) from its existing position of predominance in the staff of this school. The Superintendent or Principal should be an analytical chemist, who has had a complete training in Technology, and should act as Secretary to the Trustees.

Madras Government, that the cause of the room may not, under the position of the practical department."

justification of the views submitted

(Signed) C. S. CROLE.
(") G. L. CHAMBERS.

NOTE BY MR. ADAM.

I have agreed to the report of the Committee, because it contains little from which dissent is possible. The information on specific points, derived from experts, may prove useful, and the general remarks are certainly innocuous. But it omits much which I consider essential to a satisfactory settlement of the questions submitted to us; and, indeed, I fail to find in it any connected, practical scheme, whereby the reform admittedly necessary is to be brought about. I agree fully with the general principles enunciated by the Hon'ble Messrs. Crole and Chambers, but believe that they too lay aside, confessedly with hesitation, the most important, and, indeed, essential branch of any working scheme. I am therefore compelled to state my views in this note. As these views concern fundamental principles they can be enunciated shortly and without much detail.

2. With reference to the failure of the School of Arts to carry out any practical work, and the vexed question of the management of such an institution, as dealt

to view the passage seems no reason why the Technical Institute should not render such a new

"14. The school has cost the public a large sum of money. In its existence it cost Rs. 4,20,000 and the succeeding sixteen years the accounts must have brought the total up to 7½ lakhs exclusive of the interest. It will be observed that the accounts have never been celebrated for its finance, and heroic measures have to be set it right with the Accountant-General. It will be observed on the last report, circulated herewith, that it retains curious amounts of Rs. 11,682, the expenditure thereon, exclusive of superintendence, being the case, it is difficult to see how the large sums mentioned in the accounts for the profits of manufactures can have been so paid.

"15. With reference to art education, as distinguished from industrial applications, the following remarks are suggested by the last report circulated herewith:—

(a) The large number of the pupils (200 out of 299) engaged on the most elementary work, only preparing to prepare for the Middle school standard.

(b) The small sum received in fees, Rs. 712 paid by 294 pupils, or an average monthly fee of As. 3 and pies 3, the authorised fee being As. 8. This shows either that there is a very large number of free students, or that many of them stay but a short time in the school. An average attendance of only 177 out of 299 indicates the latter explanation as correct.

(c) Out of 229 Hindu students, only 4 have any educational qualification whatever; 151 can neither read nor write English. Of the 74 who can, the attainments are, it is safe to say, very limited. It is not stated how many can read and write the vernacular.

"16. It is not, however, the object of this memorandum to point out past and present faults (which would be easy), or to devise possible remedies, but to suggest that the School of Arts and the Council of the Victoria Technical Institute are bodies that might be well brought to work together. The peculiar nature of such technical institutions and the advantage accruing to them from the practical interest of the public has been recognized by the Government of India. As long as such institutions remain purely Governmental, they lose that touch with the public which is essential to their popularity and success. The Governor-General in Council writes thus in this connection:—

"In the second place he would recommend that, with a view to turning the knowledge acquired by such a survey to the best account in the light of the abundant information contained in the report of the Royal Commission on technical education, each Government and Administration should form a Committee of educational experts and professional men who would make suggestions from time to time for the auxiliary supply of appropriate means of technical education; for such modifications of the State system of public instruction, as may aid and encourage industries and industrial employment up to the full measure of such requirement at each provincial centre as may be found to exist; and, when the circumstances are opportune, for the establishment of a Technological Institute, for the enlargement of the provincial Schools of Art and Design, and for the larger co-operation of the University in the promotion of the object in view."

"17. By nominating members on the Council of the Victoria Technical Institute and giving it a considerable money grant, the Local Government would seem to have practically recognized the Council as able and willing to perform the functions of such a committee; and it would seem to follow that the next step would be to bring them into close connection with the School of Arts.

"18. A preliminary memorandum was circulated on the 16th July, on which, under date 18th idem, Sir Charles Lawson minuted as follows:—

"Though started as far back as 1850, the School of Arts is still only a Technical Institute in its infancy, and it seems to me that, were more business-like energy infused into its management, and were more money expended in the removal of disadvantages under which it labours, its usefulness to the Presidency might be greatly enhanced. The funds at the disposal of the

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The Hon'ble Dr. Duncan in paragraph 4 of his letter, in the Government order appointing the Committee, is specially correct. The remarks quoted are, in their salient outlines, as true day as six years ago. The Madras School of Arts is a veritable castle in the air; is devoid of foundations, and possesses not a single outlet giving egress upon terra firma. Patch it and tinker it as you may, it will always prove a costly failure, so long as it is kept in its present isolated position, based upon nothing, and unbuttressed by kindred institutions.

4. It cannot be too frequently repeated that technical education is not a *subject*, but a *method*. It is, and demands, an elaborate organization, of which indeed a School of Art is a valuable member, but a member that can no more possess any vitality by itself than an arm can when amputated from the human body. It is disheartening to have to go on repeating these elementary matters over and over again, but until they are recognized as the basis of action, any step in the right direction is impossible. To quote again:—

"At the very threshold of this enquiry we are met by the momentous question, what place is Technical Instruction to occupy in the complete scheme of education for the country? I say this question is momentous, because upon its answer really depends the success or failure of any scheme or institution for Technical Instruction. The most carefully devised schemes, the most perfectly equipped institutions, have frequently in India, as in other countries, proved little better than costly failures, because care was not taken to fit them into proper gearing with the general machinery of education. Nothing is more distinctive of recent educational legislation and organization in England than what I may call the change from the communal to the feudal system. Instead of each department of education remaining an independent, self-contained and self-sufficient community, each in its turn finds itself transformed into an integral part of a great system, dependent on a branch below and itself forming a basis for a still loftier development. Instead of the field of education being strewn with isolated, albeit solid and substantial, boulders, it is being covered by a no less substantial edifice, based upon compulsory and free primary instruction and rising upward to its termination in the most delicate refinements of professional training. In this compact structure, Technical Instruction has its appropriate place—though it is but fitting to add that it is only in recent times that the result has been achieved."

"Everywhere it will be found, whether in schools, colleges, or the less methodical evening classes, that evidence is required by examination or otherwise, of such a basis of sound general knowledge as will enable the student to appreciate and apply the special instruction provided. This fact should be laid to heart in India, where we have as yet hardly conquered the fallacy involved in the attempt to impose technical instruction upon a basis of complete ignorance. It has struggled long and hard, and no greater evidence of its strength could be afforded than the low standards deemed at one time ample qualifications for admission to such highly Technical Institutions as the Colleges of Medicine, Engineering, and Agriculture. That is being righted, but I am confident—and not without good grounds—that the idea is still prevalent that the shiftless and unsuccessful in other lines are good enough to serve as *corpora vilia* for technological experimentation. For years this was the most determined and detrimental demon that we had to fight in Chengalvaraya Nayaker's Commercial School, and though wounded, it is far from dead yet. Many a parent considered he was conferring on us the greatest favour by permitting the densest of his offspring, hopelessly bogged in the Middle School morass, to prepare for the Higher Examinations in Arts, Industries, and Commerce. The worst effect is not the injury to the individual student, but the damage to the whole cause of Technical Instruction, inasmuch as

in its leisure
gathered into the Techn.
visit to any of the British
age from 15 to 25; the middle
between."

5. The two preceding paragraphs are extracted from a memorandum on Education, prepared by me for the Council of the Victoria Technical Institute 1892. Government reviewed the memorandum at length in G.O., dated 25th October 1894, No. 813, Educational, and was good enough to express its approval thereof. It specially endorsed the general principles laid down. Of these, the first was, "Technical education must be built up on a sub-structure of general acquirements." This, Government remarks, is a rule which has "been consistently followed in the Madras system of technical education." If for *education* we read *examination*, the statement has some foundation; but, as it stands, it does not constitute so obvious a presentment of the facts that it is possible to dispense with proof of its accuracy. It may be my fault, but I have been unable to discover any Madras system of technical education whatsoever. However, the present affords an admirable opportunity for the Madras Government to commence to put its counsels of perfection into practice.

6. Another statement which demands constant repetition is that much of the writing on the subject goes wide of the mark, through careless and unscientific use of the terms employed. This point will be found discussed in paragraph 12 of the memorandum already referred to. It will suffice here to state what I mean by the terms used. By Technical school I understand an Upper Secondary, or High School, of the character to be hereafter described. For institutions for the advanced study of art, and the applications of art to industries, I use the term School of Art and Design. For institutions for the advanced study of science (Mechanics, Chemistry, etc.), and the application of science to industries, I use the term Technological Institute. I employ the two last designations—School of Art and Design, and Technological Institute—not only because they are fairly descriptive in themselves, but because they have been adopted by the Government of India.

7. Which of these have we in Madras now available for the general public, *i.e.*, putting out of consideration such highly professional institutions as the College of Engineering? We have none of them, but instead an anomalous constitution which attempts, unconsciously and therefore aimlessly, to combine some of the functions of all three. The results we know.

8. The next question is, what is wanted? The theory in Madras has hitherto been that you could have any one of the three, launch it, and sail gaily on to success. In practice we have found the one supreme attempt to be, if not foundered, at least hopelessly water-logged. And why? Because it has no source of supply. It has no field from whence to draw its raw material; no school to furnish it with pupils. Neither a School of Art and Design, nor a Technological Institute, can possibly flourish or be more than a mere exerescence, unless it is fed by a continuous stream of pupils, *educated in technical secondary schools*. The first, the absolutely essential thing to do, is to establish such technical school or schools. A School of Art and Design may be provided on one side of the subsequent bifurcation, or a Technological Institute may be provided on the other; or the scheme may be completed by the provision of both—that is a matter of finance. But to look for stability in an institution of either kind without the firm basis supplied by a system of technical secondary schools, is as futile as to expect an upper storey to remain steadfast while suspended in the air without any ground floor or foundations.

2. To whom sold (on contract or otherwise)?

3. Annual receipts from—
(a) Large orders.
(b) Small orders.

4. Number of students in the pottery classes?

5. What course of training do students go through?

6. By whom are the students instructed?

7. Have any of the students gained employment outside the school? If so, where?

8. Is the industry capable of expansion? If so, in what direction?

The orders for Government departments referred to above are annual orders. Those from private parties are generally for flooring tiles, fire-bricks, flower pots, filters, &c. Articles are not supplied on contract, but directly to the actual purchasers. The works are on too small a scale to meet the wholesale demands of contractors, who would require considerable reduction of prices.

The total amount of the annual receipts from sale of the articles mentioned above varies from Rs. 2,000 to Rs. 5,000. Of this amount, about one-half is for large orders of more than 50 rupees, generally for flooring tiles and fire-bricks.

At present there are eleven students undergoing instruction, the bulk of the work being turned out by workmen and coolies employed.

They work up to the standard of the Government technical examinations. For the practical portion of the elementary test, the course comprises making on the potter's wheel, and by other means, vessels of any shape; modelling spouts, handles, and any ornamental accessories; taking moulds and casts of these, and attaching them to the vessels. The course, for the oral portion of the examination, consists in studying the various kinds of clays and other materials used for the body, for glazes and for enamels, the methods of preparing and mixing these, and of packing and firing a kiln. For the intermediate examination, which is intended more for those who have to supervise the work in a pottery than for the workman engaged in the actual manufacture, the course consists of reading books on the subject, especially those describing the various kinds of pottery, and the materials used; making notes of the practical work done in the workshops, and sketches of kilns and all machines and implements used in pottery manufacture.

The head maistry and the potters instruct students for the elementary technical examination, which embodies all the practical work that is essential. For the intermediate examination, which is an entirely theoretical test, to be answered in writing and orally, those students who are sufficiently acquainted with English read up books on pottery in the library, and make notes of all the practical work which they see being done in the school, and of geological specimens kept in the school museum, getting explanations and every assistance from the Superintendent and the Pottery Assistant. There has never been a sufficient number of the latter to form a class, to which lectures could be given, the majority being boys of the potter caste, who are not educated. Only three students from the school have passed the intermediate examinations, all Brahman graduates. One passed in 1889, one in 1892, and one in 1894.

There is no record previous to 1884 regarding this, but I have reason to believe that several persons who worked in the Pottery department, either as students or workmen, have been employed in many of the tile and brick factories which have been started in Hyderabad and the other adjacent Native States. Since 1884 some of the workmen have left the school for employment in the brick-fields and other places. Two of the potter-caste students, with elementary certificates, have gained appointments as pottery instructors—one in the Trivandrum School of Arts, the other in the Mysore Industrial School—while the Superintendents of both those institutions are two of those who passed the intermediate examination, the third being the present Pottery Assistant of the Madras School of Arts. None of these, however, can be considered as following the trade of a potter. The workmen have gone out as modellers and brick-makers, and passed students as instructors.

In the case of glazed ornamental pottery it is not possible, under present circumstances, to make any substantial improvement. There are two principal drawbacks to this. The first is want of encouragement on the part of the natives themselves, who do not use ornamental pottery either in their houses or temples. The second is want of a proper "body" for delicate

It suffices to say that the Upper Secondary examination, with undue prominence to the literary side. This is due to the fact that those who framed the scheme had one eye always fixed on the test for Government service. The type is, however, amply illustrated in the appendix to my memorandum so frequently mentioned. It is remarked by the Hon'ble Messrs. Crole and Chambers, and the remark is perfectly just and accurate, that the subjects taught in the Technical Colleges and Institutes vary according to the demands of the district in which they are established. But it is also true that the curricula of the Upper Secondary Technical schools are practically identical as to the subjects taught. The Technological needs of Sheffield are not those of Bradford, but both demand chemistry, mechanics, drawing, and the use of tools. I do not propose, and it is not here necessary, to enter into details. It may suffice to say that the subjects taught might include English, Mathematics, Geography, Drawing, Mensuration, Physics, Chemistry (inorganic), and the use of tools (carpenter's and turning). No pupil should be admitted who cannot pass a given educational test, say Middle school, and the course should extend over two or three years according to the ability of the pupils. Drawing should be taught up to the standard laid down for admission to the School of Art and Design, and Science up to that prescribed for entry into the Technological Institute. It may be added that a pupil who has gone through a course of instruction at such a school will, even if he does not proceed to any of the higher institutions, be a much more useful member of society and possess an education likely to be more valuable pecuniarily to himself, than one who has failed for the Matriculation Examination.

11. I have to add but one word with reference to the Technological Institute, and, in doing so, would beg to direct attention to the interesting note furnished to the Committee by Mr. R. Ll. Jones (Appendix D). It would seem great waste of strength if the elaborate resources of the College of Engineering and of the new physical and chemical laboratories of the Presidency College could not be utilized in some way in connection with a Technological Institute. The detailed arrangements would require elaboration and adjustment, keeping in view, on the one hand, the proposed scope of the Institute, and on the other, the necessary requirements of the regular pupils at the Colleges mentioned, but that a working scheme could be drawn up does not seem an unreasonable expectation.

(Signed) JOHN ADAM.

APPENDIX A.

POTTERY.

MEMORANDUM BY MR E. HOLDER, OFFICIATING SUPERINTENDENT, SCHOOL OF ARTS,
IN REPLY TO QUESTIONS PUT BY THE COMMITTEE.

1. Nature of articles manufactured.

(a) Painted and glazed pottery; (b) plain, glazed and unglazed stoneware for the Medical Stores, Government Stationery office, and the Telegraph department, consisting of jars, filters, gally pots, lotion cups, ink wells, colour slabs, battery cells, basins, &c.; (c) terra cotta, comprising ornamental ballusters, friezes, pilasters, finials, gurgails, panels, flower pots, fountain ornaments, &c.; (d) flooring tiles and fire-bricks.

500
-11-

colours and glazes, which can only be obtained by repeated experiments, needing a large outlay. If this could be obtained, an attempt might be made to supply local demands for crockery. As regards stoneware, i.e., glass jars, filters, &c., the school has already succeeded in producing articles nearly as good as the English ware. There is a decided demand for such articles, as also for tiles, fire-bricks and terra-cotta ornaments, both amongst Natives and Europeans. This portion of the industry could be turned into a fairly lucrative business, if worked on a much larger scale, and on a strictly commercial basis. Attached to a Government educational institution, it is not likely to pay. Vacations, holidays, casual and other leave, all interfere with the outturn of work.

9. In the case of pottery of artistic design, are only the best samples selected for sale, or are both good and indifferent disposed of?

According to the present system of keeping accounts in the school, every article, good, bad, or indifferent, unless actually damaged, is brought to account. Those that could not be readily sold here have hitherto been put up to auction at reduced rates.

APPENDIX B.

CARPETS.

MEMORANDUM BY MR. E. HOLDER, OFFICIATING SUPERINTENDENT, SCHOOL OF ARTS, IN REPLY TO QUESTIONS PUT BY THE COMMITTEE.

1. Number of weavers engaged and where they were obtained from?

Three men were engaged when the class was first started, one from each of the three towns famous for carpets in South India, viz., Warangal, Ellore and Ayyampet. At present there are two weavers, the Warangal man having left the school in 1892. These men act as teachers to students who do all the weaving as class work. For urgent orders, passed students from the Anjuman and the School of Arts are occasionally engaged on daily wages.

2. Pay of weavers.

The two maistries are paid Rs. 40 and Rs. 20 per mensem respectively. The extra men employed for urgent work receive from 4 to 6 annas per day. Students learning the work are paid stipends from Re. 1 to Rs. 7-8-0 per mensem according to progress made and examinations passed.

3. How are patterns selected?

In this, as in all the other industrial classes in the school, students are taught to make their own designs, always keeping in view as examples of the best carpets those illustrated in "Oriental Carpets" and the coloured designs sent from the S. Kensington Museum, which are sometimes copied, with slight modifications, when specially required by any person.

4. What dyes are used?

Only pure native dyes are used; no aniline dyes. All the dyeing, except indigo, is done in the school. White, brown, and sometimes black wool is obtainable in the natural state. For blue of various shades indigo is used; for black, sulphate of iron and gall-nuts; for red, stick lac; for yellow, turmeric, and the palas or moduga flower (*Butea frondosa*). The secondary tints are obtained in the ordinary way by mixing two of the primary colours together.

5. Size of carpets made. Any demand for small rugs?

The looms in the school are constructed to weave carpets of various widths from 3 feet to 21 feet and of any proportionate length. Very large carpets are not much in demand here owing to the costliness of the material, the price being from Rs. 8 to Rs. 12 per square yard. For very small rugs too the demand is not great. The sizes generally ordered range from 7' x 4' to 15' x 9'.

6. Number and value of carpets manufactured since the industry was started. To whom sold?

About fifty carpets have been completed up to date. The size and value of these, together with the names of the purchasers, are shown in the appended statement.

7. Is demand in excess of supply?

This being a class for instruction, and the majority of the students being mere boys, who, in addition to weaving, have to attend the drawing and general education classes daily, the work turned out is not even half of what could be done in a regular manufactory employing adults. The demand, therefore, is in excess of supply, as is the case of all the other industries in the school except pottery.

8. Have any of the weavers gained employment outside the school? If so, where?

No students trained in this class have at any time obtained employment as weavers outside the school. They join the class merely for the sake of the scholarships, which enable them to continue their studies in the drawing classes for the group certificate and diploma. Most of the students from this class, after completing their course, have gone out as drawing teachers or draftsmen.

9. Is there a field for skilled weavers outside the school?

Local enterprise, I may safely say, has been completely ruined by the jails taking up this industry. The best carpets now manufactured in this Presidency are those turned out in the Vellore and Bangalore jails, so far as texture is concerned, and even design, for illustrations of the best carpets can now be very easily procured. Besides, what they do in jails ordinarily is to have a few select patterns of borders and ground, which are repeated over and over again, with slight modifications as regards colour, proportion, &c., the work being intended merely to keep the prisoners employed. The men generally put to such work are the "lifers" and "long-term men," who, by constant practice, become really expert weavers, as good in the technical portion at least as any professional.

STATEMENT SHOWING THE SIZE, PRICE AND PURCHASERS OF CARPETS MADE AT THE SCHOOL OF ARTS SINCE 1889.

Dimensions in feet.	Cost.	Name of purchaser.
	RS. A. P.	
10 x 10	175 0 0	Zamindar of Gandamanayakkanur.
7 x 3½	25 0 0	B. Ramanjulu Naidu.
7 x 3½	25 0 0	
10 x 10	175 0 0	Messrs. McDowell & Co.
7 x 3½	25 0 0	A. Raju Sastri.
9 x 5	47 8 0	Messrs. McDowell & Co.
15½ x 12	203 5 4	
6 x 3½	43 5 4	Maharaja of Vizianagram.
6 x 3½		
9 x 5	47 8 0	Captain Brisay.
12 x 12	120 0 0	Mrs. Shelford.
15 x 12	200 0 0	Maharaja of Vizianagram.
9 x 5	50 0 0	Sold by auction.
4 x 3	10 3 4	H. Subbaiya.
9 x 5	50 0 0	Diwan of Travancore.
15 x 11	191 10 8	
14½ x 12	196 10 8	Mrs. Garstin.
12 x 12	160 0 0	Sold by auction.
10½ x 8	93 5 4	Mr. Grigg.
10 x 6	66 10 8	Mrs. Ker.
9 x 5	50 0 0	
9 x 5	50 0 0	Mr. Middlemast.
6 x 3	19 0 0	
..	29 3 0	Major Waddy.
..	234 0 0	Messrs. Tellery & Co.
10 x 5½	124 0 0	

STATEMENT SHOWING THE SIZE, PRICE AND PURCHASERS OF CARPETS MADE AT THE SCHOOL OF ARTS SINCE 1889—*cont.*

Dimensions in feet.	Cost.	Name of purchaser.
	RS. A. P.	
15 x 11½	191 10 8	Mr. Eley.
6 x 3	17 0 0	A. C. Subramania Aiyar.
12 x 9½	60 0 0	Mr. S. Sathianadan.
11 x 13	159 0 0	Major Waddy.
9 x 12	120 0 0	Mr. C. S. Stewart.
12½ x 9	90 0 0	Mr. Watson.
10 x 8	80 0 0	} Mr. C. S. Stewart.
9 x 6	13 0 0	
17½ x 12	218 0 0	Mr. Eley.
21½ x 13	240 0 0	Captain Lorimer.
12 x 5½	67 0 0	Mr. Grigg.
6 x 3	16 0 0	Principal, Lawrence Asylum School.
6 x 3	20 0 0	Dr. Carruthers.
6 x 3	15 0 0	Messrs. Framji P. Bhungára.
15½ x 10	165 0 0	Sent to Indo-Colonial Exhibition.
6½ x 4	27 7 0	Rev. D'Sylva.
7 x 4	28 0 0	In stock.
Total ..	3,937 8 0	

APPENDIX C.

STATEMENT RELATING TO SUBJECTS IN WHICH INSTRUCTION IS IMPARTED IN CONNECTION WITH TECHNICAL EDUCATION AT VARIOUS TECHNICAL SCHOOLS IN EUROPE AND ELSEWHERE.

1. Drawing, elementary and advanced. Provided for at the School of Arts.
2. Architectural drawing. Provided for at the School of Arts, College of Engineering, and Department of Consulting Architect to Government.
3. Design and decorative work. Provided for by the Department of Consulting Architect to Government and at the School of Arts.
4. Drawing for engineers. Provided for at the College of Engineering.
5. Drawing for carpenters and joiners. Provided for at the School of Arts and College of Engineering.
6. Modelling. Provided for at the School of Arts.
7. Painting from models, still-life, life, etc. Provided for at the School of Arts.
8. Carpentry and joinery. Provided for at the School of Arts, Department of Consulting Architect to Government, College of Engineering, Industrial School, &c.
9. Cabinet-making. Provided for at the School of Arts and Anjuman.
10. Wood-carving. Provided for at the School of Arts, Department of Consulting Architect to Government, and Anjuman.
11. Architecture and building. Provided for by the Department of Consulting Architect to Government.
12. Brick-work, masonry, terra-cotta and tile-work. Provided for by Department of Consulting Architect to Government, School of Arts, College of Engineering, Messrs. Arbuthnot & Co., &c.
13. Cotton spinning and weaving. Power-loom industry provided for by the mills. Hand-loom industry—*vide* paragraph 21.
14. Carpet-weaving. *Vide* paragraph 15.
15. Silk industry. In Bombay a large power-loom industry exists. The industry, to be developed in Southern India beyond the stage of hand-loom, must be left to private enterprise.
16. Chemistry, organic and inorganic. Provided for at several colleges.
17. Dyeing of textile fabrics. *Vide* paragraph 21.

18. Tanning and leather manufacture. *Vide* paragraph 24.
19. Theoretical mechanics. } Provided for at the College of Engineering.
20. Applied mechanics. } Provided for at the Presidency College, Christian College, &c.
21. Elementary physics, including electricity and magnetism. }
22. Electrical engineering. Provided for at the Presidency College—*vide* para. 17.
23. Machine construction. Provided for at the College of Engineering.
24. Steam-engine. Provided for at the College of Engineering and Railway Workshops.
25. Blacksmithing and fitting. Provided for by Department of Consulting Architect to Government, College of Engineering, Railway and Government Workshops.
26. Decorative iron work. Provided for by Dhanakoti Ráju and Department of Consulting Architect to Government.
27. Plumbing. Requirements very small and sufficiently met by the trade.
28. Farrier's work. No practical course provided for at the Agricultural College. Farriery carried out on European lines at the forges of the Royal Artillery at St. Thomas' Mount. The Committee understand that it was proposed to start a school of farriery in connection with the Society for the Protection of Cruelty to Animals.
29. Metal-work (brass, copper, silver and gold). Provided for at the School of Arts.
30. Electro-plating. Provided for by the trade.
31. Watch and clock making and repairing. No hope of competing successfully against imported goods; repairing provided for by the trade.
32. Domestic economy. } Might form the subjects of short courses of lectures in the new theatre, if there is any real demand for them.
33. Commercial economy. }
34. Photography, including photo-mechanical processes. Provided for by the Revenue Survey Department, professional photographers, and the Methodist Episcopal Mission Press. Photography will be taught at the Presidency College when the new laboratories are completed.
35. Lithography. Provided for by the Revenue Survey Department.
36. Copper-engraving. Provided for at the School of Arts.
37. Wood-engraving. *Vide* paragraph 32.
38. Boot and shoe-making. Provided for by the trade.
39. Type-writing. }
40. Shorthand. }
41. Book-keeping. }
42. Commercial correspondence. } Provided for by Pachaiyappa's College, Christian College, Bishop Corrie's School, Young Men's Christian Association, &c.
43. Commercial geography. }
44. Banking. }
45. Book-binding. }
46. Letter-press printing. } Classes of instruction held at the Government Press. Can be learnt by apprentices at the Government Press, Lawrence Asylum Press, &c.
47. Printer's warehouse work. }
48. Type-casting. }
49. Carriage-building. } Provided for by the trade.
50. Embroidery. }
51. Lace-work. } Provided for by Daday Khan, Framji P. Bhungára, Friend-in-Need Society, Anjuman, &c.
52. Needle-work. }
53. Dress-making. } *Vide* paragraph 18.
54. Tailoring. } *Vide* paragraph 18.
55. Cookery. } *Vide* paragraph 20.
56. Laundry work. } Private enterprise should start a steam laundry, if there is a demand for one.
57. Dairy-farm and dairying. Should be undertaken at the Agricultural College, if anywhere.
58. Mining. } Included in the first technical examination scheme, but omitted in the revised scheme, 1893. The Committee understand that the Government of Bengal has recently arranged with several mines to enable students in the mining class at the Sibpur College, Calcutta, to gain practical experience, and has undertaken to pay a premium of Rs. 500 for each boy who is received as an apprentice in the mines.
59. Agriculture. } Provided for by the Agricultural College.
60. Physiography. } Taught in various colleges in connection with the F.A. Examination at the University.

61. Music Provided for by the School of Music.
 62. Soap-making *Vide* paragraph 29.
 63. Pharmacy Provided for at the Medical College. It is, the Committee understand, proposed to improve the instruction at this college, and bring the subject into the technical examination scheme.
 64. Brewing Provided for by, and must be left to, private enterprise.

APPENDIX D.

MEMORANDUM ON ELECTRICAL ENGINEERING BY MR. R. LL. JONES, PROFESSOR OF PHYSICAL SCIENCE, PRESIDENCY COLLEGE, MADRAS.

I have been asked by the Secretary, on behalf of the Committee appointed by Government to make proposals for the reorganisation of the School of Arts, to express my opinion on the proposal to include "electrical engineering" among the subjects falling within the scope of the industrial side of that institution. This course on "electrical engineering" is intended to include "not only signalling, but the preparation of batteries, the repair of apparatus, and the management of electric lighting."

Signalling, and the preparation of batteries, do not form a very formidable part of an electrical engineer's training, and signallers are not usually classed among electrical engineers. The man who is able to undertake, and effect the repair of apparatus, or the "management of electric lighting", is of quite a different calibre to the ordinary signaller, or the man who is deputed to inspect and repair batteries in the telegraph or telephone services. If then electrical engineering, as defined above, is to form one of the subjects in which technical instruction is to be provided in the School of Arts, two courses will have to be arranged, viz. :—

- (1) One for training signallers;
- (2) one for electrical engineers proper.

In what I have to say on the proposal, I shall make this division and deal with each separately.

I. The object of the proposal to give instruction in signalling is, of course, to turn out men thoroughly trained and fit for immediate service in the telegraph department or the railway companies, who form the chief employers of such men. Were any difficulty experienced by these great employers in obtaining such men, such a step might be desirable enough. But I do not think any such difficulty exists. Classes for instruction in signalling are, I believe, already held in several schools in the Presidency; and the telegraph department and railway companies have made their own arrangements, to a certain extent, for the constant supply of signallers they require, by establishing classes in connection with these departments. Moreover, signalling is after all a comparatively simple affair, and there can be but little difference between one instructor and another. A few facts have to be constantly held before the learner, and the rest depends on his own efforts and perseverance. The acquisition of speed is a mere matter of continual practice. On neither of these grounds, therefore, does there seem to be any urgent call for establishing such classes in connection with the School of Arts. The supply of signallers is sufficient for the demand, and there is nothing to be said, as far as I am aware, against the quality of the instruction already provided.

II. With regard to the second division of the subjects mentioned above, these subjects form an essential part of an electrical engineer's training, or any course of instruction on electrical engineering. I must suppose that "electrical apparatus" includes measuring instruments and machinery generally, and not merely those pieces used by a lecturer, or any one else, to illustrate or show a particular effect or phenomenon. On this very account it is impossible to speak, except generally on this subject, without being needlessly long. For electrical apparatus is almost as varied in kind as are electrical phenomena themselves, or the services to which electricity has been put of late years by patent-mongers and the trade. But, speaking generally, one of the first, and sometimes the main, difficulty in the repairs of an instrument is to find out what is wrong with it, and where it is wrong. To determine this requires some, and often considerable, knowledge of electricity and electrical measurement. Having done this, the next thing is to effect the repair. This again generally requires not only knowledge of electrical measurement, but such mechanical skill as one can only acquire in a workshop. Finally comes the testing of the instrument to see if the repair is good; and this requires and calls in one's knowledge of electricity once more. Similar remarks apply to the management of electric lighting. One who has charge of an electric light installation must possess a certain amount of mechanical skill (the more the better) as well as electrical knowledge. If then Government propose to include electrical engineering among the technical subjects in which instruction is given at the School of Arts, they must be prepared to fit up an electro-chemical laboratory in connection with it, and appoint a man competent to provide instruction not merely in the technical parts of the subject, but also in the theory and practice of electrical measurement generally. Now I fail to see any necessity for

this outlay in connection with the School of Arts. Government have already made some provision for an electro-technical laboratory in the new extension to the Presidency College. When the plans for this building were sent up, I was asked for particulars concerning the different rooms and their uses. On that occasion I wrote concerning one of these rooms, which was marked "dynamo room" in the plans, as follows:—"The dynamo room is intended to form an electro-technical laboratory. It is proposed to have a dynamo here, and a prime-mover, for the experimental study of dynamo design, construction and performance, the conditions of electric supply for lighting and other purposes, the storage and transmission of power." These proposals of mine were apparently approved, for the space required was granted. These subjects I purpose dealing with, as soon as room and facilities are placed at my disposal, in a course at the Presidency College. Facilities exist there already, and instruction is provided in the theory and practice of electrical measurements. When Government have done so much towards establishing courses of instruction on electrical engineering on a sound basis at the Presidency College, it would, I think, be involving itself in a needless outlay in attempting to include it also among the technical subjects at the School of Arts.

APPENDIX E.

DYING OF TEXTILE FABRICS.

The following evidence was given before the Committee :—

The Hon'ble Mr. G. L. Chambers, Partner, Messrs. Binny & Co., understands the dyeing trade and operations. His firm got out several experts in aniline dyeing from Europe for their mills. They instructed a native from Bombay, who is now at the head of their dyeing department. Messrs. Binny & Co. are agents for a German firm of manufacturers of aniline dyes, and had until this year a regular contract with natives for the supply of alizarine red. The contract is now in the hands of a Bombay firm. There is an extensive import of Glasgow and Manchester dyed yarns (turkey red, imperial red, chrome orange, dark green, pea green, and canary, &c.) which native weavers purchase and make into cloths with the colours so combined as to give the requisite dull effect. At Messrs. Binny & Co.'s mills, 'khaki' (a German dye) for soldier's uniforms, coal-tar, red, and yellow dyes for tent-cloths, &c., are used. For the borders of native cloths English-dyed turkey-red yarn is used, as it is superior to any which can, in the absence of dye-works, be obtained in India. He is of opinion that coal-tar and other European dyes if properly used, are much better than the majority of native dyes, with the exception of indigo, which is the finest blue in the world, and Madras red, which is as good as any European red, but expensive. A difficulty is experienced in reeling dyed yarn, but the difficulty could be overcome by education of the mill hands. Whenever it is possible (e.g., with khaki), the dyeing process is carried out on the raw cotton, not on the yarn. Messrs. Binny & Co. find great difficulty in obtaining practical weavers, possessing theoretical knowledge and capable of carrying out designs. Some of their looms are, in fact, standing idle for want of trained men capable of weaving designs. If a School of Dyeing was started in Madras, he would certainly employ men who had been instructed there, instead of importing trained men from Bombay or Europe. In a recent letter to Messrs. Binny & Co., Professor Hummel, of the Leeds School of Dyeing, wrote to the following effect:—"I am much obliged for your offer of Indian dye stuffs, but we are now able to obtain all we want from the Imperial Institute, and we are now engaged in making experiments with all that seem worthy examining. I am not a believer in the superior excellency of the Indian dye-stuffs. Properly selected, coal-tar colours are far better in every way.

Questioned on the subject of sappan or red-wood (*Casalpinia Sappan*) which yields a beautiful red dye used to a considerable extent in wool-dyeing, calico printing, &c., in India, and is said to be largely exported. Mr. Chambers stated that it was formerly used at Messrs. Binny & Co.'s mills, but abandoned in favour of coal-tar dyes.

Mr. E. Thurston when officiating as Reporter on Economic Products to the Government of India, sent to the Director of the Sericultural School at Coimbatore samples of silk dyed with the beautiful orange or flame coloured kamela dye (*Mallotus philippinensis*), which is an abundant product of the Ganjam forests, collected by the Hill Khonds, and sold to low Country dealers. The Director, in reporting on the samples, wrote as follows:—

"I think this colour to be fast and durable, but now-a-days few persons care about the durability, and dyers can obtain the same dye with the artificial dye called aroclavina, and with much greater facility, &c., without alum, and more rapidly. With cotton we have had negative results, that is to say, a bad dye. Therefore, considering everything, it seems to me that the kamela cannot have a serious application (in Europe) in the mentioned fibres (silk and cotton).

Mr. Thurston further sent, through the agency of the Imperial Institute, samples in bulk of the following dyes, for analysis and investigation of their properties by Professor Hummel—

- (a) Root-bark of *Ventilago Madraspetana*, an extensive climber met with in the forests of Southern India and Mysore, where it is abundant. The root-bark is sold in the bazaars, and is said to be "exceedingly rich in a beautiful red colouring matter, and will, when proper methods are employed, produce many colours for which cochineal and madder are generally used. The dye is well adapted for tasar silk" (Wardle).

(b) Wild and cultivated chay-root (*Oldenlandia umbellata*), which yields the well-known red dye of Southern India. It was stated by Drury that the roots of the wild plant are, for dyeing purposes, considered to be preferable to those of cultivated plants, and Professor Hummel's investigations will no doubt throw light on this point.

(c) Samples of serinji or al dye (*Morinda citrifolia*, togari wood of Madras), which is used by the Saidápet dyers and others for dyeing cloths red. It is worthy of note that cloth dyed with al is not attacked by white ants, and on this account is used in India to wrap round the account books of bankers and shopkeepers, and it might be more generally used for book-binding, and other purposes for which protection from insects is a desideratum.

The results of the examination by experts of products sent to the Imperial Institute for analysis, investigation, and report, are, as received, being published in the Agricultural Ledger Series of the Government of India, which has a wide distribution.

Mr. Theagaraya Chetty, a dealer in cloths, possessing some knowledge of dyeing. Believes that the use of aniline dyes by native dyers is due to their cheapness, and that, if native dyes were somewhat less costly, the people would prefer cloths dyed with them, as both cloth and colour would last longer than when aniline dyes are used. In working with aniline dyes, natives follow the instructions, in vernacular languages, which accompany the dyes, so far as is possible. Considers that a School of Dyeing in Madras should be adapted for both employers and operatives, and is of opinion that, if classes in the higher branches of dyeing were established, the interest of capitalists might be attracted. Thinks that it would be difficult to persuade intelligent dyers to go to Bombay, and other places outside the Madras Presidency, for the purpose of studying methods of dyeing other than those which they carry out. Madras handkerchiefs, which are for the most part deep red, fetch a considerably higher price in the foreign market when made with Madras dyed yarn than with English dyed yarn, because they are exported for the use of Madras natives working in British Colonies.

Ramanjulu Chetty, a dyer from Saidápet engaged in dyeing cotton cloths with serinji and aniline dyes, which he purchases in barrels. Says that aniline dyes are "humbug colours" as they are not fast. Knows that the results produced with aniline dyes are not so good as those produced with native dyes, but the process of dyeing is cheaper, and the dyed cloths look very well when new. Would use native dyes from preference, if their cost was less. Sells the cloths to a godown-keeper, who returns cloths which have faded while in stock to be redyed. If a School of Dyeing was opened in Madras, would be glad to come and learn how to work native dyes by cheaper processes than the existing ones.

A large number of Saidápet dyers who were examined by the Committee, gave evidence to the same effect.

S. Nagaji Rao, a dyer of cotton cloths from Triplicane. Uses dyes of various colours, obtained by mixing "tinned dyes" with native dyes. Native dyes are more expensive than aniline dyes, and great loss of time is incurred in their preparation. Native dyes are fast, whereas aniline colours fade. He first partially dyes the fabric with native dye, and completes the dyeing process with aniline dyes, which give brilliancy. If a School of Dyeing was started in Madras, would come himself, and send his children to receive instruction there.

Suriya Chetty, a weaver from Washermanpett. Makes red cotton cloths, which he sells to merchants. Purchases European dye in barrels. Dyeing with European dyes is a far quicker and cheaper process than dyeing with native dyes. The preparation of native dyes and dyeing the thread takes many months. For some time there was no demand for cloths dyed with native dyes; but some demand is now arising, as it is found that cloths dyed with European dyes do not wear well, and the colour comes off on the body, and produces irritation of the skin. Shown some samples of aniline dyed cotton, manufactured by a firm in Germany who have agents in Bombay, says that they would not go down in the Madras market as they are too bright. If Government started a School of Dyeing in Madras, would be glad to go there himself, and send his children to be trained there, if teaching was imparted how to use good coal-tar colours which are absolutely fast.

Another weaver from Washermanpett gave evidence to the same effect.

Kotisah, a silk dyer from Chintradipettah, produced before the Committee a silk cloth dyed with lac, and with a border of good design, made many years ago in Madras. Says that he designs new patterns, and does not merely reproduce those handed down from the time of his ancestors. A cloth such as that produced, cannot, so far as he knows, now be manufactured anywhere except at Salem. Shown some samples of silk dyed with aniline dyes, says that the colours are not of such good quality as native dyes. Dyes silk with lac and kamela only to order, but, as a rule, uses European dyes, because of their cheapness. One washing is sufficient to spoil the colour of aniline-dyed silks. His son was educated at an English school, but failed to pass his examinations, and is fit neither for English pursuits nor for the dyeing trade. Is of opinion that silk weavers and dyers would not be benefited by the establishment of a School of Dyeing, but that cotton weavers and dyers would derive considerable advantage from such a school.

APPENDIX F.

TANNING AND LEATHER MANUFACTURES.

The following evidence was given before the Committee:—

Captain E. S. Forestier Walker, R.A., Ordnance Officer in charge of the Madras Arsenal Workshops. There is at present no Government tannery. Was sent on special duty to Europe four years ago to learn all about the tanning and carrying industries, and purchased machinery for the purposes of a Government tannery, which included two boilers, now lying unused on the Fort glaciis, and two 75 horse-power engines, which are still packed in their cases. It was at that time the intention of Government to manufacture annually about 250,000 lb. of leather for the supply of accoutrements, harness, saddlery, &c., to 75 to 80,000 troops belonging to the Madras and Burma armies. The supply of leather for these purposes used to be provided partly by contractors in India, partly from England, and Government proposed, by starting a factory, to provide for the entire supply. At the present time, the supply is obtained from Messrs. Cooper, Allen & Co., Cawnpore, and Adamji Pirboy, of Sion, near Bombay. In the absence of a Government tannery, he has to pay a higher price for skins, as the rail charges have to be added. The supply is, from his point of view, unsatisfactory. It would, he thinks, be possible to manufacture good leather, to compete successfully against that of Cawnpore, in some selected spot in Southern India, but not in the City of Madras. Though there are very many tanneries in Madras, they do not turn out the kind of leather which is required for most Government purposes, for manufacturing which the local bark is not the right kind, the product of tanning therewith being too soft. In connection with hides, the main question is whether really big, level, she-buffalo hides can be acquired in sufficient quantity, such as could be obtained some years ago in Mysore from the Amrut Mahal breed. In addition to such hides, big cow-hides are required by him. The average weight required would be about 22 lb. per hide. He prefers small, compact hides. Thickness of hide is more important than weight. Has not seen Nellore hides, but has seen Rangoon hides, which, he believes, were sent to Cawnpore, and not approved of. Obtains goat and sheep skins from the Madras Presidency fairly tanned. For the tanning of these avaram (*Cassia auriculata*) bark is quite adapted. Has not turned his attention to the Hungarian system of tanning for army purposes. Is on the whole hopeful of the chances of improving the tanning industry in Southern India. For manufacturing (currying), it would be essential to have good machinery for glazing, rolling, scrubbing, finishing, &c. Does not think that splitting would answer with heavy hides, though applicable to sheep skins. If a School of tanning was started by Government, it would first be necessary to popularise the subject by means of lectures illustrated by phantom screens (magic lantern), and follow these by a series of lectures on more technical details. At the Yorkshire College, Leeds, the course consists of lectures on leather manufactures and organic chemistry, microscopy, and practical work in the laboratory. The time devoted to these subjects is distributed as follows:—

Leather manufacture and leather laboratory ..	17 hours per week.
Organic chemistry	3 ..
Practical microscopy	2 ..
Laboratory work	12 ..

Attached to the staff of the school there should be a chemist, to conduct, in the laboratory, the varied work necessary in connection with the practical operations which are carried on in the laboratory and, in connection with the school, there should be a museum, for the exhibition of all kinds of tannings and tannins, and faulty and defective specimens, with notes on the causes and remedies.

Mr. K. Ethirajulu Chettiar, Managing Partner, Messrs. Moses & Co. Imports manufactured leather from London for boots, shoes and harness. The demand for these articles is very large and increasing. Employs about twenty men, with a European foreman on Rs. 100 per mensem. Thinks that, if machinery was employed, the quality of the local leather would improve. If a school was started, at which the processes of leather manufacture were illustrated and demonstrated, he and others might possibly invest capital in the leather industry, or a Limited Liability Company might be started.

Mr. P. Murugesam Mudaliar has fifteen years' experience of the leather trade in Madras, and was once in charge of a tannery. Now doing a flourishing business on his own account. Works on commission. Exports chiefly goat and sheep skins to Europe and America, especially to the latter. Exports some half-tanned "coast" and "south" bullock hides. The best hides come from Bangalore, and "coast" are better than "south hides." There is no export of dried hides from Madras. After tanning, hides and skins are partially prepared by treatment with gall-nut liquor and gingelly oil. The skins are, as a rule, half tanned and are considered high class in the foreign market. A good mark, e.g., Coimbatore G. S. Tannery, Pitty Tannery, Madras, and Sawmy Tannery, fetches a higher price than an unknown mark. The best Madras skins fetch about 3s. per lb. at auction, which is a very high price as compared with that fetched by other skins. Madras tannage is probably the best in the world, certainly in India, as proved by the prices obtained. Bangalore hides and Nellore hides of slaughtered pelts, which are obtainable in smaller quantities, would fulfil the requirements of Captain Forestier Walker. About 300,000 lb. of skins, of the quality required by him, could be supplied

monthly from the Coled districts, Bangalore and Hyderabad. Has never heard any complaint against Madras tanned hides, which are generally highly approved of. Manufacturers have to obtain their skins from distant places, and consequently the transactions of collection and despatch and tanning may take three months. To finance for this, the middleman finds difficult. Want of enterprise is the sole reason why leather manufactories have not been started in Southern India, and he sees no reason why such factories should not succeed.

Mr. M. Venkatasawmy Naidu was a practical tanner for twelve years. Now in business with Mr. Murugesam Mudaliar. Submitted a statement of prices of tanned Madras skins sold in London and also two samples of heavy hides. Skins from his tannery, known as the Subramaniam tannery, have fetched 3s. 2d. per lb. in the London market. Madras hides may be divided into light (up to 12 lb.), medium heavy (up to 18 lb.) and extra heavy (up to 30 lb.). None of these are fully tanned, in the proper sense, in Madras. There is a good demand for light hides, but not for heavy hides, as the tanners do not understand how to tan them sufficiently.

The following is the process of tanning heavy hides. They are treated with lime for ten days and the hair is then scraped off. They are then treated with a weaker solution of lime for four or five days so as to remove the epidermis. The next process, which is the most defective, consists in clearing away the lime by placing the hides in a masonry vat containing clean water, in which they are trodden on by coolies, with repeated changes of water, until the water is no longer discoloured. The hides are then ready for tanning, a day before the commencement of which avaram bark (*Cassia auriculata*) is mixed with water in a wooden vat, into which fifteen to twenty hides are allowed to remain, with daily turning, for eight days. The fatty lower surface of the hide is then scraped with a scraper unsuited for the purpose. The hides are then put back into the vat, with fresh bark on the top of each hide. After a further period of eight days the hides are removed, and the undersurface is again scraped. The treatment with bark, and scraping, are repeated in all four or five times, so that the operation lasts over thirty-two days or more according to the heaviness of the hide. On the thirty-second day incisions are made in the hides, and, if they are porous, they are treated in the bark vat for a further period of eight days. The result is a half-tanned hide. Native tanners possess no means of ascertaining whether the bark-bath is acid. When avaram bark is scarce, tanners substitute konnai bark (*Cassia fistula*, the "Indian laburnum"), which is 50 per cent. cheaper than avaram, but yields a bad colour.

In the preparation of light hides the same processes are carried out, but they are only submitted to three immersions, of eight days each, in the bark vat. The result, even in this case, is not full tannage, but may be said to be three-quarter tannage.

After the completion of the treatment with bark, both heavy and light hides are treated with gall-nut solution, again scraped (to reduce the thickness), and finally treated with gingelly oil. They are then compressed and stretched out, by means of a block of wood faced with copper (a rude instrument) by a manual process, which he considers defective, as good compression adds to the quality of the leather. In Bangalore compression is better effected by means of a larger instrument, and Bangalore hides consequently fetch high prices and are in better demand. About 5 to 10 per cent. of the exports of Madras hides are medium and extra heavy hides, which fetch only from 65 to 70 per cent. of the price of lighter hides. The price of extra heavy hides is, on an average, As. 5-6 per lb. in the market, and they cost Rs. 1-4-0 per lb. when they return to Madras as manufactured leather.

For tanning purposes spring water is considered good, and, in Madras, well water is better than pipe water. Dindigul well water is said to be excellent for the purpose, and consequently Dindigul skins fetch high prices in London.

In the preparation of skins, the same processes are carried out as in the case of hides, but the treatment with lime lasts only five days, and with the weak solution of lime three days. The skins are treated in the bark vat for only two periods of one week each. More labour and care are requisite in the extraction of the lime from skins than from hides. To the care which is devoted to this point he partly attributes the high quality of Madras skins. The price of goat skins ranges from 1s. 4d. to 2s. 6d. for middling qualities and 3s. for "prime skins" in the English market. Sheep skins average from 1s. 2d. to 2s. 2d., but special qualities ("prime tannages") realise over 3s. The preparation of ordinary skins takes 24 days from the time the beast is killed to the time the skins are ready for shipment.

European methods were, to some extent, carried out in Madras by Mr. Carl Simon, who employed certain chemicals and wheat bran. Some native tanners have also used wheat bran solution for removing the lime. The European processes, as carried out, were expensive, and made the skins light and feathery. With the bran process each skin weighed one-tenth less than with the ordinary native process.

The superiority of the Madras skins is largely due to the first-class tanning material (avaram bark), which is available in abundance in all parts of the Presidency. If the method of tanning was as skilled as in western countries, Madras skins would become still more valuable. The tannages of Madras City are superior to mofussil tannages; and this is accounted for by the better class of labour which is available in Madras. He considers it very important that there should be, in the City of Madras, a practical analytical chemist, to conduct water analyses, to analyse barks and experiment with tanning materials, to study the chemical changes which take

place in the bark vats, and to teach how to make bark solutions of the proper strength. For 100 lb. of skins about 250 lb. of bark are now used, and there is evidently great waste in connection with the bark treatment. Even now there is a doubt among native tanners whether young, tender bark, or older bark yields most tannin. If a School of Tannery was started, he would certainly attend there, as it would be to his advantage, and he would be able to teach the native tanners how to treat the hides and skins properly. He is told that Madras sheep and goat skins return from Europe to Madras in the form of imitation morocco. There is, in Madras, a distinct opening for the manufacture of various articles from sheep and goat skins, but instruction is necessary before such manufactures can be started. Madras skins are sold by weight to America, and disposed of there by measurement in a very costly machine. Enormous quantities of sheep and goat skins are exported to America from Madras.

Mr. P. Theagaraya Chetty, a practical tanner, as well as an exporter of hides and skins. Submitted a sample of sheep skin, tanned in his tan-yard, which is the best of all skins exported to Europe and America. Agrees with the evidence of Mr. Murugesam Mudaliar. Want of enterprise, and fear of risking capital, have alone prevented the starting of leather manufactories in the Madras Presidency. Considers that pioneering is necessary, and that Government should be the pioneer. There is no reason why hides should not be fully tanned in Madras. The barks used in Madras are avaram and konnei. The price of the former is Rs. 20, and of the latter Rs. 7 to Rs. 10 per candy of 500 lb. Tanners experience no difficulty in obtaining a sufficient supply of bark which is abundant. Konnei possesses more tanning substance than avaram, but stains the hide or skin reddish yellow. So far as he knows, the European market accepts Madras tanning, and, if it requires a better quality, Madras could produce it. Has supplied belts made locally for machinery in a cotton press at Adoni.

STATEMENT relating to the Trade of the Madras Presidency in hides and skins and leather manufactures during the five years 1890-1895.

	Imports.	Exports.
<i>Rail-borne.</i>		
(Indian maunds of 82½ lb.)		
Hides of cattle—		
(a) Dressed or tanned	112,770	9,507
(b) Raw	29,818	10,711
Skins of sheep, &c.—		
(a) Dressed or tanned	573,721	12,930
(b) Raw	1,066,011	45,985
<i>Sea-borne.</i>		
Hides of cattle—		
(a) Dressed or tanned—		
Foreign	22,439	5,658,784
Coastwise	1,943,970	2,767,800
(b) Raw—		
Foreign	44,739	9,207
Coastwise	469,481	799,522
Skins of sheep, &c.—		
(a) Dressed or tanned—		
Foreign	48,951	85,760,340
Coastwise	1,384,589	3,311,055
(b) Raw—		
Foreign	579,937	175,360
Coastwise	4,091,980	1,128,527
(Indian maunds.)		
Leather Manufactures—		
Rail-borne	6,863	10,546
(Value in Rupees.)		
Sea-borne—*		
Foreign	6,65,828	9,194
Coastwise	51,249	91,166

* Exclusive of boots and shoes, which are included in trade returns under apparel.

N.B.—Coastwise represents the trade with all ports in British India, and includes also the trade with ports within the Madras Presidency.

STATEMENT showing the Imports of hides and skins into the Madras Presidency from the North-West Provinces, Punjab, and Central Provinces during the five years 1890-1895.

	North-West Provinces.	Punjab.	Central Provinces.
(Indian maunds of 82½ lb.)			
Hides of cattle—			
Dressed or tanned	10,063	233	80,889
Raw	6,882		11,045
Skins of sheep, &c.—			
Dressed or tanned	28,521	79,996	2,475
Raw	256,083	18,759	51,493

APPENDIX G.

MEMORANDUM by Mr. C. E. PHIPPS, Locomotive Superintendent, Madras Railway Company.
The following is a scheme of a three years' course of training :—

	Months.
Erecting shop	6
Fitting shop	3
Lathe shop	6
Foundry and pattern shop ..	6
Smithy	3
Boiler shop	2
Carriage shop and saw mills ..	6
Drawing office	4

If, at the end of the works course, it is considered that a pupil has not made all the progress he ought in any of the shops, the time in the drawing office may be cancelled, and he may be allowed to go back to any shop in which it is thought he wants more practice.

At the expiration of the above course, if he has worked well and satisfactorily, and is recommended by the Works Manager, the pupil will be allowed to go into the drawing office and work as an improver, a small salary being, if he is found capable of earning it, allowed.

The maximum time a pupil is allowed to remain in the drawing office upon this footing is twelve months, at the expiration of which, if he has not been permanently engaged, his connection with the Company will cease.

It must be distinctly understood that the Company is under no obligation to retain the services of a pupil at the end of his apprenticeship, and that the privilege of working as an improver in the drawing office is only granted in cases where pupils have shown aptitude and interest in their work, and are specially recommended for the concession. The privilege cannot be claimed as a right.

The Company also retains the right to dismiss a pupil at any time of his apprenticeship, should his conduct or behaviour render such a step to be, in the opinion of the Locomotive Superintendent, necessary. No claim for refund of any portion of the premium already paid can, in this case, be made or entertained.

The standard rates of premium recovered from pupils are—

For an eighteen months' course, Rs. 300.

For a three years' course, Rs. 500.

The periods spent in the several shops are varied in each case in accordance with the necessities; or, where the pupil requires special training in metal, wood, or other branches of work, in some cases certain shops are omitted altogether, or the periods spent in them curtailed.

In the case of Government pupils, the premium has, in some cases, been paid half by the Government and half by the pupil himself.

The privilege of spending a portion of the eighteen months' or three years' course, as the case may be, in the drawing office, is only granted to pupils who have done specially well. As a general rule it is not recommended that any portion of the workshop course should be spent in the drawing office, the time allowed being all too short for the practical work.

(Signed) EDGAR THURSTON,
Secretary to the Committee.

ORDER—No. 500, Educational, dated 11th October 1900.

The report read above was submitted to Government in the autumn of 1895 by a committee appointed earlier in that year to enquire into several questions connected with the Madras School of Arts. Owing to various causes the Governor in Council has hitherto been prevented from passing orders; and as the tenure of the present Superintendent's appointment will expire within the next half year and the arrangements for the conduct of the institution will then, for some time to come, be tentative and experimental, it would not serve any useful purpose to discuss the recommendations which the report contains. There was some divergence of opinion between the gentlemen who presented it; and while the remarks both in the report itself and in the notes appended to it were of much interest, the Government could not entertain many of the suggestions which were made; the numerous schools of instruction, for instance, which the committee desired the Government to establish would have been absolutely beyond the means of this Presidency. Much that has been placed on record will be of service to the Educational department, and the Government will give due consideration to any proposals which may be made by the Director of Public Instruction, in the future, to carry into effect some of the minor recommendations in regard to particular industries. It now only remains for the Governor in Council to express his thanks to all the members of the committee, to Mr. Thurston, the Honorary Secretary, and to those who assisted the committee with their special knowledge.

(True Extract.)

M. HAMMICK,
Ag. Secretary to Government.

To the Director of Public Instruction,
E. Thurston, Esq.

Exd. A. Rangaswamy Aiyangar.

NOTES CONNECTED WITH G.O., No. 500, EDUCATIONAL, DATED
11TH OCTOBER 1900.

[SUBJECT.—*Reorganization of the School of Arts.*]

The current is the report of the Committee appointed in the G.O., No. 471, Educational, dated 7th June 1895. Certain points in the policy of Government in regard to technical education have already been decided upon. In G.Os., No. 872, Public, dated 19th October 1895, and No. 916, Educational, dated 4th December 1895, Government has declined to give the Victoria Technical Institute's Council more accommodation in the new buildings in the Pantheon Road than a room for its library and a small theatre for lectures, and has declared that the Council's claim to supervise, direct and advise as to the steps which should be taken to promote the cause of technical education is inadmissible. All further action therefore to advance technical education must be taken by Government itself. [The Council's reply (C. No. 1454) to the orders laying down this policy is put up for perusal, and it is proposed to deal with it separately.]

The report would have been much more useful if it had contained categorical answers to the questions asked. As it is, it does not advance us much.
H. W. B[LISS].

The claim was a claim to exclusive power with regard to technical education and this was disallowed, not as the Secretary says in his "reply" a claim "to take part" at all events in advising.
J. G[ROSE].

2. A perusal of the order * appointing the Committee will show the position in which the matter now stands. It has been decided that the teaching both of arts and industries in the "School of Arts and Industries" should be confined to those of them which are carried on locally, and that the function † of the school should be not so much to discover new arts and industries as to train artizans to perform with intelligence the more delicate operations in those which are already established. At the same time industries in which adequate training exists in other institutions are to be excluded from the curriculum of the school. It has also been decided that the school is not to be a training school for drawing masters; that the superintendent of the school is to be an inspector of industrial and technical schools; and that the courses of instruction set out in the educational rules and in the Government technical examinations notification should be followed in it. The Director of Public Instruction has been asked to report his views on the subject of the grant of scholarships, of the training of technical teachers, of the details of the scheme for the inspection and examination of technical schools, of the advisability of encouraging the local industries referred to in Mr. Havell's industrial survey reports, and of the arrangements for general education in the school. Other matters awaiting orders are the re-entertainment of Mr. Havell, the construction of a tiffin shed in the school (G.O., No. 915, Educational, dated 29th November 1894), Mr. Lewis' suggestions for improving the working of the school (G.O., No. 124, Educational, dated 13th February 1895). Mr. Pinto's suggestion about accounts and the distribution of the work among the office staff in the school (G.O., No. 831, dated 19th October

* G.O., Nos. 471, 472, Educational, dated 7th June 1895.

† Vide paragraphs 1, 2 and 3 of G.O., Nos. 471, 472.

That is, that though it may teach drawing the men should be trained to teach it to others elsewhere.
J.G.

1895), and the minor points in the organization of the school marked with a blue cross in the margin of Mr. Butterworth's printed note in the original of G.O., No. 471, dated 7th June 1895.

3. The instructions to the committee are contained in paragraphs 5 and 6 of G.O., No. 471, Educational, dated 7th June 1895, and a summary of the conclusions arrived at by them is to be found in the last paragraph of their report. It is submitted that these conclusions, though they look well at first sight, are most of them disappointing when examined from a practical point of view. To take them in order, the first is—

They assist us very little.
J. G. [ROSE].

(1) (a) The maintenance of a high standard of design and decoration. This is already the main object of the school and its furtherance requires no reorganization in the working of the institution. Connected with it is No. (2), and this latter appears to be worthy of strong support. An examination of the architectural details of the new museum and Connemara library will show at a glance how much room for improvement there is in this direction. The details of the brackets in the library, the ceilings and the capitals of the pillars there (the latter of which are apparently intended to be corinthian, but have cobras in place of acanthus leaves!) give samples of instances where the assistance of the School of Arts might well have been called in, and it might be laid down that in designing all public buildings which are semi-oriental in style, the Consulting Architect should seek the assistance of the School of Arts in designing ornamental details. Mr. Irwin is shortly retiring from the post of Consulting Architect and the opportunity might be taken to impress this rule upon his successor. The Kodai-kānal Observatory is now under construction and the assistance * of the School of Arts might be called in in designing the details in that building. Steps might also be taken to let private architects throughout the Presidency know that the school is ready to offer advice in this direction. The new buildings which have recently been erected by firms in Madras would have been the better for its assistance.†

Yes.
J.G.
H. W. B. [Liss].
A. E. H. [AVELOCK].
17-5-96.

* I don't see the necessity. As I understand it the building is to be severely plain.

J. F. PRICE.

† They certainly would, but I doubt if the architect responsible for these hideous erections would have asked it.

J. F. P.

It will do them no harm to tell them they may consult the Superintendent.

J.G.
H.W.B.
A.E.H.
17-5-96.

(1) (b) The Government in its order appointing the committee declared that leather industries have been established.

I don't know anything about button-making, nor do I see the use of starting a manufactory of buttons in a country where no buttons are used except by an infinitesimal minority of persons of foreign origin and their few native imitators. As to gold thread, that used to be made in Madras, but the competitions of inferior "French lace," as it was called, was killing the manufacture 20 years and more ago, so that I daresay it is now extinct. Like most other things, it was a simple question of price. The native-made "lace" was far the best, but people would not pay for it. As to paper-making, the competition is already so keen that the existing paper mills are not paying by any means well. Besides, the cost of the starting paper-making would be very great. The capital and recent dividends of the principal paper mills are shown below:—

Mill.	Capital.	Dividend per cent.	
		1894.	1895.
Bally	£1,22,000	6	4
Bengal	Rs. 13,00,000	0	4
Imperial	18,00,000	0	0
Titlaghur	11,00,000	12	12

* Including debentures.

Considering the present value of the rupee, it would probably cost at least 20 lakhs to start a good paper mill. There is a woollen mill at Bangalore, but I don't know if it pays. There is not much demand for woollen goods in this Presidency. There is a soap factory at Bangalore, and another, I believe, at Madras. I don't know if they pay. It would be easy to find out. Binny & Co. run the former, and I believe Mr. Orr knows all about the latter. A soap factory might be a good thing to try, but an efficient superintendent would be costly.

H.W.B.
A.E.H.
17-5-96.

the object of the school of industries should rather be to improve existing industries than to develop new ones, but the committee thinks otherwise. It does not however explain how the school of industries is to proceed to develop these fresh industries, and the only trades which it can suggest as holding out a prospect of eventual successful development are button-making, gold thread-making, soap-making, paper-making and woollen manufactures.† The first three and the last of these are probably unimportant trades in this country

and the last three of them would also require extensive and costly plant to work them. It seems to be rather the business of the capitalist than of a technical school to endeavour to start any of these manufactures.

(1) (c) The improvement of the existing trades through the dissemination of information regarding them would probably be a useful function of the school, but it is submitted that it is useless to require the school to consider this to be one of its main objects in the present state of knowledge about existing trades. It would seem to be necessary to first of all conduct a thorough survey of all established industries in the presidency in order to ascertain in what points the knowledge of those directing them is defective and how the education of the foremen and the coolies working in them would improve their efficiency. It is probable however that were a competent superintendent appointed to the School of Arts, he could without difficulty obtain this information from the heads of firms in the presidency and thus be in a position to advise Government as to the subjects which should be taught in the industrial section of the school, and it might be definitely laid down that this work was considered by Government to be an important part of his duties. Both native and European firms might also

This is the first thing necessary—to get a competent superintendent.

J.G.
H. W. B. [Liss].
A. E. H. [AVELOCK].
17-5-96.

J.G.
H.W.B.
A.E.H.
17-5-96.

be specially requested to assist Government and the Superintendent with suggestions and information upon this subject.

(1) (d) The Committee do not give instances of any of the existing arts and industries which are suffering from degradation owing to European competition, and it is not easy to find any which are worthy of improvement. Dyeing and weaving are probably two industries which were in the minds of the Committee when they made this recommendation, but it is believed that enquiries into the subject have shown that although indigenous dyes are undoubtedly superior in fastness and in colour to aniline and alizarine dyes, yet they can never be produced at prices even approximately as cheap. It seems therefore useless to attempt to bolster up this industry. As to weaving, it is unlikely that hand looms can ever hope to compete with European machinery. The degradation of the Kurnool lacquer work, of ivory and wood carving, and of metal work, such as that manufactured at Tanjore, probably proceeds less from any want of knowledge on the part of the workmen than from the fact that the necessity of producing cheap articles has led to carelessness both in design and work. The School of Arts might improve the standard of design; but it is not clear how, as long as bad work finds a market, the school could prevent bad work being turned out. It is not clear how the influence of the school even in the matter of design could make itself felt in the centres of these industries.

H.W.B.
A.E.H.
17-5-96.

"We may rest assured that so long as the public are content with cheap imitation, so long will the speculators meet their demand and real craftsmanship will be impossible."

Quotation at page 97 of the Public Instruction Report for 1894-95.

J.G.

The workman naturally produces the articles which the dealer and the middleman will most readily accept, and as long as these latter are satisfied with inferior samples, so long bad work and bad design will continue. It is the middleman who requires education, and it is not easy to see how the middleman can be influenced in the right direction. This difficulty is brought out in the proceedings of the Art Conference at Lahore, copy of which is in the file.

(3) * The Committee proposes that pottery and carpet weaving should be continued in the school. The reasons for continuing pottery are given in paragraph 10 of its report. It is submitted that the fact that there is a demand for tiles, fire-bricks and terracotta ornaments is a poor

* From Appendix A to the Committee's report it appears that though "workmen" in the pottery department have been taken into employ outside the school, there are only three of the students who have gained employment since 1884 and none of them "can be considered as following the trade of a potter," and that natives do not use ornamental pottery either in their houses or temples. In the report of 1894-95 Mr. Holder pointed out that Mr. Chisholm had recommended the abolition of this department; that it took up nearly half the space in the workshop and so prevented the enlargement of other more important classes, and summed up the case against it in the following words: "The existence of the pottery department is a hindrance to the development of any of the others, it costs more than any of them and requires more attention, while practically it is of no benefit to the students who learn the art, as they are not able to get employment anywhere, unless they revert to the manufacture of common

500
-20-

4

earthenware, and set up on their own account like other native potters." In his report for 1893-94, Mr. Holder said that it was a manufacturing department not a class; that it served no useful end educationally; and that though it could not be worked successfully in connection with the school, a private firm might make it profitable to themselves and beneficial to the public at large. In his report of 1892-93, Mr. Holder said that with the limits which Government had to impose on the Superintendent as to the sum he could expend on "the first outlay" for getting suitable clay, felspar and other materials he could not make much progress in pottery work. The Committee think that the school should continue this industry as a "pioneer," but it has acted long enough as a pioneer since the School of Industries was started in 1851. It has produced no effect on native trade. The pots used in villages are just the same now as they used to be when the school was established more than forty years ago. The field will no doubt be occupied by Messrs. Arbuthnot & Co. if it is relinquished by the school. Under these circumstances I think it should be abandoned.

* Yes, there are. Arbuthnot & Co. make not only cement but firebricks and floor tiles. I am sure of this, as I have bought firebricks from them.

J. F. PRICE.

No students in carpet-weaving have ever obtained employment as weavers outside the school. The Committee think it should be kept up "in view of their proposal for the establishment of a school of dyeing" though it should only manufacture "small, cheap rugs." I have come to the conclusion that dye works should not be established in connection with the school. In his report for 1894-95, Mr. Holder said: "This department is not popular as carpet-weavers seldom earn more than 8 annas a day, while a carpenter can make thrice that amount; besides it is difficult for weavers to get employment, there being very few carpet-weaving factories owing to the jails taking up the trade." I think this department also should be abolished.

The Superintendent, however, should get information about the clay, &c., and the dyes as suggested in the note.

J. G. ROSE.

I agree as to abolishing the carpet business. It is absurd to talk of "small, cheap rugs of good design." Rugs of Indian make must cost pretty well Rs. 10 a square yard and can never be cheap.

As to the pottery, if as I agree should be done, the Superintendent should set himself to acquire a proper knowledge of the different clays available and of suitable glazes to be used with them for publication for the benefit of the public, he must have the means of testing the materials and of exhibiting the methods regarding which he has obtained information; and he may therefore as well as not impart instruction to such persons as may be willing to learn. But before ordering that he should set to work to get information, we should make sure that he has not got it already. My belief is that he has a good deal.

It should be clearly recognized from the first that, in the absence of a supply of cheap coal, Madras can never become the seat of a flourishing business in the manufacture of pottery. This remark may also be applied to many other industries which have been suggested. Madras is not destined, in fact, to prosper as a manufacturing town.

H. W. B. [LISE].

I agree with the Hon'ble Mr. Bliss.

A. E. H. [AVELOCK].

17-5-96.

paragraph 11 of the report. The duty of the school appears to be to send to England for analysis, in consultation with the Superintendent, Central Museum, samples of the most important clays of the Presidency and to obtain reports from experts there as to the glazes and process of manufacture which would best suit them. The information so gained should afterwards be put in practice in the industrial department and the results made known as widely as possible both by lectures in the Technical Institute and by the publication of pamphlets and monographs on the subject. These analyses could easily be arranged for through the Imperial Institute in London. The objects of the Imperial Institute in this respect are explained in paragraph 3 of the preface to the Handbook of commercial products, a sample of which is put up in the file, and Mr. Thurston tells me that they are perfectly willing to undertake such enquiries. The results of similar enquiries into other subjects are shown in the copies of the Agricultural Ledger also put up in the file.

The arguments for retaining carpet-weaving are given in paragraph 15 of the report. The Committee say that small, cheap rugs of good design are readily marketable in Europe. The function of the department, however, should not, it is submitted, be to manufacture such rugs in large quantities so much as to improve the colouring in the design in the large numbers of these which are already being made and exported by firms in Madras such as Waljee Laljee. Here again the necessity of improving the taste of the middleman arises. The rugs that are now exported could hardly be more hideous in design and colour than they are, and the function of the school should be to improve them in both these directions. To this end it might weave specimen rugs and endeavour to induce the middleman to copy them.

(4) The fourth recommendation of the Committee refers to the discovery which has been made that the School of Arts has been selling everything manufactured

reason for maintaining the pottery department. For this leads to the department becoming a mere factory. It is, however, true that there are no pottery works outside the school and that if the department were closed, want of it would be felt. Messrs. Arbuthnot & Co. are however developing their cement works and it is probable that very shortly this reason for the maintenance of the department will cease to exist. It is submitted that the function of the school should not be to supply the market with potteryware so much as to collect information about the capabilities of the industry and illustrate it and advertise it when collected. Almost nothing is known at present about the clays of the presidency and of the glazes which are suited to them. The difficulties of this subject are explained in

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H. W. B. [LISE]. Yes. This recommendation is obviously good and should be accepted; but we must have information as to the value of the "spoiled" goods and how they can be disposed of. I believe they are of small value and could be utilized at the school, but the Director must report about this.

J. G. ROSE.

There must always be some waste in a place of the kind.

H. W. B.

A. E. H. [AVELOCK].

17-5-96.

(5) & (6) Please see paragraph 3 of the order appointing the Committee, in which Government suggested that electrical engineering, tailoring, dress-making and cookery should be taught at the school. Appendix I on page 25 of the report seems to show that the Committee's recommendation No. 5 is correct. As to tailoring, &c., it is submitted that the dissemination of knowledge on these subjects will not aid in the

I think the Committee are right about these industries.

J. G.

I don't at all agree about the electric business. No doubt the School of Arts had better not undertake to turn out electric engineers, but how about men of a lower stamp. At this moment I am in want of a man to overhaul the bells in my house and to fit some new wires, and I cannot get a workman to do the work, and so shall probably have to do it myself. Why should not the School of Arts turn out men of that kind—workmen not engineers?

As to tailoring, the Committee writes as if the European and Eurasian population of Madras resorted generally to European firms to procure the clothing they wear. But probably nine-tenths of their clothes are made "in the bazaar," as we say. What is wanted is that native tailors should be taught to cut and fit on the scientific system now in vogue in England, where young tailors attend regular classes.

H. W. B.

I agree with the Hon'ble Mr. Bliss.

A. E. H.

17-5-96.

industrial progress of the country, for at present very few tailors and cooks are imported from Europe and the question of improving the dressing and food of the European inhabitants is not so important as the necessity of developing the raw products of the country.

(7) The Committee proposes that the school should be completely equipped with

The proposals that dyeing works and tanning works and leather manufactures should be established in connection with the school must be considered together. With regard to the former the Committee say that there is a distinct field for instruction in dyeing, but it would be necessary that the school should be completely equipped with dye-houses, chemical laboratory, &c., and that the staff should include a European dyeing expert. With regard to the latter they say that tanning, &c., is feasible, but that action on the part of Government is wanted to prove the feasibility and that though no Government tannery exists at present one might be established at Kodambakam or Trivatur. They show that if it is a feasible industry it will be a very large and profitable one—beneficial to the people and the manufacturers. I agree in this and believe that if Government speculated in this way they would gain profit and do good, but I don't think speculation is proper for Government, and I don't see how such a great commercial venture can be imposed on the school. There would have to be a great initial expenditure on buildings, apparatus and materials and an expert chemist would have to be added to the staff. A vast addition would have to be made to the premises (see paragraph 30).

The encouragement of dyeing and tanning seem to be matters not for a school of arts and industries but for capitalists who want to invest capital in trades. At all events the expenditure makes it impossible for Government to undertake them.

J. G.

I agree. But it should be the business of the Superintendent of the school to collect and disseminate sound information as to dye-stuffs and tanning.

H. W. B.

A. E. H.

17-5-96.

Madras to take the lead in encouraging the use of aniline as opposed to indigenous dyes. It is submitted that instead of importing an expert, enquiries into the capabilities of indigenous dyes should be made through the Imperial Institute by specialists at home. A sample of the information which might be obtained in this way is the monograph on the Al dye put up in the file. The information so obtained

within its walls, whether the design or workmanship is faulty or not, as long as it was not actually broken. It is submitted that the necessity of stopping this practice requires no argument and that instructions may be issued to the Superintendent that in future only work of good design and workmanship should be sold.

which Government suggested that electrical engineering, tailoring, dress-making and cookery should be taught at the school. Appendix I on page 25 of the report seems to show that the Committee's recommendation No. 5 is correct. As to tailoring, &c., it is submitted that the dissemination of knowledge on these subjects will not aid in the

might, as before suggested, be disseminated by means of lectures, demonstrations and pamphlets, special care being taken to ensure that the real dyers were acquainted with the matter.

By "Printing" is meant printing on fabrics. The school might doubtless add

I don't see that there is any scope for this in India.

H. W. B. [Liss].
A. E. H. [AveLOCK].
17-5-96.

much to improve existing designs, but here again the difficulty of educating the public and the middleman arises; as however this branch would only form part of the school of design, there seems to be no objection to permit its introduction. A few looms might be maintained in the school as a further means of demonstrating the principles of design taught in it.

(8) The Committee's report shows that the Government tannery* consists at present of two boilers lying on the glacis of the fort and two engines which are still packed in their cases in the Government arsenal.

* The idea of having a tannery here for the Military Department has been definitely abandoned.

J. F. PRICE.

It is proposed, however, that the tannery should be made a reality and a school of tanning and leather manufacturing opened in connection with it. To adopt this recommendation would probably cost several lakhs, and it is submitted that the reasons in favour of it require to be carefully scrutinized. Paragraphs 24-27 show that the subject of leather-tanning and manufacture is of importance in this presidency. But it appears to be the fault of the capitalist connected with the trade rather than of Government that improvements have not been introduced into it. One of the witnesses examined by the Committee admitted that the Bangalore process of manufacture was better than that followed in Madras. Madras, however, has apparently not taken the trouble to copy the process. It seems very likely that if the Madras tanners and leather merchants went to Cawnpore to examine the system followed there and adopted such parts of it as were improvements on the Madras system, Madras leather would soon be as good as Cawnpore leather. It seems likely that if sample hides were transmitted to experts in England, they could at once point out the directions in

Who is to lecture? Most of the native tanners do not know English.

H. W. B.

Technical Institute. This would be a far cheaper method of placing the tanners in Madras in the way of improving their industry than the establishment of a Government tannery with experts from home in charge of it. The Military department may, however, be asked whether they propose to establish (see note ante) the tannery for which the boilers and engines were imported. If they choose to do so, classes in connection with it might be organized; but it is submitted

I think it would be quite worth while for the Military Department to establish such a factory near Madras, but the Military department is not under us.

J. G. [ROSE].
A. E. H.
17-5-96.

that the educational benefits to be derived from the establishment of a Government tannery are not of themselves likely to justify the sum it would cost.

(10) In the notes and orders in the original of G.O., No. 471, dated 7th June 1895, it was directed that Dr. Duncan's suggestions that the educational standard for admission into the school should be the third standard, and that general education in the fourth and fifth standards should be given in the school, should be accepted.

I think Dr. Duncan's recommendations should be accepted. Some literary teaching is absolutely necessary.

J. G.
H. W. B.
A. E. H.
17-5-96.

(11) This recommendation appears to be very worthy of adoption. Wood-engraving would work in well with the school of design and paragraph 32 of the Committee's report shows that the demand for engravers is large and but for Mr. Holder's injudicious restriction upon the admissions, many boys could have found employment in this direction. At present it is almost impossible to get wood-engravings of any merit done in India.

The recommendations that "the wood-engraving classes at school should be expanded" seems to me good.

Any way there can be no harm in teaching all who present themselves and are willing to pay a moderate fee.

J. G.
H. W. B.
A. E. H.
17-5-96.

(12) As submitted above there appears to be real need for the survey of the arts and industries of the Presidency. Mr. Havell's survey was almost entirely artistic, and though his reports are interesting, they are not of much practical use. The industrial survey may be said to be untouched. The Committee think (*vide* paragraph 4 of the report) that this should be done by the Technical Institute, but it is not clear how the Council is to find sufficient funds for the purpose. It is submitted that an energetic Superintendent of the school might well manage to carry out this survey gradually in addition to supervising the school and inspecting technical institutions in the Presidency. From paragraph 8 of the Director of Public Instruction's letter in G.O., No. 872, Public, dated 19th October 1895, it appears that he also would entrust such work to the Council. It is in fact almost the only direction along which Government has left it open for the Council to proceed and perhaps it would be as well to let them see what work they could do under this head.

The Committee say rightly that such survey is not work for a school of arts, &c., but it is right work for a Superintendent of the school, supposing he has time for it, which I think he will have.

J. G. [ROSE].
H. W. B. [Liss].
A. E. H. [AveLOCK].
17-5-96.

He will have, I daresay; but if he is to tour he must have a trustworthy and capable second in command.

I would rather let them cease to exist.

J. G.

It is doubtful whether the Council as at present constituted could bring itself to work in harmony with Government; but seeing that its 75 original life members are now reduced to four and that two more members of the Council have only very recently privately signified their intention of resigning as soon as possible, it seems likely that the Council will soon be a negligible quantity in technical education.

4. It will be seen that three members of the Committee considered that the school should be under the management of a Board of Trustees composed mainly of commercial men. The arguments in favour of this proposal are given in paragraph 12 of Messrs. Crole and Chambers' note. It is submitted that the reasons there given for this step would disappear were the Superintendent of the school to consult commercial authorities, as suggested above, as to the directions in which technical education is necessary, and were the industrial survey of the presidency above alluded

Messrs. Crole and Chambers (Mr. Adam agreeing) say "it is not only hopeless but unfair to saddle the Director of Public Instruction who is imbued with the traditions of university life with a task to the execution of which he can bring neither knowledge nor practical experience." I do not see this. Dr. Duncan's training has been such as to fit him for the position. The passage on Technical instruction in the report on Public Instruction for 1894-95, paragraph 165, page 94, shows that he is fully alive to all sides of the question and that the imputation of "want of knowledge" is unfounded. The report of the "Secondary Education Commission", dated the 13th August 1895, shows that thinking men in England have at last come to the conclusion that technical instruction should not be separated from the rest of education. At page 260 (paragraph 7) the Commission say: "We think that the Science and Art department ought to be absorbed into the reconstituted and enlarged educational office." Dr. Duncan's want of practical experience can be remedied by a consultative committee, such as the majority of the School of Arts Committee have recommended. Messrs. Crole and Chambers think it would be impossible to induce men of the right stamp to serve on such a committee, because the Director might negative their recommendations. I do not think so. What would happen if the school were entrusted to such a Board as Messrs. Crole and Chambers recommend is shown by the present report. The money of Government would be wasted in projecting schemes for establishing such works as dye works and a tannery. So long as Government have to spend a large amount of public money on the school, they must get their most suitable officer to supervise it and be responsible for it and this officer is the Director who is all the more suited to it because he attends to the literary side of education and has an educational staff to assist him.

H. W. B.

J. G.

to conducted in a thorough manner. Beyond the fact that a Commercial Board of Trustees would have practical knowledge of the subjects in which instruction is most called for, there appear to be no advantages whatever in entrusting the school to their management. The average merchant has, as Dr. Duncan says, only an amateurish acquaintance with the principles of technical education and could not probably be trusted with safety to do more than advise as to the directions in which it should be encouraged.

5. It is true that the view taken in the note above leaves the School of Arts and Industries little more than a school of design, but it is submitted that it is much open to question whether the time is ripe for Government to take any wider action upon the subject. Outside of the clamours of the Council of the Technical Institute, there appears to be very little real call for any expansion of the existing scheme of Government technical education. The Committee argue from the precedents in England and Europe, but the conditions there

None, I should say.

H. W. B.

and in India are radically different. There, there are many industries firmly established and employing large capitals, and it is intelligible that, under such circumstances, technical education should be of the greatest value. Here we have very few industries with but little capital sunk in them, and the need for technical education and the scope for it is consequently much more limited. The Council think—*vide*

It would be wrong to teach a man to swim on dry land when water is near, but it would be useless to teach an Arab in the centre of Arabia to swim.

J. G[ROSE].
A. E. H[AVELOCK].
17-5-96.

capital to engage in commercial undertakings. The capital must be present before the education can have scope, and capital is very timid, or very unenterprising at present. Appendix C attached to the Committee's report shows, moreover, that almost every branch of technical education is already provided for either by the trades or by the existing private and Government schools and institutions. The technical institute Council in paragraph 21 of its reply to G.O., No. 872, Public, dated 19th October 1895, current No. 1454, suggests by implication that the Government is to blame for not encouraging technical education by making some branch of it compulsory in the examinations which qualify for Government service and the Bar. If this were done, it would be necessary that every High school in the Presidency should qualify itself, by

please paragraph 18 of current No. 1454—that this view amounts to saying that no one should go into water until he can swim, but it is submitted that it is doubtful whether any amount of technical education will of itself suffice to encourage

Mr. Adam advocates as "the most important and indeed essential branch of any working scheme" for technical education the establishment of technical-recreary schools. These schools would teach "English, Mathematics, Geography, Drawing, Mensuration, Physics, Chemistry, (Inorganic) and the use of tools (carpenter's and turning)," so they would need a large staff in addition to the staff now entertained for secondary schools. Messrs. Crole and Chambers are not prepared to prove the point now because Dr. Duncan has assured them that the literary portion of such a curriculum can be found outside, but they believe such a plan will have to be adopted eventually. I do not believe such schools are wanted now. The fact that they did not spring up when the Upper Secondary examination was established proves this. When they are wanted they will attract private enterprise and capital and it is in accordance with our general policy to leave the establishment of such schools to private enterprise. The Educational grant would have to be greatly increased if Government undertook the establishment of such schools.

J.G.

result would be that the subjects would be learnt in a parrot fashion up to a point sufficient to enable a candidate to scrape through the examination and no more and in any case the best of them could not hope to compete with experts taught in the schools in England where the teachers and the apparatus are immeasurably superior to those available in this country. Some definite pronouncement as to the Government's future policy in regard to technical education will, however, be looked for in the order on this paper. For in G.O., No. 813, Educational, dated 25th October 1894, paragraph 2, and again in paragraph 2 of G.O., No. 872, Public, dated 19th October 1895, Government has distinctly said that consideration of the steps which should be taken to advance technical education will be taken after a decision upon the questions surrounding the reorganization of the School of Arts has been come to. It seems probable that had the experts imported from Europe to manage the School of Arts and the College of Agriculture at Saidapet pushed themselves and their departments more energetically than they have done, the outcry about technical education would never have arisen. (The Committee does not, it is true, allude in its

As regards our scheme for technical education nothing need be changed. I agree with Dr. Duncan that it is framed on right lines. It is set forth at length and with approval in the note on technical education prepared for the Viceroy. Dr. Duncan has shown that he understands it, appreciates the importance of the subject, will devote earnest attention to it and will promote it as quickly as the circumstances of the country permit him to do so. Our greatest want now seems to be the want of inspectors to see that training in industrial schools is properly conducted. Mr. Ellis points this out in the letter stitched with G.O., No. 813, Educational, dated

obtaining adequate apparatus and trained teachers, to instruct its boys up to the standards in science which are demanded by the examinations. This would, of course, entail great expense upon such schools and it is doubtful whether qualified teachers would anyhow be obtainable. Even however were the funds and the teachers procurable, it appears to be doubtful whether the boys who learn these subjects could apply them in such a way as to earn their living by them. It is believed that of the many pupils who are annually taught science in the Presidency College, Madras, very few indeed are enabled to find openings for the employment of their knowledge. The

report to agricultural education, because the subject referred to them was reorganization of the School of Arts, but certain of its members have publicly blamed Government for want of energy in advancing agricultural education). It has not been represented that the instruction obtainable in Electricity, Mechanical Engineering and Chemistry is worthless and calls

25th October 1894. Much has been done now that the Superintendent of the School of Arts has been made an Inspector of Industrial and Technical Schools. The provision of inspectors will cost money. We must have proposals on this subject to emanate from the Director, whose attention has already been drawn to it.

J. G[ROSE].

I really can't see that anything has been done. It has been *vox et praeterea nihil* up to the present. Nor can I see that inspectors are needed until there are more technical schools to inspect. At present, I believe, there are only three or four schools that at all answer to this description.

H. W. B[LISS].
A. E. H[AVELOCK].
17-5-96.

I do not know what they could have done.

J.G.

for decided action on the part of Government, and this seems to be merely because the experts who have been placed in charge of those branches have done their work satisfactorily. The School of Arts, on the other hand, has been in the charge for several years of Mr. Holder who has been declared in a Government Order to be unfit for the post of Superintendent and on whose slackness and demerits it is unnecessary to enlarge. The experts in charge of the College of Agriculture have similarly been to blame for want of initiative and energy. It is submitted that it should be the business of these experts rather than of Government to originate improvements in their own special departments and that it is because they have neglected to do this that the present clamour for large schemes on the part of Government has arisen. The Committee's proposals usually end with the suggestion that an expert should be brought from home to teach the subject under discussion, and be supplied with all the apparatus he requires. But probably knowledge of the economic products of the country and the best way of developing them and establishing industries to exploit them can be more cheaply and better gained through the Imperial Institute in the manner already suggested than by importing at great cost second rate experts to study them under no supervision in this country.

6. One point which appears to call for very early orders is the question of the re-entertainment of Mr. Havell in the School of Arts. It was ordered in G.O., No. 471, Educational, dated 7th June 1895, and again in G.O., No. 831, Educational, dated 19th October 1895, that this question should lie over, pending receipt of the Committee's present report. Government has, however, definitely decided in the former of its Orders that the School of Arts should be retained and it is probable that in consequence of the present discussions, the functions of the Superintendent will become much enlarged. It is therefore necessary to obtain some one who should be a gentleman by education and of wide interests rather than a mere Art instructor to be in charge of the school in future, and it appears to be unnecessary

I think we had better try to get Mr. Havell. He has shown great faults, as I have mentioned in a paper recently circulated (enquiring from the Secretary of State as to whether he would be fit for the school at Calcutta), but he is good in many respects and knows the country.

J.G.

It seems to me a case of *forte de mieux*. He would probably be more useful than an entire stranger to the country and has perhaps by this time "got sense," as the natives say.

H. W. B[LISS].
A. E. H[AVELOCK].
17-5-96.

obtaining a more satisfactory candidate. Several of the recent importations of the Secretary of State have been doubtful successes. If it be decided to re-employ Mr. Havell, action should be taken at once, for it appears from other sources that he is looking out for employment elsewhere.

7. The points marked with a blue cross in the original of Mr. Butterworth's note for orders in G.O., No. 471, Educational, dated 7th June 1895, remain for decision; but until some definite idea has been come to

Yes, a separate note should be submitted. If the pottery department is abolished, for instance, there will be much less need for a tiffin room.

J.G.

to postpone any longer the decision as to whether Mr. Havell should or should not be re-employed. The Secretary of State has already stated that it is exceedingly difficult to obtain any body to take up such a post as a Superintendent and it is submitted that it would be better to employ one about whom much is known and who has many good points rather than to trust to the chance of the Secretary of State. Several of the recent importations of the Secretary of State have been doubtful successes. If it be decided to re-employ Mr. Havell, action should be taken at once, for it appears from other sources that he is looking out for employment elsewhere.

W. FRANCIS.
21-12-95.

I consider the report of the Committee a disappointing one. It is to my mind a disjointed sort of affair—the result, I presume, of the composition of the body from which it purports to emanate. If the school is to maintain a high standard of design and decoration, there must be an artist trained in this particular branch employed in it, if not as the head of the school certainly as a teacher. That the standard of the school as regards design and decoration would not be the better for reorganization of the staff or method of working is, I think, somewhat open to question.

2. The second of the suggestions of the Committee would, judging from the example given by the Under Secretary—the decoration of which is hideous and inartistic to a degree—appears worthy of consideration.

3. I must say that I do not see why the recommendation to retain the pottery and carpet-weaving departments should be accepted. The former is really a manufactory and the latter is not wanted. Arbutnot & Co., whose cement and brick and tile works are in the hands of a skilled Superintendent, will very soon cut out the School of Arts and Industries in this respect and would probably have done this long ago had it not been bolstered up by doing work (with paid-cooly labour) for Government departments. Where is the slightest indication of the improvement of pottery outside the walls of the school? I have never seen any. As for carpets the jalls turn out some beautiful designs and the workmanship of Vellore is of very superior quality—second only to Agra. Dozens of skilled workmen in this branch are turned out from the jalls; the teaching of carpet-weaving in the School of Arts seems quite uncalled for. As far as I am aware it has not had the slightest effect.

4. The suggestion that rubbish should not be sold by the school is a very proper one and should, it is submitted, be at once acted upon.

5. Nos. (5) and (6) call for no remark.

6. As regards the recommendation that a school for dyeing and weaving and printing and a Government tannery should be established, there can be no doubt that instruction by experts in these arts would do much to develop them and improve the quality of work turned out, but in establishing a school and tannery a very large initial outlay would have to be incurred, there would be heavy annual charges and Government would have to enter into competition with private enterprise or if it did not exactly do that take out of the pocket of private persons the money which would otherwise go into it.

Where is the money to come from? Why if instruction is so much needed and likely to be a source of profit do not the Hon'ble Mr. Chambers and M.R.Ry. Teagaroya Chetty start dye works and a tannery under experts? Why should Government pay the shop? If however Government favours the proposal matters should be carefully gone into and the cost fully reckoned before anything definite is done.

7. The suggestion that no pupil who has not passed the primary examination shall be admitted into the school appears a good one: there is one objection though—what about the artizan class, the very one of which it is wished to get hold?

8. What is said as regards expanding the wood-engraving class is worthy of consideration: the wood-engraving which one sees in India is something too awful.

9. That the survey begun by Mr. Havell should be continued is very desirable, but the Committee does not say by whom, if the Superintendent of the School is not to attend to it, it is to be carried on.

10. The note by the Hon'ble Messrs. Crole and Chambers indicates the views of the minority as to the way in which the present unsatisfactory state of the School of Arts is to be remedied: the cure is a "small board of trustees composed mainly of commercial men." The Director is to be deposed and the board is to have "full responsibility and complete control of the funds, subject to amenability to Government alone." Comment upon this proposal is uncalled for. Government have absolutely refused to entertain a similar one in the case of the Technical Institute and I presume has no intention of doing otherwise in this case. One could cut up what the Hon'ble gentlemen say very considerably, but it seems needless to do this.

J. F. PRICE.

8-4-96.

I was for some time in doubt whether if pottery and carpet-weaving were taken away and no departments added to the school it would be important enough to retain. On the whole, I think it would be. In artistic division I the teaching of drawing is very useful. It would be a mistake if the school were a mere drawing academy, but it is not. Design, modelling, wood-engraving, copper-plate engraving and architectural drawing, which are all taught in the division, are important. Division II, in which a higher class of drawing, painting and sculpture are taught, supplies a great want and only requires to be better known to be well patronized. The industrial subjects, cabinet-making, silversmith's work, jeweller's work, decorative painting and lacquer work are all important.

J. G. [ROSE].
15-2-96.

The end of it all seems to me likely to be that we shall be left much where we were. But as no one seems able and willing to give us any practical advice, I do not see how this can be avoided, however much it may be regretted. The truth is the country is not ripe for any considerable development of technical education and will never be until general education has extended much more widely and much lower and until cheap coal is available for the prosecution of industrial enterprises on a large scale.

H. W. B. [LISS].
25-4-96.

I can arrive at no other conclusion than the above,—as a result of a perusal of these papers.

A. E. H. [AVELOCK].
17-5-96.

I should like to see the draft of the order prepared on this note.

A. E. H. [AVELOCK].
17-5-96.

Draft from orders.

His Excellency the Governor in Council is now in a position to pass orders upon the future scope and constitution of the Madras School of Arts; but before doing so it seems desirable to sketch the circumstances which have brought the matter up for decision.

2. In his despatch No 128 of 9th November 1893, the Secretary of State questioned whether the Schools of Art in India served any useful purpose, and suggested that they might be converted into elementary technical schools and transferred to the control of municipalities or of private bodies. On receipt of this despatch the Government of India convened an Art Conference at Lahore, and invited the opinion of the local Governments on the resolutions of that Conference which were in favour of maintaining the schools on the existing basis. This letter of the Government of India was communicated to the Director of Public Instruction for report.

3. In his letter of 28th January 1895, the Hon'ble Dr. Duncan contended that the institution was the only one of its kind fitted to supply schools with teachers of drawing and of industries capable of ornamental treatment; that it had helped to train the young of the artisan and working classes to earn a better livelihood than they could otherwise have earned; and that it had contributed both directly and indirectly to a steady improvement in the artistic tastes of the people, and in the style and workmanship of several of the products of indigenous industries. He reviewed the scheme of teaching and defined it as "instruction in drawing, painting, design, modelling, engraving in wood and copper, jeweller's work, silversmith's work, carpentry and cabinet-making, carpet-weaving, pottery and porcelain manufacture, and in such other industries susceptible of artistic treatment as might hereafter be introduced." And he strongly urged that the school should remain a Government institution. He understood indeed that the Council of the Victoria Technical Institute had offered to take it over on condition of receiving an annual grant equal to its present net cost, but he saw no advantage to Government in a mere

relaxation of control over undiminished expenditure, nor to the school in passing under a body of gentlemen possessing neither the technical knowledge nor the leisure sufficient to ensure efficiency.

4. In Order No. 471, Educational of 7th June 1895, the Government announced its views both on the Director's opinions and on the Resolutions of the Lahore Conference. It entirely concurred in the view of the Conference that the Schools of Arts must be retained as Government institutions. As to the Director's eulogy of the results achieved by the school in the past, it desired to be supplied with further information. But it did not follow him in restricting the industrial instruction to such industries as are susceptible of artistic treatment. On the contrary, it suggested tailoring, dress-making, cookery, tanning (with practical instruction in a Government tannery), and electrical engineering. It even contemplated a system of apprenticeship to certain occupations in which adequate training was already to be had elsewhere, viz., printing, boot-making, type-writing, book-binding, iron-working, brick and tile-making and farriery. To enquire into the whole subject the Government resolved to appoint a Committee under the presidency of the Hon'ble Dr. Duncan. The general question referred for their consideration was, "by what means could the school best turn out young men fully equipped with the knowledge which would enable them to undertake work in the various industries which were carried on in the country." They were also requested to report whether the objects of the industrial side of the school should be changed or not; on the method and extent of the instruction in the various industrial subjects at present, and the means, if any, of improving it; how far the instruction given at the school could be supplemented by sending students to the railway workshops, the Government brickfields and similar institutions; and whether a technical school should be added to the School of Arts, and, if so, what subjects should be taught in it.

5. On the same date His Excellency the Governor in Council communicated to the Government of India his views on the suggestions made by the Secretary of State. The withdrawal of State aid from the School of Arts was deprecated; the opinion was expressed that there was no other public or private body which could take the place of Government in its maintenance; and the Government of India was informed that the whole question of the reorganization of the School of Arts had been referred to a Committee for report, and that meanwhile no material change would be made in the policy at present pursued with regard to its management.

6. The Committee examined a number of expert witnesses on the dyeing of textile fabrics and on tanning and the manufacture of leather. They also had the advantage of considering memoranda on pottery and on carpets, prepared by Mr. Holder, Officiating Superintendent, School of Arts; on electrical engineering, by Mr. Jones, Professor of Physical Science, Presidency College; and on railway workshops, by Mr. Phipps, Locomotive Superintendent, Madras Railway Company. They submitted their report on the 25th September 1895. It deals with a variety of interesting subjects, and the thanks of Government are due to the members of the Committee, to the Honorary Secretary Mr. Thurston, and to the experts who were good enough to assist the Committee with their special knowledge.

7. Before proceeding to pass orders on the recommendations of the Committee, it is necessary to refer to the attitude assumed by the Secretary of State on receiving the views of the Government of India on his suggestion to convert the Schools of Art in India into elementary technical schools. In his despatch No. 9 of the 6th February 1896, the Secretary of State acknowledged that the papers laid before him by the Government of India had convinced him that it was not expedient to withdraw State aid and control from the Indian Schools of Art, and that public expenditure on them was justifiable on the condition that they should be so directed as to be really beneficial to Indian art; and he proceeded to lay down the lines on which they should move. Those schools, His Lordship considered, came nearest to fulfilling their purpose, which devoted themselves, after the elementary teaching of drawing, to practical instruction, illustrated by choice examples in the art of the wood-carver, the enameller, the embroiderer, and the artist in metals, applied to the native industries which were susceptible of decorative treatment.

It was further observed that each province should work out its scheme in the interests of the indigenous arts which were special to its own locality. Nor was it proposed that there should be no distinction between the School of Art and the technical school proper. The despatch continued—

"But inasmuch as Indian art is art applied to industrial productions manufactured by the artist himself, the Schools of Art (or industrial art) and the technical school are very nearly allied, though not identical. Both alike require excellence of workmanship as a condition of efficiency, but the technical school cultivates intelligence in the interests of utility, while the School of Art teaches the workman how to dignify utility by the addition of beauty in ornament and design. By patient insistence on these principles it is possible that the Indian School of Industrial Art may do good service in perpetuating those special qualities of certain Indian handicrafts which are interesting and valuable both on their own merits and as characteristic of the distinctive genius of the races of India."

8. It will be seen that the policy enunciated by the Secretary of State conforms to the scheme of instruction which has hitherto been in force in the Madras School of Arts, and which the Hon'ble Dr. Duncan defined in its industrial aspect as instruction in such industries as are susceptible of artistic treatment. It falls, therefore, to this Government to determine between the maintenance of this policy and the adoption of the wider system which should include instruction in mechanical industries as suggested in the order constituting the Committee. His Excellency the Governor in Council has given the matter the most earnest and detailed attention, and has arrived at the conclusion that the School of Arts is working within its proper province, and that the suggestions put forward in G.O., No. 471, Educational, dated 7th June 1895, require to be reconsidered. In arriving at this determination, His Excellency in Council has naturally attached great weight to the analogies of other similar schools in India and to the judgment of the Secretary of State. At the same time it has been perceived that progress in the mechanical industries, however much an object which Government must always have at heart, has in its development no necessary connection with instruction in the artistic industries with which the School of Arts is concerned. That school therefore will continue in the future to work on the lines delineated by the Director of Public Instruction in his letter of 28th January 1895.

9. This decision renders it unnecessary to deal at any length of detail with the recommendations of a Committee formed to embody the wider policy which has now been definitely abandoned. It will be sufficient to remark shortly on the following conclusions summarized by the Committee.

10. (1) *The main objects of the school should be—*

- (a) *the maintenance of a high standard of design and decoration;*
- (b) *the development of fresh industries, adapted to the requirements of the country;*
- (c) *the improvement of existing trades, through the dissemination of information, without entering into competition with them;*
- (d) *the improvement of such existing arts and industries as are suffering from degradation owing to European competition and other influences.*

Subject to the restriction which has already been laid down regarding industries capable of artistic treatment, no objection can be taken to this definition. The Secretary of State has already been requested to send out a competent Superintendent, and this officer will be required to acquaint himself, as far as his ordinary duties permit, with the established industries of the country, so as to be able to advise Government on the subjects which should be taught in the industrial section.

(2) *The school should co-operate with the Department of the Consulting Architect to Government in the work of keeping the design and decoration of public buildings up to an adequate artistic standard.*

This seems worthy of adoption. In future, when engaged on public buildings, oriental or semi-oriental in style, the Consulting Architect should seek the assistance of the School of Arts in designing ornamental details. Private architects too, when engaged on any building of importance, will be at liberty to consult the Superintendent for advice in this direction.

(3) *The pottery and carpet-weaving departments should not at present be abolished.*

As to the former, the Government concurs, but the school should not aim at supplying the market with pottery ware. It should collect information about the capabilities of the industry, and publish this with illustrations. The clays should be sent to England for analysis, the glazes studied, and experiments made in the school, the results being made known as widely as possible.

As to carpet-weaving, the Committee note that no students trained in the class have ever obtained employment as weavers outside the school; however, they recommend its retention in connection with a school of dyeing which they propose. As it is impossible to accept that proposal, the weaving of carpets will no longer be taught in the school.

(4) *In those departments of the school which are engaged in Art * * * only work of good design and workmanship should be selected for sale.*

This is no doubt essential. The Director will submit information as to the value of such goods now in hand as must be rejected, and suggest a method of disposal.

(5) and (6). *It is unnecessary to teach electrical engineering; and tailoring, dress-making and cookery are not suitable industries for Government to embark in.*

These views are accepted.

(7), (8) and (9). These conclusions will be treated of below.

(10) *No pupil should be admitted until he has passed the Primary Examination; and all literary education should be obtained outside the school.*

Here the Committee appear to have gone too far. The third standard may be accepted for admission; and general education in the fourth and fifth standards may be given in the school.

(11) *The wood-engraving classes should be expanded.*

The recommendation is accepted.

(12) *The Survey of the Arts and Industries of Southern India commenced by Mr. Havell (late Superintendent) should be continued systematically, but not by the Superintendent.*

Perhaps the Victoria Technical Institute may find itself in a position to undertake this work; otherwise Government will gladly see it entrusted to the new Superintendent, if he can, in the opinion of the Director, find sufficient leisure for it.

11. The seventh, eighth and ninth conclusions recommend that in connection with the school there should be opened schools of dyeing, printing (on fabrics), weaving, tanning and leather manufactures—that for this purpose new buildings should be provided—and that a Government tannery should be established. The report guards itself against this list being considered exhaustive. If the schools now mentioned should be found to exert a beneficial influence, other industries should be similarly taken in hand, and the Committee see a prospect of eventual successful development in the making of buttons, gold-thread, soap, paper and woollen manufactures (report, paragraph 29).

12. The general considerations already set forth show that most of these activities would be out of place in the school. It would be beyond its province as now determined to teach processes, unconnected with art, for making soap or currying skins or manufacturing buttons.

13. But apart from the question of the school, it appears to Government that it is being invited to step beyond its proper sphere of energy. The facts and figures adduced by the Committee appear to show that a well-equipped tannery near Madras might be a very large and profitable concern. But it seems incorrect in principle that Government should engage in such a commercial venture; that is the part of the capitalist. Nor considering the various calls upon the public finances, has Government the funds to engage in such speculations. A similar remark applies to the expenditure which would be required to start and work the numerous schools of instruction which have been suggested. The class-rooms, the laboratories, the dyeing or tanning houses, the apparatus including apparently machinery, the staff of European experts would require enormous sums from which, it is feared, no adequate return could ever be expected, but which at any rate are absolutely beyond the means of Government.

14. It has already been decided that it is useless to maintain a class for weaving, but that industry as well as printing (on fabrics) will be indirectly benefited by instruction in designing and by the exhibition of specimen carpets, blocks and dyes. The Superintendent will collect and disseminate information about dye-stuffs; and though the school can be given no connection with tanning, he may aim at the same usefulness with regard to that trade.

15. Two members of the Committee—the Hon'ble Mr. Crole and the Hon'ble Mr. Chambers (Mr. Adam also agreeing)—recorded a note urging that the management of the school should be transferred from the Director of Public Instruction to a small Board of Trustees, composed mainly of commercial men, who would have "an intimate knowledge of local conditions, as well as of the state of the markets, of the existence of a demand for particular articles or products as it arises, of improvements in the process of production or manufacture, in fact of commerce and industry in India and outside it too." Whether feasible or not, this method of management is at least intelligible in the case of such an industrial scheme as the Committee proposed. It might well be that a commercial board would have a more intimate acquaintance than the Director with the possibilities of trade in leather, buttons, soap, paper or blankets. But now that it has been determined to maintain the school on the lines of industrial art, a board of universal commercial knowledge can no longer be necessary and might, if wanting the artistic instinct, be mischievous. What would be useful if the material is forthcoming, would be a consultative committee, "composed of men interested in, and having some knowledge of, the arts and industries carried on at the school," as has been recommended by the majority of the members.

16. The same note proceeds to express the opinion that the Council of the Victoria Technical Institute should assume the guidance of technical education. The three gentlemen whose views are here expressed are all members of that Council, whose claim to supervise, direct and advise in this respect were treated of in G.O., No. 872, Public, dated 19th October 1895, and characterized as untenable.

17. To the report of the Committee Mr. Adam appended a separate note, declaring necessary the institution of Technical Secondary schools in Madras and the main mufassal centres, leading up on the one hand to a School of Art and Design and on the other to a Technological Institute. He stated that these schools should teach English, Mathematics, Geography, Drawing, Mensuration, Physics, Chemistry (Inorganic) and the use of tools (carpenter's and turning); the course to extend over two or three years, and to carry drawing up to the standard required for admission to the School of Art and Design, and science up to that prescribed for entry into the Technological Institute. With regard to this Government has to observe that, the educational grant having necessary limits, the cost of such a scheme in buildings, staff and apparatus would be prohibitive; that there is no present demand for such a system of schools, as appears from the fact that they did not spring up when the Upper Secondary examination was established; and that when they are wanted, they will attract private enterprise and capital, and it is in accordance with the general policy of Government to leave the establishment of such schools to private enterprise.

18. The Government has now passed orders upon the report of the Committee and the notes appended to it. It has been determined that the School of Arts and Industries should continue to devote itself to what may be called artistic industries, and should not be developed, or rather transmuted, into an institute for teaching the application of science to mechanical manufacturing processes. It remains now to touch on two questions which have been incidentally raised during the discussion, viz., the existing Government scheme of purely technical education, and the future of the Victoria Technical Institute.

19. Appendix C attached to the Committee's report sets forth a list of sixty-four subjects in which instruction is imparted in connection with technical education at various technical schools in Europe and elsewhere; and shows that almost every subject is already provided for either by the trades of Southern India or by the existing private and Government schools and institutions. The Government further observes from the last report on Public Instruction that there are now working in the Presidency no fewer than thirty-six technical institutions, with 3,227 students; while the report of the Commissioner for Government Examinations shows that

3,235 "Subject-candidates" presented themselves to be examined in 47 technical subjects. These examinations were not prescribed without reference to existing facts, but, as the Director has lately pointed out, were based upon and intended to systematize courses of instruction actually being given in existing schools. There is, indeed, plenty of room for development, and this is constantly engaging the earnest thought of Government; but His Excellency in Council is satisfied that the system is framed upon right lines. The generous aid held out to all technical institutions has borne good fruit, and promises results of which no Government need be ashamed. And in the Hon'ble Dr. Duncan Government possesses an adviser who sympathizes with industrial progress, who appreciates its importance and whose training has fortunately been to a remarkable degree as much of a technical as of a literary nature. In him, as a Supervisor of Technical Education, Government reposes full confidence — a confidence which is confirmed by the report of the Secondary Education Commission of 1895 that thinking men in England have now come to the conclusion that technical should not be separated from literary education but should be amalgamated with it and form a part of the general educational scheme.

20. As to the Victoria Technical Institute, it has already been decided by G.O., No 872, Public, dated 19th October 1895, that while the Government must, in the ordinary course of things, be held primarily responsible for the advancement of technical education and must necessarily provide by far the greater proportion of funds for its achievement, it was obviously impossible to entrust to a body composed as was the Council of the Institute the duty of supervising, directing and advising as to the steps which should be taken. To this the Council replied in a letter without date received in December 1895. In connection with another subject this has been dealt with in an order issuing herewith; but paragraph 28 which contends that these functions were inherent in the scheme of the Institute, and paragraph 2 may properly be noticed here.

21. Such a contention the Government finds it impossible to accept. The Memorandum of Association clearly lays down the functions of the Institute. It was to establish colleges or workshops, train teachers, hold examinations, grant certificates, and give grants-in-aid, scholarships and prizes. There never was any question as to the source of such expenditure; it was to come out of the funds of the Institute. At that time, it was hoped that the Council would become a wealthy body with yearly accretions to the ranks of paying subscribers. Unfortunately, for reasons which it is unnecessary to set out, the Institute receives no fresh stream of subscribers and has lost nearly all its existing supply. Instead of a rich, it is a poor body, with an income of from Rs. 300 to Rs. 400 per mensem arising from investments. This change of circumstances seems to have led the Council, not to restrict its ambitions, but to extend them at the expense of Government. It is not only, in the words of the Memorandum, "to impart or assist in imparting" technical education, it is exclusively to represent it; in the words of the Hon'ble Mr. Crole, to assume its guidance, or in those of the Council's letter "to conduct a large scheme of technical instruction, and to act as the advisers of Government in that subject." And it is to do all this, not out of its own funds, for speaking comparatively it has none, but from Government grants. It is enough to say that in the utilization of educational allotments Government prefers the development of its existing methods and the advice of its trained and responsible officers to placing itself in the hands of a body of amateurs who have shown themselves incapable of appreciating or even understanding the work that has been built up so laboriously in the past.

22. In paragraph 2 of the same letter it is hinted that the original functions of the Institute may become impossible of performance. Here it must be admitted that some of its original objects may be unattainable through paucity of funds. An impoverished body cannot establish technical libraries, museums or colleges, "throughout the Presidency of Madras", nor "train teachers of technical subjects for the whole of the Presidency". But it was equally an object of the institute to "give scholarships, grants and prizes to pupils of technical schools, classes or workshops". This is a useful function which need not be neglected.

H. TREMENHEERE,

20-4-98.

Demi-official from H. A. Sim, Esq., to C. J. Weir, Esq., dated 9th July 1899.

In connection with the general question of technical education, some half a dozen papers dealing with the Victoria Technical Institute, the School of Arts, &c., were held back until the policy of Government in the matter generally was settled.

2. The matter has been under discussion for a good many years. In fact, since the creation of the Victoria Technical Institute in 1888, but quite recently Mr. Arundel has cut the gordian-knot by definitely putting Chatterton on, more or less as a general Director of Technical instruction; in other words Government has decided on its policy and taken the first step to give effect to it.

3. This having been done, the half a dozen papers whose disposal has been depending on such a step and which have therefore been kept back until it has been taken, can now come up to be themselves disposed of.

4. As usual (through no fault of mine!), these half a dozen undisposed of papers are lying stranded with me and I now return them to you to be disposed of in the ordinary official way.

5. I must, however, warn you that they should not be disposed of in the ordinary way. They all of them, for instance, bear draft orders drafted in accordance with Honourable Members' notes, but these notes were written, so to speak, before the flood, and since then Members have changed, circumstances have changed and the policy has changed. Practically, therefore, you must treat these papers as coming up now for disposal for the first time and you must put them before Mr. Arundel for entirely fresh disposal.

6. Mr. Arundel knows the papers and will understand why they have been held back and why they need fresh orders. Some of them, indeed, he may consider not ripe for disposal even yet.

7. I send you the papers herewith. Do not be frightened at the bulk of them. Mr. Arundel has already disposed of the pith of them by his order on Chatterton and the aluminium industry. What is needed now, is hardly more than a merely formal disposal on the same lines.

8. The big bundle AA is only references for the two draft Government Orders which you will find in the paper marked BB, one of them dealing with the future scope and constitution of the School of Arts and the other dealing with the future of the Victoria Technical Institute. Mr. Arundel thoroughly understands these two matters and in what respects the drafts need revision. The files CC and DD are incidental and deal with matters of minor importance. The important drafts are the two in BB and even with them, as I have said, the Honourable Member has already disposed of the pith of them.

9. Will you please put the papers before Mr. Arundel for his orders? Perhaps, to save trouble to begin with, it might suffice if you put the drafts BB and the files C and D only before him in the first instance. He will then be able to say at once what further action he would wish you to take in regard to them.

EDUCATIONAL DEPARTMENT.

These four files, which have been received from the Private Secretary's office, are submitted for orders.

2. It will be seen that draft orders have been already put up on the first three files, but some modification may be necessary in view of the recent decision of Government to place Mr. Chatterton on special duty in connection with technical education.

3. File No. 1 contains a draft order on the future scope and constitution of the School of Arts, which was approved by the Hon'ble Mr. Grose on 21st April 1898. Some points in which the draft order may require to be modified are noted below.

Paragraphs 2—7 of the order merely explain the circumstances under which the matter has come up for decision and appear to require no modification.

Paragraph 8.—The question is discussed whether the scheme of instruction, hitherto in force in the School of Arts and defined by the Director of Public Instruction in its industrial aspect as "instruction in such industries as are susceptible of artistic treatment", should be maintained, or the wider system adopted, which should include instruction in mechanical industries. At the end of the paragraph the following remarks are made:—

"It has been perceived that progress in the mechanical industries, however much an object which Government must always have at heart, has in its development no necessary connection with instruction in the artistic industries with which the School of Arts is concerned. The school, therefore, will continue in the future to work on the lines delineated by the Director of Public Instruction in his letter of 28th January 1895."

Dr. Duncan's views and proposals are discussed at length on pages 25—43 of the printed note for orders in G.O., No. 471, Educational, dated 7th June 1895. It is for orders whether the decision arrived at in paragraph 8 of the draft Government Order should still be adhered to.

Paragraph 10 discusses the various conclusions of the Committee appointed in G.O., No. 471, Educational, dated 7th June 1895, to consider the working of the School of Arts.

10 (1) The Committee's definition of the objects of the school is quoted and is accepted, subject to the restriction laid down in paragraph 8 regarding industries capable of artistic treatment. If this restriction is now done away with, the definition may be accepted. The sentence—"The Secretary of State has already been requested to send out a competent Superintendent"—may be modified, as a Superintendent (Mr. W. D. Porterfield) has since been obtained from Bombay.

10 (2) to (11) appear not to be affected by the recent orders.

10 (12) With regard to the recommendation of the Committee that the survey of the arts and industries of Southern India commenced by Mr. Havell (late Superintendent) should be continued systematically but not by the Superintendent, it has been remarked in the draft order as follows:—"Perhaps the Victoria Technical Institute may find itself in a position to undertake this work; otherwise Government will gladly see it entrusted to the new Superintendent, if he can, in the opinion of the Director, find sufficient leisure for it".

It is presumed that the survey mentioned by the Committee would come within the purview of Mr. Chatterton's duties in the event of his being put on special duty as proposed, and if so, the above remarks may be modified.

Paragraphs 12 and 13.—Attention is requested to the following remarks:—

Paragraph 12.—"It would be beyond the province of the School of Arts to teach processes, unconnected with art, for making soap or currying skins or manufacturing buttons" and paragraph 13 "it seems incorrect in principle that Government should engage in such a commercial venture (viz., a tannery); that is the part of the capitalist. Nor considering the various calls upon the public finances has Government the funds to engage in such speculation". Since this order was drafted the aluminium industry has been carried on in the School of Arts with Government funds; these remarks seem therefore to require modification.

Paragraphs 15 and 18.—The question of modifying the statement "it has been determined to maintain the school on the lines of industrial art" (paragraph 15) and the statement "it has been determined that the School of Arts and Industries should continue to devote itself to what may be called artistic industries and should not be developed or rather transmuted into an institute for teaching the application of science to mechanical manufacturing processes" (paragraph 18) appears to depend on the decision as to what the aim and scope of the School of Arts should be—*vide* paragraph 8 of the order.

Paragraph 17.—The institution of Technical Secondary schools will apparently be one of the questions to be considered and reported on by Mr. Chatterton, if he is placed on special duty.

Paragraph 19 appears to require modification, as Government has decided that the system of technical education now in force is inadequate and does not touch the artisan or working classes and has, in consequence, decided to put Mr. Chatterton on special duty.

Paragraphs 20—22 relate to the Victoria Technical Institute, and do not appear to be affected by the recent orders with regard to Mr. Chatterton.

4. *File No. II* contains a draft order relating to the Victoria Technical Institute C. J. WEIR | which also appears to be unaffected by the recent orders.

5. *File No. III* contains a draft order accepting Mr. Crole's resignation as President of the Council of the Victoria Technical Institute and there appears to be no reason why it should not issue. Attention is requested to the note at the foot of the draft order. A President and two members of the Council have to be nominated.

6. *File IV.*—The current (No. 1534 of 1898) is from the Revenue Department communicating a copy of Mr. Thurston's monograph on "woollen fabrics". Please see the note on the current. The monograph contains remarks (pages 4 and 5) on a proposal of Dr. Duncan's to establish scholarships to enable boys belonging to the carpet-weaving families to join the School of Arts. Dr. Duncan's proposal depends on the continuance of carpet-weaving in the School of Arts, but in paragraph 10 (3) of the draft order in file No. I it is decided that the weaving of carpets should no longer be taught in the school.

A. EDGINGTON.
27-7-99.

Secretary—

These files were sent to me with the attached demi-official from the Private Secretary, and with reference to the instructions therein I have had the draft Government Orders examined in order to ascertain what modifications were required in consequence of the recent decision of Government in connection with the aluminium industry and the deputation of Mr. Chatterton. The final form of this decision has just been settled in the draft letters to the Government of India approved by the Honourable Member—this is now in circulation—, and it is now to be decided whether the draft Government Orders in these four files are to issue and, if so, with what modifications.

2. In the order dealing with the School of Arts Government lays down that the School of Arts is to deal with such industries as are susceptible of artistic treatment, and it is on this decision that the greater part of the Government Order is based.

3. In the letter which is to go to the Government of India, we propose to continue the aluminium industry in the School of Arts. This industry scarcely comes within the description of an industry susceptible of artistic treatment,—and it is also contemplated other industries, such as metal work, wood-carving, &c., which might or might not fall within the description, should be taken up by the School of Arts, if their development was likely to be profitable to the artisan class.

4. The office-note points out the paragraphs which require modification in the light of the recent decision, but it is for consideration whether the Government Order, in so far as it deals with the School of Arts, should issue at all, or whether it would not be better to await the orders of the Government of India on the letter now being addressed to it.

C. J. WEIR.
30-7-99.

Honourable Member—

I think all four files should await the final orders of India or Secretary of State as to Mr. Chatterton.

A. T. A[RUNDEL.]
2-8-99.

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-28-

Please see the Honourable Member's orders above. The Right Honourable the Secretary of State having sanctioned Mr. Chatterton's deputation on special duty for the development of technical trades and industries, orders have now to be passed on the note above it and the four files below have to be finally disposed of.

P. T. THARYAN.
18-4-00.

Secretary—

R. W. D'E. ASHE.
23-4-00.

Honourable Member—

H. TREMENHEERE.
25-4-00.

I find it impracticable to dispose of these files until Mr. Chatterton's programme is fixed and also his relations with the School of Arts. Please ask the Director of Public Instruction to expedite his reply to G.O., No. 174, Educational, dated 10th April 1900.

A. T. A. [RUNDL.]
29-6-00.

With reference to the Honourable Member's note of 29th June 1900, the Government of India have been pressing for a reply about Mr. Chatterton's position. An un-official reference was sent to the Director of Public Instruction on the 22nd ultimo. Perhaps a telegraphic reminder may now be of use. The Honourable Member, however, requires a report in respect to the programme as well.

Secretary.

A. T. PRINGLE.
2-7-00.

Call officially for both, in separate communications.

H. TREMENHEERE.
3-7-00.

EDUCATIONAL DEPARTMENT.

On the 29th June last the Hon'ble Mr. Arundel returned five files to the office, observing that he found it "impracticable to dispose of" them until Mr. Chatterton's programme was "fixed and also his relations to the School of Arts".

Four of these files were made up of the papers to which Mr. Sim's letter of the 9th July 1899, related; the fifth of some reports and notes connected with them.

2. I have ventured to dislink the files, as at this date (October 1900) the reasons for keeping them together have ceased to exist, and it is simpler to deal with some, at any rate, separately.

3. One of the files was connected with the subject of carpet-weaving. Dr. Duncan thought that scholarships given in the School of Arts might assist the manufacture; and Mr. Thurston quoted his views in a monograph on the "woollen industry". In an order passed in the Revenue Department in 1898 the matter was remitted to the Educational department for consideration, and Mr. Tremeneere sent the current to Government House as His Excellency the Governor had at the time several papers about the School of Arts before him. Since then the current had remained linked with the larger cases. There is now another head of the Educational department, and his views and Mr. Chatterton's are clearly necessary. In anticipation, therefore, of the Honourable Member's approval, the current has been closed and Mr. Stuart has been asked for his views on the subject.

Good.
A. T. A. [RUNDL.]

4. Two other files have been thrown together. They both had to do with the Victoria Technical Institute, and the disposal of them [and of a third * file] is quite impossible (after the many months which have elapsed) until some facts as to the present state of the institute have been ascertained. Enquiries are being made at Madras and the case will be resubmitted with a short note when they are completed.

A. T. A. [RUNDL.]

5. The fifth file is placed below.

It is now clear that hardly any part of the long draft order (proof) originally prepared can stand.

The first seven paragraphs are historical, and all but the last of them might issue even now. But for reasons which will be presently mentioned it may be better that they should be replaced by something much briefer.

The seventh paragraph refers to an opinion expressed by the Secretary of State in 1896 in regard to the course of schools of Indian art, and the eighth paragraph enunciates a conclusion in accordance with that opinion. Since the two paragraphs were written, the Government have, with the approval of the Secretary of State, been working on distinctly different lines from those advocated, and for some three years to come there will be a still more marked divergence.

Paragraph 9 refers to the "definite abandonment" of a policy which has not been abandoned altogether.

Paragraph 10 relates in part to a coming Superintendent, who has come, has served for three years, and has received notice. The rest of the paragraph relates to details, some of which it would be rather inappropriate to say anything about for some years to come. Mr. Chatterton's knowledge of architectural design is not such as to make it likely that his advice will be sought by the Consulting Architect.

I don't suppose he possesses any.

A. T. A.

Paragraphs 12 and 13 would be inconsistent with the aluminium industry which Government have started.

In paragraph 15 there is an insistence on the "artistic interest" which would be now out of place.

From paragraph 16 onwards the draft deals to some extent with the Victoria Technical Institute. That unfortunate body has for several years been in a state of suspended animation, and Mr. Crole is no longer in the presidency; such withering paragraphs as the last two of the draft are not now necessary.

The eulogium on Dr. Duncan in paragraph 9 and the reference to the conclusion of "thinking men" in England in 1895 (the current of thought is believed to be already setting in another direction!) are, of course, equally out of place.

6. The first six paragraphs might, as was said above, stand even now; but the determination, which circumstances have forced on Government, that for some time to come the School of Arts and Industries may be left without a proper head and that the industrial side of the institution should receive attention rather than the artistic but that everything is to be tentative, read as a very impotent conclusion to the historical summary, which was of course intended to pave the way for an important pronouncement of the views held by the Governor in Council.

Yes.

A. T. A.

7. It is submitted that the report of the Committee should now be brought on record, with some short remarks to the effect that various circumstances had prevented the issue of orders, that owing to the approaching termination of the engagement of the present Superintendent of the school and the tentative arrangements which would follow, no useful purpose would be served by discussion of the recommendations made by the Committee, and that this being so, it only remained for the Government to tender thanks to the members of the Committee, to Mr. Thurston the Secretary, and to the experts who attended as witnesses.

As regards the details of industries and so on, Mr. Chatterton and Mr. Stuart will take them up by degrees. After all, institutions do not progress by ambitious

Very true.

A. T. A[RUNDEL.]

programmes or elaborate statements of the views of the Government of the day; Mr. Chatterton, if given a free hand, will certainly promote the industrial side of the school, and his energy may lead indirectly to a corresponding advance in a few years on the other side. The Hon'ble Mr. Arundel has, in some words added to the draft order recently passed, laid stress on the desire of Government that the artistic side of the institution shall not be sacrificed.

A draft order is placed below for the Honourable Member's approval.

Secretary—

A. T. PRINGLE.

5-10-00.

Perhaps a more brief order than that submitted by the Assistant Secretary would be better, and thanks to the Committee hardly seems necessary now. The following draft is submitted as an alternative:—

Order—

The report read above was submitted to Government in the autumn of 1895 by a Committee appointed earlier in that year to enquire into several questions connected with the Madras School of Arts. Since then the Government has had under its consideration various proposals in connection with the school, and has recently decided to place the school under Mr. Chatterton's charge in connection with his deputation on special duty in view to the development of special technical trades and industries. Mr. Chatterton will no doubt consider the views of the Committee and benefit from the information which their report with its appendices contains. It is, however, unnecessary under present circumstances to pass any special orders upon that report. The result of Mr. Chatterton's work must be awaited. The report with its appendices will now be communicated to the Director of Public Instruction with the above remarks. The Government is much indebted to the Committee for their labours.

M. HAMMICK,
5-10-00.

Honourable Member—

I have passed the former draft and am indebted to the Assistant Secretary for unravelling this troublesome coil.

A. T. A[RUNDEL.]
8-10-00.

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C. No. 1172 of 1895

DEPARTMENT.

SUBJECT.

School of Arts -
Report of Committee
3 25 Sept - 1895.

FOR ORDERS.

NO. 500 d/11.10.00

The report read above was submitted to Government in the autumn of 1895 by a Committee appointed earlier in that year to enquire into the several questions connected with the Madras School of Arts. Various reasons & various causes the Governor in Council has hitherto been prevented from passing orders; and as the tenure of the present Superintendent's appointment will expire within the next half year and the arrangements for the conduct of the institution will then, for some time to come, be tentative & experimental, it would not serve any useful purpose to pass the recommendations.

which the report contains.
There was some divergence of
opinion between the gentlemen
who presented it, & while
the remarks which were made
both in the report itself
& in the notes appended to
it were of much interest, the
Government could not entertain
~~many~~ of the suggestions
which were made; ~~these proposals~~
~~were~~ ~~not~~ ~~within~~ ~~the~~ ~~scope~~ ~~of~~.

The numerous schools of
instruction, for instance, which
the Committee desired the
Government to establish would
have been absolutely beyond
the means of ~~the Government~~
this presidency. Much
~~that~~ ~~has~~ ~~been~~ ~~placed~~ ~~in~~
record will be of service
to the educational depart-
ment, & the Government will
give due consideration to
any proposals which may
be made by the Director
of Public Instruction, ~~and~~ ~~in~~
~~the~~ ~~future~~, to
carry into effect some of
the minor recommendations in
regard to particular industries.

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It now only remains for
the Governor in Council to
express his thanks to
the members of the Com-
& Mr. Thurston, the housing
secretary, & to those who
assisted the Committee
with their special knowledge.

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5.10.1900

To
The D.P.I. - } Oct 26/10
E. Thurston Esq.