

Government of Madras.

EDUCATIONAL DEPARTMENT.

Recd.

Regd.

} 1912.

Enclosures

Spare copies

G.O. No. 647, 18th July 1912.

DESPATCHED.

Technical Institute, Madura.

Approving, with remarks, the proposals submitted by the Superintendent of Industrial Education for the reorganization of the —.

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GOVERNMENT OF MADRAS.

EDUCATIONAL DEPARTMENT.

READ—the following papers :—

I

Official Memorandum No. 1798 A/10-1, Revenue, dated 2nd May 1910.

A copy of question No. X asked by the Hon'ble Rao Bahadur Ramabhadra Nayudu and of the answer given to it at the meeting of the Legislative Council held on the 5th April 1910 is forwarded to the Director of Industries. The Director is requested to report to Government in due course on the subject referred to therein.

(By Order.)

F. NOYCE,
Ag. Under Secretary to Government.

To the Director of Industries.

ENCLOSURE.

Question No. 10.—Will the Government be pleased to consider the question of helping the revival of the industry of lace-making in which the Muhammadans in the town of Madura have been engaged for generations past.

Answer.—The possibility of re-establishing the manufacture of gold-thread in this Presidency will be examined by the Department of Industries.

II

Letter—from K. T. B. TRESSLER, Esq., Acting Director of Industries.
To—the Secretary to Government, Revenue Department.
Dated—Madras, the 19th July 1910.
No.—18-G.

With reference to Memorandum No. 1798-A/10-1, dated 2nd May 1910, I have the honour to report that resolution No. 37, page 218 of the report, runs as follows :—

“The Conference considers that it is desirable that the gold thread trade should be re-established in India if possible; but no action should be taken by Government pending the results obtained from the experimental factory started at Madras.”

This factory has hitherto shown no results except negative ones and is at present in a moribund condition.

Further, in G.O. No. 472, Revenue, dated 11th February 1910, Mr. Chatterton has been ordered to make a special study of this subject during his leave in England. Under these circumstances Government may consider it desirable to defer action until after Mr. Chatterton's return or until the Madras Factory actually shuts down. If,

however, it is proposed to take immediate steps in the matter the following summary of the situation will indicate the nature of the remedial measures necessary for the resuscitation of the industry.

2. The reason why the hand gold lace industry is gradually vanishing is because the machine-made lace now manufactured in France can be imported and sold in India at a slightly lower price, and has therefore captured the market. Including, as it does, the manufacturer's profit, custom's duty, and labour and shop charges—all of which items are calculated at a much higher rate abroad than in India—the selling price of this lace cannot be considered to preclude successful competition. Nor can it be argued that a diminution in demand is responsible for the stagnant condition of the industry, for the demand in India is as great as it was before, and even though foreign lace now holds the field, local lace, if produced at a competitive price, would immediately command a large wholesale market. In respect of quality the lace made in India is at least equal to the imported article, so that the decline of the industry must be attributed solely to the excessive cost of manufacture.

3. I have carefully examined the present process of hand manufacture and consider that material improvements could be introduced at a comparatively small cost. The workers now spend an entirely disproportionate amount of time on drawing and flattening the wire and the process of spinning is most laborious.

4. As regards the failure of the factory at Madras this must be attributed purely to gross mismanagement and cannot be considered as due to any drawbacks inherent to machine manufacture. On the contrary, the machines all appear to have worked well.

For gilding the wire an electro-plating process was adopted, but this I think need not at once be introduced. The electrolyte is extremely valuable and affords many opportunities for undetectable theft. It also requires considerable skill in manipulation and appears to offer no advantages over the method now in use.

Some difficulty was experienced in obtaining the silk thread on which to spin the wire. The silk used was too coarse and rough and the wire did not therefore spin uniformly. The proprietor consequently has about Rs. 20,000 worth of stock in hand of which he is unable to dispose. This naturally has nothing to do with the machine itself. My predecessor has instituted inquiries as to whether suitable silk can be obtained, but, in view of the trouble hitherto experienced I think that further experiments with the machine will be necessary before it can be placed in the hands of workmen. I have no doubt of ultimate success, for the problem does not appear to offer any insuperable difficulties: but until it had been solved the value of the spinning machine may be treated as problematic.

The drawing and flattening machinery gave no trouble whatever and may therefore be confidently recommended as a substitute for the hand processes now in use.

5. The information obtained from the working of the Madras Factory thus goes to show that the flattening and drawing machinery, at any rate, may be immediately introduced and that the use of spinning machinery will after some little experimenting be commercially successful. I think it quite possible that the reduction in cost due to the use of drawing and flattening machines alone will sufficiently reduce the selling price of the Indian-made thread to enable it to command a sale in competition against French thread: the use of the spinning machine will naturally cause still greater reductions.

6. The proprietor of the factory having reached the end of his resources is willing to accede to any proposal which will afford him the slightest hope of getting out of his difficulties. The lace workers on the other hand are equally anxious to dispose of their manufactures which will enable them to increase their production. What I therefore suggest is that the various machines now in use in the Madras Factory may be sent to Madura to be set up in the Weaving Institute and the gold lace workers there induced to give them a trial. It would then be easy to see what machines are suited to the country and from this the possible reduction in the cost of manufacture could be ascertained. If it is found that this reduction is sufficiently great to command the market once more (as I believe will be the case) the present proprietor could take over the concern and run it on the lines indicated by the experiment. For the men another factory could be started, or

else, as is more likely, they could be taken over by the present proprietor who imports a large amount of lace and could easily dispose of the outturn of a large number of operatives.

7. If on the other hand the experiment proves a failure no one loses thereby. In working the machines the workmen will provide their own materials and dispose of their finished article as before to their own employers. The proprietor has no use for the machinery at present and so a loan of it to Government does not involve any loss to him. All that Government will have to do in the matter is to supply the directing intelligence; the quality which has all along been lacking both in the hand industry and also in the factory experiments and to an absence of which the present condition of the industry is primarily attributable.

III

Memorandum No. 2554-1, Educational, dated 19th January 1911.

Mr. Tressler's letter No. 18 G., dated 19th July 1910, on the subject of introducing the manufacture of gold threads into the Madura Weaving Institute will be referred to the Director of Public Instruction who is requested to obtain the remarks of the Superintendent of Industrial Education on the proposals.

C. A. INNES,
Deputy Secretary to Government.

To the Director of Public Instruction.

IV

Letter—from K. T. B. TRESSLER, Esq., Acting Director of Industries, Madras.
To—the Secretary to Government, Revenue Department.
Dated—the 27th August 1910.
No.—96 G.

With reference to G.O. No. 1479, Revenue, dated 6th May 1910, and Memorandum No. 2371-A/10-2, dated 8th August 1910, I have the honour to submit herewith Mr. Cotton's memorandum on the future of the Weaving department, the latter part of which embodies detailed proposals for the working of the proposed Madura Institute.

2. *Scope.*—Mr. Cotton bases his scheme for the Madura Institute on that now being followed at Serampore. With the general outlines of this scheme I am in complete agreement; that is to say, as regards the scope of the institute, I consider that it should be conducted purely and solely as a technical school. As such it would fulfil a two-fold function—that of a training institute for students and that of an experimental workshop where all kinds of investigations connected with the weaving industry will be carried on.

3. The commercial side of weaving should be developed in the district schools to which also should be relegated the duty of training the artisan class. The teaching of the Madura Institute, therefore, as suggested by Mr. Cotton, should be primarily confined to two classes, namely, the weaving master class and the weaving foreman class.

4. *Courses.*—For these two classes of men, two courses will be provided corresponding to the A and B courses at Serampore. The number of admissions to these courses and the educational qualifications required on the part of students have been laid down by Mr. Cotton. In course A admission will be limited to 12 and students must have read up to the Matriculation standard. In course B, the number of admissions will be limited to 24 and the standard required will be that corresponding to the third form. Admission to the B class will be limited to weavers or those connected with the weaving industry, and preference will, in every case, be given to men previously trained in the proposed district weaving schools who have shown marked ability and are fit for a foreman's post. In addition to these two courses, Mr. Dewal proposes a further course corresponding to the "Evening classes" in England, in which artisans could be trained on the same lines as those to be followed in

the district schools. There is much to be said for this proposal, but I doubt if it will be possible to work in a third course without detriment to the other two, and this question may, for the present, remain in abeyance.

5. *Syllabus.*—The syllabus for these courses at the Serampore Institute appears to be modelled on that followed in the Manchester School of Technology and I have asked Mr. Dewal for his opinion thereon. Mr. Dewal considers the syllabus suitable, but wishes to add one further subject, namely, textile laboratory work. I consider it still more desirable that at least two hours a week should be set aside for accounts, that is to say, calculating costs and maintaining working accounts. Mr. Cotton considers the Serampore syllabus too ambitious, but after all the ground covered by such a syllabus depends more on the teacher than on the actual naming of the subjects, and although in some cases the terminology is somewhat high-sounding, the majority of the subjects included in the syllabus appear to be essential, and I do not think that any fears need be entertained as to Mr. Dewal's instruction becoming too advance in character. As regards other subjects, as for instance Engineering Drawing, which at first sight appear to be superfluous, trial will show whether they are really wanted or not. For the present, the Serampore syllabus may be adopted with the additions above mentioned.

6. The proposed time-tables for the A and B courses are given in appendix (1), the Serampore A courses for the first and the second year being also reproduced for information. It will be seen that the hours of attendance for the Madura Institute have been altered to suit local conditions.

7. At Serampore practical weaving instruction appears to be given on a large number of different types of looms; this, I think, is undesirable. The various looms in common use in this country should be purchased for instructional purposes, and when students have learned to weave on the Salem loom, they might for a few days practise on other looms in order to become conversant with their working, but it is on the Salem loom that the students should be taught the actual process of weaving.

8. *Staff.*—For Drawing, Engineering Drawing, etc., no special instructors will be required as these subjects are already taught in the other branches of the Madura Technical Institute. For the Weaving department Mr. Dewal asks for two assistants for the first year's work and two more later on. In the first place, he recommends two appointments—one on Rs. 100 rising to Rs. 150 and one on Rs. 50 rising to Rs. 75. At Serampore, the Principal appears to teach all subjects and is assisted by one drawing master and three instructors, in addition to which three men are employed to demonstrate practical weaving. The whole strength at Serampore is, however, 95 and the total number of students whom it would be possible to instruct is probably 150 to 200. In Madras, on the other hand, admissions will be limited to 36, and for this reason I do not consider that, to begin with, any assistants beyond a practical weaver on Rs. 30 a month and a general clerk on Rs. 20 a month are required.

9. *Equipment.*—For weaving practice Mr. Cotton proposes 30 Salem looms, seven of which will be fitted with jacquard attachment. In addition to these looms, a number of other machines are required for instructional purposes. The complete equipment required, including the plant necessary for the testing laboratory proposed by Mr. Dewal, is given in appendix (3). It will be unnecessary to purchase the full equipment at once. To begin with, 20 Salem looms and the other apparatus marked with an asterisk in the appendix will be sufficient, and the cost of this equipment, excluding such plant as we already possess, will amount to approximately Rs. 4,300.

10. *Fees and scholarships.*—Tuition is free at Serampore and will presumably be free at Madura also. For the A course a registration fee may, however, be charged. At Serampore forty scholarships of Rs. 15 each are annually awarded in the A course, one-half of these being allowed to first year students and the other half to second year students. Forty other scholarships are given for the B class being at the rate of Rs. 6 for each adult and Rs. 4 for each boy: students in the B class being allowed a further stipend of Rs. 4 *per mensem* by their respective district boards. Mr. Cotton considers that for the A course applications will probably be numerous and that no scholarships are therefore necessary in this class, but that in

the B class some sort of remuneration should be given. I agree with this proposal. At Serampore the District Boards subscribe to the cost of training weavers coming from their district, and I think the principle a good one. For every student in the B class, I propose a fixed stipend of Rs. 5 per month paid by Government and would suggest that this sum be augmented by the District Boards to the same extent as is done at Serampore, viz., Rs. 4 *per mensem*.

11. The above proposals, so far as they deal with the teaching side of the proposed school, may be conveniently summarised in the form of a prospectus.

Prospectus of the Madura Weaving School.

1. This school has been established for the purpose of providing training for weavers.

2. There will be two courses, namely, course A and course B.

3. Course A is intended to train men to qualify as weaving masters and course B to qualify as weaving foremen. There will ordinarily be no provision for training artisans in the use of the loom, such instruction being given at the district weaving schools shortly to be established in various centres.

4. In course A the number of admission will be limited to 12 and every candidate will be required to possess educational qualification equivalent to the Matriculation standard. The course of instruction will extend over two years, the hours of attendance being from 8 A.M. to 11 A.M. and 1 P.M. to 4 P.M. except on Saturdays—when work will be stopped at 11 A.M.—and public holidays. The timetable followed is shown in appendix (1). For admission to the A class, a registration fee of Rs. 10 must be paid and this will, in no case, be refunded. No further fee will be levied, but in this course no scholarships or stipends will be awarded. Students failing to pass the qualifying examination to be held six months after the classes have begun will be required to leave the institute. At the end of the second year, a leaving examination will be held and diplomas awarded on the results thereof.

5. Admission to course B will be limited to 24 and candidates must be practical weavers or else be connected with the weaving industry. Preference will, in every case, be given to candidates who have previously been trained in the district weaving schools. Course B will last for one year, the hours of attendance being as before. The syllabus for course B is shown in appendix (2). At the end of the year an examination will be held and certificates awarded on the results thereof.

6. Scholarships of the value of Rs. 5 *per mensem* will be awarded to all such students in course B as can furnish satisfactory evidence that they are unable to maintain themselves. In addition, a further sum of Rs. 4 *per mensem* may be allowed them by the District Board of the district in which they are ordinarily resident.

APPENDIX I (a).

A Course (First year).

	8 A.M.—9 A.M.	9 A.M.—10 A.M.	10 A.M.—11 A.M.	1 P.M.—2 P.M.	2 P.M.—3 P.M.	3 P.M.—4 P.M.
Monday	Design and analysis of cloth.		Yarn preparation.		Practical weaving.	
Tuesday	Practical weaving.		Do.		Sketching of textile machinery.	
Wednesday	Do.		Free hand drawing.		Fabric structure.	
Thursday	Practical weaving.		Practical weaving.		Practical weaving.	
Friday	Free-hand drawing.		Textile fabrics.		Practical weaving.	
Saturday	Model drawing.		Practical weaving.		Practical weaving.	

APPENDIX I (b).

A Course (Second year).

	8 A.M.—9 A.M.	9 A.M.—10 A.M.	10 A.M.—11 A.M.	1 P.M.—2 P.M.	2 P.M.—3 P.M.	3 P.M.—4 P.M.
Monday	Practical weaving.		Do.		Engineering drawing.	
Tuesday	Do.		Do.		Construction of works.	
Wednesday	Spinning		Textile laboratory.		Weaving mechanism.	
Thursday	Fabric structure.		Design and analysis.		Practical weaving.	
Friday	Do.		Practical weaving.		Do.	
Saturday	Costs and accounts.		Yarn preparation.		Do.	

APPENDIX I (c)

B Course.

	8 A.M.—9 A.M.	9 A.M.—10 A.M.	10 A.M.—11 A.M.	1 P.M.—2 P.M.	2 P.M.—3 P.M.	3 P.M.—4 P.M.
Monday	Free-hand drawing.		Practical weaving.		Do.	
Tuesday	Structure of cloth.		Do.		Do.	
Wednesday	Free-hand drawing.		Do.		Do.	
Thursday	Sketching.		Do.		Do.	
Friday	Design and analysis.		Do.		Do.	
Saturday	Practical weaving.		Do.		Do.	

APPENDIX II (a).

THE SERAMPORE SYLLABUS.

Time-table of studies (first year)—“A” class students.

	10-30 A.M.—11-30 A.M.	11-30 A.M.—12-30 P.M.	12-30 P.M.—1-30 P.M.	1-30 P.M.—1-45 P.M.	1-45 P.M.—3 P.M.	3 P.M.—4 P.M.
Monday	Design and analysis of cloth.		Yarn preparation.		Practical weaving.	
Tuesday	Practical weaving.		Do.		Sketching of textile machinery.	
Wednesday	Free-hand drawing.		Textile fabrics.		Do.	
Thursday	Practical weaving.		Do.		Practical weaving.	
Friday	Do.		Do.		Do.	
Saturday	Model drawing.		Fabric structure.		Do.	

APPENDIX II (b)

THE SERAMPORE SYLLABUS.

Time-table of studies (second year)—“A” class students.

	10-30 A.M.—11-30 A.M.	11-30 A.M.—12-30 P.M.	12-30 P.M.—1-30 P.M.	1-30 P.M.—1-45 P.M.	1-45 P.M.—3 P.M.	3 P.M.—4 P.M.
Monday	Practical weaving.		Do.		Engineering drawing.	
Tuesday	Do.		Do.		Construction of works.	
Wednesday	Spinning		Practical weaving.		Weaving mechanism.	
Thursday	Fabric structure.		Design and analysis of cloth.		Practical weaving.	
Friday	Practical weaving.		Do.		Do.	
Saturday	Practical weaving.		Yarn preparation.		Do.	

APPENDIX III (a).

	In stock.	To be purchased.
	Rs.	Rs.
Thirty Salem looms	..	2,400
Seven jacquard machines	1,065	..
Four jacquard harness	300	..
* Three " "	..	225
One piano card cutter	270	..
* Four dobbies	..	330
* One dobbie piano	..	120
One hank sizing machine	975	..
One ball sizing machine	..	500
One hank drying machine	500	..
One hot air drying machine	..	1,125
One Yorkshire dressing machine	..	450
One section warping machine	820	..
One horizontal warping machine	..	100
One vertical warping machine	..	75
One running off machine	300	..
Two pirn winding machines	360	..
Two bobbin winding machines	300	..
One Salvation Army loom	100	..
One Churchill loom	150	..
One pit loom	50	..
One Serampore loom	100	..
One 6½ horse-power oil-engine	1,310	..
* Shafting and erection	..	2,000
Testing machinery as per Appendix III (b)	..	1,511
	6,600	8,836

Twenty Salem looms and machinery marked with asterisk cost Rs. 4,300 approximately.

APPENDIX III (b).

Machines for the testing room.

	£	s.	d.
1. Wrap reel for seven cops (in two rows) and four bobbins with indicator dial, bell and automatic spreading motion for cops and guides, ornamental bracket arms, No. 6, Goodbrand & Holland	8	10	0
2. Yarn examining machine for comparing and showing unevenness of yarn; No. 2, Goodbrand & Holland, size of card board 12" x 7"	3	10	0
3. Umbrella hank stand, Goodbrand & Holland	0	15	0
No. 1 hank stand, Goodbrand & Holland	0	12	0
4. Yarn testing or lea testing machine by hand for strength and elasticity. Dial marked up to 100 lb., No. 10, Goodbrand & Holland	6	10	0
5. Single or double thread testing machine by Messrs. Baer & Co., Zurich. Automatic with oil immersion pump	12	0	0
6. Cloth-testing machine for testing strength and elasticity of cloth, Goodbrand & Holland, size A to test up to 400 lb.	17	15	0
7. Twist tester to untwist at both ends with magnifier, Messrs. Baer & Co., Zurich	5	0	0
8. Hank quadrant A for ascertaining the count of yarn for three leas, Goodbrand & Holland	3	0	0
9. Yarn and cloth quadrant D in wood case with glass door, Goodbrand & Holland	3	5	0
10. Knowles patent yarn balance F in glass case with glass slide door from 10s to 100s, Goodbrand & Holland	9	0	0
Glass case	2	10	0

	£	s.	d.
11. Staubs yarn assorting balance	1	15	0
12. Chemical balance with grain weight	4	0	0
13. Improved yarn balance, No. 12, Goodbrand & Holland ..	2	0	0
14. Combined conditioning machine, Goodbrand & Holland ..	7	10	0
	87	12	0
Add 15 per cent. for freight ..	13	2	9
Total ..	100	14	9
Or Rs.	1,511	1	0

APPENDIX IV.

Note on the future of the Weaving Department

BY MR. C. W. E. COTTON.

My views on the future of the weaving department are in essentials those of Chatterton, but I have discussed the problem with Churchill at Ahmednagar, Commissioner Booth Tucker at Lahore and Hoogewerf at Serampore and visited a good many weaving centres in the Madras Presidency and for this reason some detailed observations may be of value.

2. As regards co-operative credit, we must recognise, I fear, that the weaving castes in Madras—Devangas, Kaikolas, Patnulkarans, etc.—are all hopelessly improvident, dishonest and intemperate, and any general reclamation of the community by means of weavers' unions such as the heroic venture of Mr. Ramachandra Sastri and his friends at Conjeeveram is out of the question. It may be possible, however, to start one or two societies with a fair prospect of success at selected centres, such as at Nakkapalli in the Vizagapatam district. These would probably have to be on the basis of unlimited liability, and Government would probably have to be responsible for the rent of the common building in which the weavers would work. I do not believe they could be trusted anywhere to work in their own homes. One or two Co-operative Credit Inspectors should be appointed with a knowledge of weaving to dry nurse these societies, put them in the way of improvements and to teach the weavers, if necessary, new and remunerative lines. For the first three months of its existence, such a society would require the exclusive services of an Inspector and he might be paid by the Department of Industries. In time, however, if there is any vitality in the scheme, one Inspector should be able to supervise and audit the accounts of a dozen such societies. The experiment seems to be worth making.

'3. As stated in paragraph 2 of my letter of the 28th January, "I agree with Mr. Chatterton in thinking that the question of the loom is at the present time of less importance than the improvement of the preliminary processes, particularly in the direction of preparing better and larger warps and of sizing"; and I found Mr. Churchill, whom I met at Ahmednagar, and Commissioner Booth Tucker, with whom I had a long discussion at Lahore, of the same opinion. This position is not inconsistent with the view that Government should neglect no opportunity of testing any looms of promise that are put on the market, particularly those which are less expensive and claim to be equal or more efficient than those of the Salem pattern, for one of the chief obstacles to a more general adoption of improved types by the weavers is the high prime cost. I believe that a more general adaptation of the fly-shuttle contrivance (as in the Thakral pattern exhibited at Lahore) to the ordinary pit loom is possible in certain classes of work and I hope that Varadaya Chetti of Kumbakonam will find the output of silk on his loom which has been so fitted will convince him of its advantages. For capitalists who are starting factories, the prime cost is of less moment and for them I am sure that there is nothing at present on the market more serviceable than the Salem pattern loom, which has demonstrated at numberless weaving competitions that fine counts of cotton, or silk, or worsted are not beyond its capacity. It is less heavy and has a more satisfactory take-up motion than the Salvation Army loom, it can weave cloth twice as broad and of much finer texture than Mr. Churchill's new loom, and its prime cost is little more than a third of that charged for the Hattersley pattern, which also throws a greater strain upon the weavers, who are in no part of the world distinguished as a class for their physique.

4. On the Malabar coast a number of fairly large weaving factories have sprung up in which the operatives are, for the most part, not Chaliyars (as the hereditary weavers of Malabar are called) but Christians, Tiyyas and other castes, and the same tendency is being disclosed in other districts also. It seems, therefore, as if the revival of the hand-loom industry when it takes place will scarcely benefit the old weaving communities so much as a class of small capitalists possessing the brains and enterprise to specialise in lines where power looms cannot compete, taking advantage at the same time of all mechanical adaptations such as jacquards.

which narrow the gulf between the hand and the power loom in the matter of economy and labour and elaboration of product. At present, I believe, that excluding imports, the output of India's hand-loom weavers in a year is three times as great as the output of all her mills. There are certain markets which the mills do not cater for. There are others which they cannot cater for, e.g., with the solid bordered silk cloths of Madura and kinkabs of Benares. Assuming the growth of the small capitalist class, there will grow up a demand hereafter for three classes of weavers—

- (1) The educated class with a theoretical as well as a practical knowledge of weaving.
- (2) The maistry or foreman class capable of teaching practical weaving in the vernacular.
- (3) The artisan class.

At the proposed Weaving Institute at Madura, instruction will be given to the first two classes only, while the third class will be provided for in the district schools which it is also under contemplation to open.

5. The Bengal Government is working on these lines at Serampore, though there is not at present any distinction made between classes (2) and (3). The maistries are being evolved automatically from the artisan class by reason of their superior intelligence. The two classes at Serampore are called A and B. For admission to the former, I believe the entrance examination of the Calcutta University is required, but the failed Matriculate of Madras might be considered eligible at Madura. The course for the A class students extends over two years and is very exhaustive and elaborate in character. The syllabus includes—

- | | |
|--------------------|-------------------------------------|
| First year . . . | (1) Practical weaving. |
| | (2) Sketching of textile machinery. |
| | (3) Model drawing. |
| | (4) Freehand drawing. |
| | (5) Design and analysis of cloth. |
| | (6) Preparation of yarn. |
| | (7) Textile fabrics. |
| Second year . . . | (8) Fabric structure. |
| | (9) Weaving mechanism. |
| | (1) Practical weaving. |
| | (2) Construction of works. |
| | (3) Engineering drawing. |
| | (4) Textile chemistry. |
| | (5) Design and analysis of cloth. |
| (6) Cost of cloth. | |
| | (7) Fabric structure. |

6. I have added to the file a time-table for the students of each year, and also a copy of the examination paper set the first year class in "Design and analysis of cloth."

7. The students are encouraged to go up for the City and Guilds of London Institute examination which is held annually at Bombay. The students admitted at the beginning of 1909 to the A class were 85. At the end of six months, an examination was held which eliminated 30 and only 27 took the examination at the end of the first year, and the second year began with a class of 22 only. These numbers are too large for Madras requirements so far as I am able to judge them. I should think that a class of 12 would probably be large enough to begin with.

The B class which is open to adult weavers or the sons of weavers only are taught—

- (1) Practical weaving on a variety of looms.
I saw at Serampore Hattersley's, Salvation Army looms, Serampore looms, special looms for weaving silk, and Dacca muslins, and also a loom fitted with *Potter attachment* which is worth getting for trial from the Patentee Mr. Potter of Kalinpong; it is an ingenious arrangement for driving the shuttle across the slay.)
- (2) Freehand drawing.
- (3) Structure of standard cloth.
- (4) Design and analysis of cloth.

This seems to me rather an ambitious programme for instruction in the vernacular, but probably the course under (3) and (4) is very superficial and restricted to the possible maistries in the class.

8. In the outlying weaving schools, the standard is much lower, but the more intelligent are drafted on to Serampore. Tuition is free at Serampore and there are 80 scholarships given varying from Rs. 4—Rs. 15 *per mensem* by the Government of Bengal. At present, the whole strength at Serampore is 95. The weavers (adults) get Rs. 6 scholarship *plus* Rs. 4 stipend from their District Board, the boys get Rs. 4 scholarship *plus* Rs. 6 stipend, as Serampore being close to Calcutta is a somewhat costly place to live at. Twenty scholarships valued at Rs. 15 are held by A class (first year) and twenty of the same value by A class (second year).

The new A class (first year) contains 27 boys. All scholarships are awarded upon results of examinations. Nothing is sold at Serampore, but 12 annas a month is debited as contingencies against each boy for material used. The hours of studies per week are 27. Some of these details may be of interest. Of the practical value of the teaching it is too early to speak yet. The first set to complete their year's course do not leave the institute till next January and I shall be interested to see whether Bengal has a demand for trained and educated weavers which will absorb so many as 20. Our Salem loom was not represented at Serampore and I think that in this respect Mr. Hoogewerf was not sufficiently eclectic. Perhaps for weavers practice with several varieties of loom is useful, but I am surprised that work was not concentrated upon the Serampore loom, a very well-known type in Bengal little inferior to the Salem loom, and efforts made to further improve its efficiency and reducing its cost.

9. As regards the Madura Institute, I do not myself see why it should not be run as such, and not as a factory. I would start with about 30 looms and a class of 12 failed matriculates and 24 maistries. I would reserve six looms for practical experiments on a commercial scale for which local committees would, with advantage, be appointed as time-keepers and judges (a practical adaptation of the Industrial Committee idea) and the weavers for this special work would be drawn from our best men at Salem and would be employed to show off the Salem loom or any new developments at the exhibitions. Of the remaining 24 looms, the twelve A class students would work on half and the remainder would be used by those sent up to be trained as maistries. Some of these would come from private employers who had opened factories and some would be destined for work in the District Board schools. These latter would require stipends. The A class students would not then be required to pay any fees, but should not, I think, be given scholarships or stipends. I believe that there will be a considerable competition for admission as there is at Coimbatore, and preference should be given to those who are weavers by caste, or have family business connections with the industry, such as the sons of small weaving factory owners in Malabar. As to syllabuses and courses of studies, I think that the Serampore programme for the A class might be taken as a model, though it seems somewhat ambitious, subject to such modifications as local requirements suggest.

10. For the rest, I generally agree with what Mr. Chatterton says in his letter of the 15th March 1909, though I am not sanguine of the results to be achieved by the Butterworth and Dickinson machinery, but am more hopeful than he is as regards the permanent demand for an institute, and of the good which is likely to be achieved by one at Madura on the lines of that which has made such a promising beginning in Bengal.

V

Memorandum No. 2553-1, Educational, dated 19th January 1911.

The proposals submitted with Mr. Tressler's letter No. 96-G., dated 27th August 1910, for the opening of a weaving institute at Madura will be referred to the Director of Public Instruction with the request that he will obtain Mr. Chatterton's views on them and will submit revised proposals if Mr. Chatterton should consider it necessary.

C. A. INNES,
Deputy Secretary to Government.

To the Director of Public Instruction.

VI

Letter—from the Hon'ble Mr. J. H. STONE, M.A., F.R.H.S., Acting Director of Public Instruction, Madras.

To—the Secretary to Government, Educational Department.

Dated—the 18th April 1911.

No.—Ref. on Cur. 417.

With reference to Government Memorandum No. 2553-1, Educational, dated 19th January 1911, and No. 2554-1, dated 19th January 1911, I have the honour to state that Mr. Chatterton informs me that he has prepared a draft of his proposals for the Madura Technical Institute but that owing to the sickness of the draftsman and to the large amount of work on hand in connection with the installation of engines and pumps he has been unable to get the plans completed. Further he says that he has addressed a number of letters to various people asking for information on certain points which have not yet been replied to. He thinks therefore it is likely

that the plans and estimates will not be ready for two or three weeks, but that if Government are desirous to consider the draft he has prepared he would submit the same at once. I have asked him to submit the proposals in a complete form as soon as possible.

2. As regards the manufacture of gold threads Mr. Chatterton states that he has dealt with the question in connection with the proposals he has prepared for the Weaving Institute at Madura which he proposes to submit as soon as the plans and estimates are ready.

VII

Letter—from the Hon'ble Mr. A. CHATTERTON, Superintendent of Industrial Education.

To—the Director of Public Instruction.

Dated—Madras, the 26th April 1911.

No.—96-G.

In reply to Ref. on Cur. No. 417-11, dated 2nd February 1911, I have the honour to state that various proposals regarding the development of technical and industrial education in Madura have been referred to me by Government, and it will be convenient to deal with them in one letter.

2. In G.O. No. 2617, Revenue, dated 10th August 1910, Government stated that "a full report as to the scope of the two institutes (Madura and Tinnevely) and as to the buildings and staff required by them should be submitted to Government by Mr. Chatterton as soon as possible after his return from leave," and in paragraph 2, "with reference to the proposal that a mechanical engineering class should be opened in the institute, Mr. Chatterton should explain the proposal fully and clearly and should furnish information as to whether the subject can be satisfactorily taught with the aid of the present staff, equipment and accommodation, and if not, in what respect it is required to be supplemented."

In Memorandum No. 2553, dated 19th January 1911, it is stated that "the proposals submitted in Mr. Tressler's letter No. 96-G., dated 27th August 1910, for the opening of a weaving institute at Madura will be referred to the Director of Public Instruction with the request that he will obtain Mr. Chatterton's views on them and will also submit revised proposals if Mr. Chatterton should consider it necessary."

In Memorandum No. 2554, dated 19th January 1911, it is stated: "Mr. Tressler's letter No. 18 G., dated 19th July 1910, on the subject of introducing the gold thread manufacture into the Madura weaving institute will be referred to the Director of Public Instruction, who is requested to obtain the remarks of the Superintendent of Industrial Education on the proposals."

3. It is generally agreed that the Madura Technical Institute inadequately provides for the industrial education of such an important town. The principal industries carried on in Madura and its neighbourhood are cotton-spinning, hand-loom weaving in both silk and cotton and the dyeing of cotton yarns, besides which practically all the minor indigenous industries of Southern India are to be found in the bazaars. Some of the craftsmen enjoy a considerable reputation on account of the excellence of their work, but their numbers are small and the industries are of no economic importance. I might cite as examples wood-carving, copper repoussé work and the manufacture of small brass castings of lizards, snakes, frogs, beetles and so forth.

It is a somewhat remarkable fact that though Madura is an industrial town of considerable importance and much of the industrial development is of comparatively recent origin, yet, with the exception of the spinning mills, the industries are worked on purely native lines and there has been no development of mechanical engineering. For years past, the technical institute has been the chief centre of such work and from enquiries I have made, it would seem that some development in this direction is distinctly called for. The mills have their own workshops and the South Indian

Railway Company have a large running shed in which repairs are done, but the people in the town are almost entirely dependent upon Madras for anything in the way of mechanical engineering.

4. The proposals which I have now the honour to submit for the consideration of Government are based on the idea that the technical and industrial instruction to be provided should be connected with the industries of the town, and in respect to industrial education, should provide for not only existing industries but also for any obvious defects which may retard the growth of existing industries. I suggest that it is desirable to provide technical education for the following industries:—

- (1) Weaving,
- (2) Dyeing,

- (3) Mechanical engineering,

and industrial education for—

- (1) Weaving,
- (2) Carpentry,

- (3) Blacksmith's work,
- (4) Metal work.

In respect to the minor industries, I would suggest the continuance of the small permanent show room in which the local artisans can expose their products for sale. It can be worked on similar lines to the Victoria Technical Institute of Madras, and will, I think, prove a useful adjunct to the institute, as Madura is one of the show places of Southern India and attracts a large number of visitors every year. The site on which the institute at present stands is very conveniently situated, but the area is less than one acre in extent and is therefore insufficient to allow of any considerable development. The site is a valuable one, and by its sale we may calculate on getting enough to purchase a new site, a little distance outside the town, sufficiently large to carry out my present proposals and to allow for any reasonable extensions in the future. This question of the site has already been dealt with by Government and I need not refer to it any further.

5. It will here be convenient to explain the difference between technical and industrial education so far as these proposals are concerned. The former is intended for those who hope to become masters or managers of factories and the latter for artisans who will not ordinarily rise beyond the position of foremen or maistries in organized factories or who will carry on their trade in a small way in the bazaar. Admission to the technical classes should be confined to those who are sufficiently well educated to receive instruction in English and should be about the standard reached by those who obtain the School Final Certificate, but I would not lay down any hard-and-fast rule on the subject preferring rather to leave it to the head of the institution to admit such students as he considers capable of benefiting by the courses of instruction. Neither in the case of the technical classes would I impose any limit to the number admitted. In my opinion every student in this class should pay fees, and if the fees be fixed at Rs. 5 a month, I think there is but little probability that the classes will be overcrowded. My reason for levying fees is to secure only those students who have more or less definite ideas as to what they intend to do after they have received such training as the institution can afford. There is no doubt that the levying of fees will very largely reduce the number of applicants for admission, but it is no use giving a technical training to a large number of students who do not see their way to make any use of it afterwards and who really go in for such training merely as a speculation. The grant of free education would not, I think, attract many students and there is no useful alternative between the granting of scholarships and the levying of fees.

6. In regard to industrial education, matters stand on an entirely different footing. I propose that such education should be entirely confined to pupils whose caste occupation is the trade which they wish to learn. Practically there is no demand from the artisan classes for the kind of education we propose to offer. They are too ignorant to appreciate the value of it and too poor to pay for it. As a matter of public policy, it is desirable that an effort should be made to lift the artisans out of the rut into which they have sunk and to do this we must be prepared to offer sufficient inducements. Hitherto in all industrial schools it has been a practice to grant stipends or scholarships and in some cases, when the boys have attained a

certain amount of proficiency in their trade, they have been paid on the amount of work they have turned out. In a way this has not been unsatisfactory, but it has been difficult to secure the attendance of artizans for a period of time long enough to enable them to receive the best possible education in their trade which we can give them. I would now propose to make it obligatory on all pupils in the industrial classes that they should be definitely apprenticed for a period of years, and to get their parents to agree to this we must be prepared to offer them sufficient inducements. Till quite recently, I was under the impression that apprentices could be legally compelled to fulfil the terms of their indentures, but the Hon'ble Mr. Justice Wallis, who has looked into the matter in connection with the proposals for the apprenticeship of boys in the Anjuman Industrial School, informs me that he is of opinion that this contention is wrong and that it can only be enforced when the apprentices are housed, clothed and fed by their masters or by the institution to which they are apprenticed. The point is rather an important one, as unless we can get some legal hold over artizan pupils in industrial schools, we are not likely to be able to keep them long enough to turn them into good workmen. Whenever there is an unusual demand for labour, wages will rise temporarily and the boy will leave. That this is so is well illustrated by the present condition of things at Madura where, at the present time, owing to extensive building operations in the town, there is a demand for artizan labour of all kinds, and the number of pupils in the technical institute has fallen from 140 in 1906-1907 to 61 in 1909-1910. It is notorious that in the Anjuman Industrial School, the Muhammadan boys seldom remain long enough to derive any permanent benefit from the instruction which they receive, and the same difficulties occur in all schools except those under the control of missionary bodies. Most of these provide hostels for the boys to live in, and I submit that if we cannot, under the Apprenticeship Act, compel the boys to attend an industrial school till the period of their apprenticeship has expired, we must provide hostel accommodation for them so as to obtain the necessary degree of control over them. I consider that the minimum period of apprenticeship should be five years and that it will be better in case of many trades to make it seven years and the minimum age limit should be fixed at 14 years. My experience is that boys below that age are not strong enough in this country to be put to industrial work seriously, and that it is better that they should go to ordinary schools up to this age. As a matter of fact comparatively few artizans' children go to school at all and this is especially the case with those belonging to the weaving caste.

7. I have hitherto held the opinion that it is undesirable to mix up general education with industrial education, chiefly because in such schools as I have inspected where this system prevails, either the general education given is of little practical value or the boys coming to the industrial school to get general education submit to attendance in the industrial classes for the sake of the stipends and the free general education. Increased experience with the artizans of this country leads me to think that a certain amount of general education is absolutely essential and that in dealing with the children of artizans we must provide that education in our industrial schools. For this reason, therefore, I propose that in the Madura Industrial School, we should make provision for the general education of the boys up to a certain standard which I think can only be determined by practical experience. There is no doubt that if at Madura we open a hostel and make ourselves entirely responsible for feeding, clothing and educating the boys, we shall be able to fill it with the sons of artizans, but I am afraid they will be to a large extent waifs and strays of the community, and I think it is probable that to get the children of the better class of artizans we shall have to offer still further inducements in the shape of stipends. It may be assumed that a boy of 14 years of age working with his father and other relatives in the bazaar will be able to earn something more than is necessary for his own upkeep and I think it is doubtful if the artizans will forego this as they do not attach the least value to the instruction given in our industrial schools. Experience may in time cause a change of public opinion among the artizans on this point, but at the outset, I am fairly certain that we shall have difficulty in filling our classes unless we offer some compensation to the artizan families for the loss of service of the boys who are apprenticed in the school.

8. The 28th resolution of the Simla Educational Conference in the section devoted to technical education deals with industrial schools and runs as follows:—

“That such schools whether country or urban should be primarily educational and not commercial institutions; that they should be as far as possible self-supporting, but should not compete with established private trades.”

It is not clear to me how far the recent orders of the Secretary of State will preclude Government industrial schools from selling the products manufactured in the schools. It is absolutely certain that unless we can sell such products, the cost of maintaining such schools will be abnormally high.

Exercise work, whilst of great value in manual training schools, is of little use in an industrial school where a large amount of repetition work must be undertaken in order to provide facilities for acquiring ease and rapidity in carrying out manual operations. If manufacturing work can be undertaken in an industrial school and the products sold, it should not be difficult to make the work to a large extent self-supporting, but how this is to be done so as not to in any way compete with private enterprise is a very difficult problem. The only suggestion that I can make is that the products of the school should be taken over by local traders and that we should endeavour as far as possible to dispose of the work through the agency of middlemen or contractors and that private orders should not be undertaken. As a matter of fact there has never been any complaint regarding the competition of industrial schools on the part of local traders or artizans, while there is ample evidence to show that they are welcomed as conveniences by the wealthier non-trading portion of the population. Undoubtedly orders which would otherwise go into the bazaars are intercepted by the industrial school, but the work is actually carried out by people who come out of the bazaar and it may be taken as a fact that the school actually causes a demand for more new work and for the employment of a larger amount of labour than would otherwise be the case if it did not exist.

9. During my recent tours in the north of India, I made detailed enquiries regarding the working of the Government Weaving Institute at Serampore and the Hewett Weaving School at Barabanki. The latter is an aided institution receiving annual grants from Government of Rs. 2,000 and from the district board Rs. 3,000. Its main object is to introduce improved methods of weaving into the United Provinces, and during the three years the school has been in existence, 347 pupils are said to have attended it. The school claims to be a great success and to have done much to fulfil its objects, but very detailed enquiries as to the actual work done by ex-students of the school reveal the fact that in no single instance could we find a genuine case of the weavers continuing to pursue in their own homes the methods taught in the school.

10. The Government Weaving Institute at Serampore is maintained by the Bengal Government at a cost of about Rs. 39,000 a year and it is purely an educational institution, no attempt of any kind being made to do manufacturing work. There are higher and lower classes, the former for “young men of a fair degree of education who may be trained to suit as managers or organizers of the weaving industry” and the latter for “actual hand-loom weavers from Serampore and other places.” Forty Government scholarships of Rs. 15 each are open to students of the higher class and 20 Government scholarships of Rs. 6 each and 20 of Rs. 4 each are provided for the artizan classes, whilst the district boards and municipalities of Bengal offer an additional 28 scholarships. The course of instruction in the higher class lasts two years, that for the artizans extends only over a few months. At the time of my visit every student in the school was in receipt of a scholarship of some kind and although I agree that this is absolutely necessary in the case of artizans it is likely to lead to deplorable results in the case of students attracted to the higher class. I found that 20 students of the higher class had just completed their course of instruction, but that not one of them had any definite ideas regarding the future and they were looking out for work with very little prospect of getting it. I attach to this letter reports of the Bengal officers regarding this institution which is under the management of a fairly able superintendent who is well acquainted with the technics of weaving. The school is tolerably well equipped and its deficiencies could easily be made good. The course of instruction in the higher class is elaborate but by no

means thorough and I am certain that the boys passing out of the higher class will be quite incompetent to carry on weaving on a commercial basis. I do not think it will be fair to criticise the school in detail as it has only been in existence for two years and experience will probably lead to many modifications.

11. My proposals for technical and industrial education in weaving at Madura are based upon the assumption that any improvement in the status of the industry can only be effected through the medium of hand-loom weaving factories. So far as I know, none of the attempts at co-operative weaving which have been made in other parts of India have been a genuine success. That at Conjeeveram in this Presidency is undoubtedly a failure. I regard it also as hopeless to expect that the condition of the hand-loom weaver can be improved by merely getting him to work with better tools. The increased value of his work under such conditions will undoubtedly pass into the hands of the bannias or middlemen who now finance them. For the establishment of such hand-loom factories a moderate amount of capital is essential and if we provide suitable education for those who can command such capital, it is not improbable that a number of hand-loom weaving factories will be established. There is a reasonable prospect that hand-loom weaving when carried on in small factories will prove profitable even if the number is largely increased. It is true that many have failed, but a number of such factories are still at work though it is difficult to ascertain what profits have been made. I recently visited the Tanjore weaving factory where Rao Bahadur K. Srinivasa Pillai has 60 looms at work and I was informed by his manager that on a capital outlay of about Rs. 7,000 they made a profit of Rs. 100 per month. The success of this factory has led to the establishment of a rival concern working on similar lines. This factory contains about 20 looms and the proprietor assured me that it was also working at a profit. The Basel Mission undoubtedly make their weaving factories pay and I have before me the report of the Directors of the Hanuman Weaving Company, Limited, who have paid a dividend of 6 per cent. for the year 1910 on a capital of Rs. 7,850. Although there are a number of other companies at work, I have been unable to get any accurate information regarding their profits. The experience at Salem leads to the conclusion that the chief difficulty in the way of profitable working is the intractable nature of the weaver himself and the consequently small supply of competent maistries and foremen.

12. Although I think there is but little doubt that a tinctorial laboratory and dyeing house at Madura will prove extremely useful in developing the industries of the town, I cannot now submit any proposals for the establishment of the same as the matter may still be regarded as *sub judice* pending the report of the recently-appointed Dyeing Expert, Dr. F. Marsden, who has only just arrived in Madras. Neither in Madura nor in any other part of the Presidency is the indigenous dyeing industry worked on a highly organized factory system. In Madura especially there is a very large amount of capital invested in this industry, but its methods are extremely primitive and it is not yet clear in what way we can improve them. There seems to be no opening for the employment of trained chemists, but I would prefer deferring the discussion of this question till Dr. Marsden has reported on the subject.

13. *Mechanical engineering.*—The provision for instruction in mechanical engineering in this Presidency is inadequate and the extent to which facilities for such instruction should be provided in Madura will depend mainly upon the general policy which Government may adopt in regard to it in the Engineering College and in the workshops and factories in Madras. Mechanical engineering can best be learned in engineers' workshops supplemented by evening instruction in elementary technical schools and I have already submitted a note outlining my proposals in this direction. Whether these are carried out or not, it seems essential that in Madura we should at least have a mechanical workshop which will concern itself principally with the local needs of the agricultural community. Government are aware that through the operations of the Department of Industries, the use of motive power and machinery is gradually extending and there is a demand for men to set up such machinery, to run it and to do the necessary repairs. Small mechanical workshops are needed in each locality where this development is going on and progress is

undoubtedly retarded because at present they do not exist. It would hardly pay a private individual in Madura to set up a small mechanical workshop such as is needed. He would have to look to the department for a very considerable portion of his work and his success or failure would depend upon the amount of patronage he received from the department. There is but little likelihood of any private individual starting such a workshop and I think that one should be opened in connection with the technical institute and that the instruction given should be specially designed to deal with agricultural engineering. It will depend upon the facilities provided in Madras whether the instruction at Madura should be confined to the training of intelligent artizans or whether it should be of a more advanced character and provide for what may be termed elementary mechanical engineering. In any case this class should be open to the whole community as the only artizan castes affected by it, the carpenters and blacksmiths, can hardly claim that mechanical engineering is a modern development of their occupations.

14. *Metal work.*—Instruction in metal work has always been a prominent feature of the Madura and the Tinnevely schools and I propose to continue it, working on the same lines as hitherto but providing a more thorough course of instruction. This industry is suffering very severely from the effect of foreign competition and I am of opinion that it will in time become completely extinct unless modern methods of working are introduced. The metal workers know little or nothing about modern alloys or modern methods of casting. The drawing press and the spinning lathe have almost entirely superseded the laborious method of beating up metal by hand. Yet this latter way of working is the only one they know. The metal workers like the weavers are very poor, because the products of their labour now command very low prices as they have to compete with the imported products of the German factories. Enamelled ironware is now very largely used, also drawn and spun brass and german silver ware. Aluminium is to some extent used, but it is by no means popular in the south of India. It is much more largely used in the Northern Circars and still more in the north of India. This is largely due to the fact that the foodstuffs used in Northern India have no deleterious action on metal. In many respects Kumbakonam would be a better centre for a metal-working class than Madura, but the establishment of a separate school devoted to this industry would cost probably more money than could at present be found for it. For the training of pupils in the elaborate machine methods now employed, we might have recourse to the Indian Aluminium Company which would probably take a few apprentices.

15. From the foregoing, it will be seen that I propose the establishment of practically three separate schools in Madura which will have comparatively little connection with one another. I should like, as far as possible, to arrange for the experts in charge of these departments to have as little non-technical work as possible, but obviously one of them will have to be appointed as superintendent or principal of the institution and exercise a general control over the others. If it is decided to establish a tinctorial laboratory, it is almost certain that the dyeing expert will have to be appointed principal and in so far as this diminishes his opportunities for technical work, it must be regarded as a disadvantage.

16. Assuming that the proposals I now outline are accepted by Government, the following scheme is submitted for giving effect to them :—

Site of the proposed institute.—The accompanying map shows the site of the existing institute and also the new site selected by Mr. Cotton. This I do not altogether approve of as a greater part of the ground is on too low a level and I think the cost of diverting the drain has been considerably underestimated. I have consulted the Collector on the subject and he agrees with me that it is undesirable, in view of the possible extension of the town in this direction, to take up this site and I would prefer myself to move a little to the south-west and to acquire a sufficient area of land on the road to Pasumalai just outside the toll bar. The lands are now occupied by paddy fields and are therefore naturally low but all round Madura the same condition prevails. The water supplied to the dye-house and tinctorial laboratory will necessarily require special attention. For this purpose I believe the town water-supply is perfectly satisfactory and there will be no great difficulty in getting a pipe extended in this direction, but if a well is sunk in the compound, and

one will certainly be necessary in connection with the mechanical engineering class, it is possible that an equally good supply of water may be obtained from it. The site I propose to acquire is just outside the town but comparatively close to the weavers' quarters and not too far away for the boys to come there every day. If it is decided to provide hostel accommodation a considerable area of land will be required. It will be necessary to supply the Principal of the Institution with a bungalow and that might either be built in the compound or further out towards Pasumalai where the ground is higher. It will be more convenient to decide points like this during the irrigation season when a glance will show exactly not only the area covered by irrigation but also the facilities for draining away surplus water. For the purpose of these preliminary estimates, I have assumed that the amount realized on the sale of the site of the existing premises will be sufficient to cover the cost of the new site. For the Principal's bungalow including land a lump sum of Rs. 15,000 may be allowed.

17. *The Weaving department.*—This department will be under the general supervision of the expert whose appointment has been sanctioned by the Secretary of State. That we shall be able to get a suitable man in this country on the salary offered, viz., Rs. 400 a month, I am very much inclined to doubt. The weaving problem is a very complex one and as it affects a very large percentage of the industrial population, I think it will not be wise to trust second-rate men to arrive at a satisfactory solution. I would suggest therefore that application be made to the Secretary of State to send out a man from England on the same terms as the dyeing expert who has recently been appointed. The weaving industry is certainly of greater importance than the dyeing industry and the problem with which the expert will have to deal much more difficult. It will be remembered that the present sanction was accorded by the Secretary of State with a view to employing Mr. Dewal, but the experiment has proved a failure, and I think that the weaving problems of this country are worthy of study by a higher type of intellect than we are likely to get for the sum of Rs. 400 a month. I should also like to point out that our method of dealing with the weaving problem will have to be very considerably modified by the recent despatch of the Secretary of State. We may familiarize the people with such improvements in the methods of production as modern science and the practice of European countries can suggest, but we must leave it to private enterprise to demonstrate that these improvements can be adopted with commercial advantage. If the weaving expert is a man of sufficient attainments to inspire confidence and if he be allowed to do private consulting work it is possible that private enterprise with his assistance will be prepared to risk capital in endeavouring to ascertain whether hand-loom weaving in suitably arranged factories can be made to pay or not. Till this point is satisfactorily settled, we cannot expect to get many educated students to go in for an elaborate course of training in the technics of hand-loom weaving. At the outset, we ought to get the industrial section into working order as soon as possible and the principal work of the weaving expert should be to carry on the experimental investigations which we started in the Salem Weaving Factory and which have already yielded definite results of considerable value. The most important question to be tackled is the improvement of indigenous methods of sizing, and on this point whilst I was in England, I submitted certain proposals which were dealt with in G.O. No. 369, Revenue, dated 3rd February 1910. The suggestions made by the Acting Director of Industries proved to be impracticable and Professor Fox of Manchester after a long discussion of the question with me submitted a very valuable report dated 10th June 1910. This report was communicated to me in G.O. Mis. No. 2774, dated 23rd August 1910. I am of opinion that the several experiments outlined in Professor Fox's note should be taken up first and the machinery purchased which was specified in my letter of the 24th November 1909, printed in G.O. No. 369, Revenue, dated 3rd February 1910. As a matter of fact, the oil engine to drive the plant has already been purchased and is now lying at Madura; also the Jacquard harnesses, some of which have been set up in Madras under the superintendence of Mr. N. Subramanya Aiyar, and, so far as experiments with this have gone, they promise to be quite successful. The weaving expert should therefore be got out with the specific object of carrying out these experiments and I think he should be allowed to engage and bring out with him a skilful sizer so that the sizing

experiments may be carried out with the best possible chances of success. I presume under the Secretary of State's orders, we shall have to definitely abandon the idea of establishing a demonstration factory and the sizing machine can in the first instance be used to supply warps for the industrial school and also if it proves to be a success, to supply warps to weavers in the town of Madura. To begin with, we may do this work free of charge if the weavers supply the necessary quantity of suitable yarn, and I have but little doubt that with a weaving expert capable of obtaining the confidence of the weavers at Madura, there will be little difficulty in this direction. I would suggest that the weaving expert be engaged on similar terms to the dyeing expert and that the sizer be engaged in the first instance for a period of 12 months on whatever terms it is necessary to offer him. Probably he will want Rs. 350 or 400 a month.

18. Attached is an estimate of the machinery required to carry out these experiments. I do not propose at the present time to submit any detailed estimate for the equipment of the weaving section. We have already a considerable amount of plant which was used at the Salem Weaving Factory and which is either now at Madura or stored in the workshops attached to my office. This would be sufficient to make a start with and I would ask for a lump sum provision of Rs. 10,000 in addition to the estimate for the dressing machinery which may be expended after the weaving expert has joined his appointment.

19. These proposals will involve a reference to the Secretary of State and we may anticipate that it will take at least a year before the weaving expert can be sent out here. In the meantime the industrial section of the school can be started and temporarily placed under the supervision of Mr. N. Subramanya Aiyar. Rough plans and estimates for the accommodation of this weaving section have already been submitted by Mr. Tressler, and after carefully scrutinizing the same, I am of opinion that they require modification as the accommodation provided is not sufficient for the two sections of the school on the lines on which I propose it to be worked. I have therefore had a new plan prepared the cost of which I roughly estimate to be Rs. 40,800. I have already stated that I do not think we shall get many students in the higher class at the outset unless we adopt the plan pursued at Serampore and offer scholarships of from Rs. 15 to Rs. 20 a month to induce students to come to the school. If we do that we shall certainly get all the scholarships, taken, but I question very much if it is a wise policy to pursue as I cannot indicate at the present moment how these students are to get employment afterwards. If we charge a moderate fee and students come to us it may be assumed that they at any rate share our views regarding the possibility of rehabilitating the hand-loom industry and we may also assume either they or their relatives have more or less definite expectations of being able to do something in connection with it. At the chrome tannery at Sembiam students were willing to pay Rs. 5 a month and I think we might charge the same fee at Madura. If a student is willing to give up two or three years of his time to a course of technical study, it is hardly likely that he will be deterred from doing so by the fact that the fee is Rs. 5 instead of Rs. 3 a month and we are not likely to get many more students even if the education is free. On the principle, therefore, that what is worth having is worth paying for, I propose that the fees for this class be fixed at Rs. 5 a month. The course of instruction should certainly last two years and might possibly extend to three years, but this is a point which ought to be definitely settled after the expert has had some experience of the students.

20. Coming now to the industrial class, I propose that this should consist ultimately of 100 boys recruited between 14 and 16 years of age, that 20 boys should be taken in on the 1st January of each year and that they should be apprenticed to the institute for five years. I am distinctly in favour of the establishment of a hostel as this would bring the boys more completely under our influence and would enable us to take in apprentices from other towns. From enquiries which I have made of other industrial schools where hostels now exist I estimate the average cost of feeding and clothing a boy at Rs. 5 a month and, in addition, I propose to pay each boy one rupee a month for every year he is in the school. Half of this money should be given to him monthly and the other half held in reserve and paid over to him at the time he leaves the school. Approximately it would amount to Rs. 100 and would probably be sufficient to enable him to make a start as an artisan without having recourse to

borrowing money in the bazaar. Whether this class will become popular or not I am unable to say. Experienced native opinion that I have consulted is in exactly the same position. With some diffidence I suggest that nominations to the school might be placed in the hands of the elected members of the Legislative Council and certain semi-public associations such as the South India Chamber of Commerce and the National Fund and Industrial Association. If the regulation is accepted that every boy in this school should belong to the weaving caste, it is almost certain that nearly all of them will be illiterate and I would propose to devote three hours a day to general education continuing the same up to the fourth standard. The working day should be eight hours and this would allow five hours for practical instruction in weaving. It is needless to draw up a detailed syllabus for courses of instruction as it will certainly require modification from time to time. The object should be to train workmen capable of dealing with every stage of the processes of hand weaving for every kind of cloth manufactured in the South of India. A certain amount of silk weaving should be done and it may probably be desirable to introduce the manufacture of various kinds of goods not now woven in India, but for which cheap hand labour might be advantageously employed.

21. *Mechanical department.*—I have already stated that in Madura provision should be made for training mechanics and fitters capable of dealing with the growing need of the agriculturists. Government are well aware that through the operations of the department of industries small machinery of various types is largely coming into use for a variety of agricultural operations. There are at least 300 oil engines and pumps now engaged in lifting water for irrigation and there is an increasing tendency to employ power-driven machinery for rice-hulling, sugarcane-crushing, cotton ginning and the extraction of oil from various kinds of seeds. The mechanical class which I now propose to establish should be closely associated with the department of industries which already employs a considerable number of mechanical foremen and fitters. The best way of training these men is undoubtedly to apprentice them in engineering workshops, and I would strongly urge that this should be done as far as possible; but I think it is quite certain that this will not entirely meet the needs of the country. For our pumping, boring and miscellaneous work, a small Government workshop in Madura would be extremely convenient. Its chief function should be to do the repair work connected with the operations of the Department of Industries of which, especially in the boring section, there is a considerable amount. It might also undertake repair work in connection with the ryots' installations, and although this would be doing private work, it would not be interfering with private enterprise, as all such work has now to be sent to Madras a distance of between 300 and 400 miles greatly to the inconvenience of the ryots and to the annoyance of the engineering firms here who find such work far from profitable and who only undertake it because it is essential to the development of their business in other directions.

To begin with, I would suggest the admission of ten apprentices a year, and I think there will be no difficulty in getting boys who have obtained the school-leaving certificate or who have received an education equivalent thereto. There should be no caste restriction about admission and the boys should be apprenticed for three years and those who do well should be given a further period of two years' training in the department of industries making for them the total period of the course five years. During the first three years they should be paid Rs. 3, Rs. 5 and Rs. 7 a month and during the fourth and fifth years Rs. 15 and Rs. 20 a month respectively. This allowance should be in lieu of batta whilst out in the districts. The school should be equipped with a small mechanical workshop containing sufficient machinery and tools to deal with the work likely to be sent in and it should also have a small foundry where brass and gun metal casting could be made. I have carefully considered whether a cupola for cast iron should be installed and I have come to the conclusion that though it would be extremely convenient and would probably be largely patronized, it is open to the objection that it would be competing to some extent with the foundries of Madras and must therefore be omitted. It is I think essential that the school should be equipped with specimens of the agricultural machinery which we are introducing into the country and there should be an engine

and pump, one or two cotton gins, two or three oil mills, a rice hulling plant and possibly a sugarcane mill, though I am somewhat doubtful about the latter as I am afraid it will be difficult at the present time to get supplies of sugarcane to pass through the mill and it will probably be more convenient to defer giving the pupils experience in sugarcane crushing till the fourth or fifth year of their course. The equipment of the school should in every respect be thoroughly up to date as I would make it serve also as a working exhibition for the benefit of the public. The use of electrical machinery is gradually spreading in India and I would propose therefore to instal a suction gas plant, a gas engine and a dynamo capable of supplying the whole institution with power. At least three different types of oil engines should be available for experimental work, for demonstrations and for instructional purposes and they can also be conveniently used as an alternative method for driving the machinery. In the compound there should be a very large well on which the irrigation machinery can be placed and provision should be made for testing pumps and water lifts, so that the students may acquire a thorough practical knowledge of their working. It would be no use installing all this machinery unless arrangements are made to work it at fairly frequent intervals and to obtain the raw material to work upon. I think we might without much difficulty enter into small contracts with merchants in the bazaar to treat consignments sent by them. The working of the machinery should be entirely in the hands of the school, but the contractor's men should be in charge of the raw material and the finished products. To carry this out successfully, provision has been made for each set of machinery to be installed in a separate shed. The arrangement is somewhat costly but it seems to me a very practical one and it is highly probable that these demonstration plants, which can be worked on a fairly large scale, will be the means of further extending the use of such machinery. In the estimates, the full cost of the plants has been allowed for, but I hope that we may be able to induce manufacturers to give us special concessions as I think it would be a considerable advantage to them to have their machines installed in the institution. As the boys admitted to this class should be about 16 years of age, I do not propose to provide for any general education, but three afternoons a week should be devoted to theoretical instruction, one hour for an elementary lecture on materials and simple forms of mechanism and two hours for mechanical drawing. My idea is not to turn out engineer subordinates or draftsmen but an intelligent class of mechanics somewhat resembling the old English mill-wrights. It will probably be necessary to draw up a very detailed syllabus of course of theoretical instruction, as though we may have a good practical man in charge of this class, it is not likely that he will be able to undertake this part of the work without assistance.

22. For the other industrial classes, viz., carpentry, blacksmiths' work and metal work, I would propose to admit only five students a year to each and to make the course of instruction cover a period of five years. These pupils should all be caste workmen and for the present, admission to the classes should be confined to the residents of Madura. The boys should be admitted at the age of 14 and should work under the same general conditions as the weaving class. They should be provided with food along with the weaving boys, but I do not think it necessary that they should be required to live in the hostel. There is of course the alternative to make the boys live in the hostel and to throw the classes open to the admission of any boys who will be nominated. The progress of the boys most of whom will probably come to the school with some knowledge of their trade should with proper instruction be fairly rapid, and almost from the outset it will be practicable for them to do useful work. Except in the metal working class, I do not think there will be much difficulty in finding work without infringing the regulation that competition with private enterprise is to be avoided. In regard to metal work, it is somewhat more difficult, but I think we should be able to devise some schemes similar to that I have proposed for the weaving class.

23. Before passing into the consideration of detailed plans and estimates to carry out the foregoing suggestions, I have yet to deal with the proposal of Mr. Tressler that the manufacture of gold thread should be taken up experimentally in the weaving

section. I have been in communication with the partners of the firm in Madras who set up the Gold Thread Factory alluded to in Mr. Tressler's letter, and I think that it is highly improbable that they will agree to any such terms suggested by Mr. Tressler. The problem is a very much more difficult one than Mr. Tressler seems to imagine and the failure of the firm to carry on the business successfully is largely due to the fact that they did not themselves undertake the spinning of silk thread or the drawing of silver wire. I do not now propose to enter into discussion of the whole question, but I would point out that nothing can be done unless the work is carried on commercially. It is absolutely essential that at least three expert workmen should be got out from Europe and that satisfactory arrangements should be made for the supply of raw material. The ruling of the Secretary of State absolutely precludes our setting up an experimental Gold Lace Factory and the only possible direction in which the department can render any assistance is in advising private enterprise how to best set about regaining this lost industry. As one fairly wealthy firm have already burnt their fingers very severely, I am inclined to doubt if any one else will take the matter up in the immediate future.

24. The estimated cost of carrying out these proposals involves an initial outlay of about Rs. 3,30,000 and an annual expenditure of Rs. 81,618. In return for this expenditure, adequate provision is made for all the technical education that is likely to be required in this Presidency for the weaving and dyeing industries, whilst a growing demand for trained mechanics in connection with the development of agricultural and rural engineering will be to some extent met by the ten students turned out per annum from the mechanical apprentices' class. Lastly, from the industrial classes, we shall obtain 20 weavers, 5 carpenters, 5 metal workers and 5 blacksmiths, all men belonging to these trade castes and likely to continue to pursue their trade as a means of livelihood. Apart from purely educational work, the school will be a centre of industrial experiment and industrial research and we may reasonably hope that the institution will continue the work of improving the industrial conditions in the South of India. What has been accomplished already, first in connection with the School of Arts and later on through the operations of the department of industries will serve to indicate the direction in which and the extent to which progress is possible.

25. The following tabular statement summarizes the expenditure on buildings and plant :—

	Rs.
Central offices	44,000
Workshop	47,500
Tools and plant	68,500
Weaving factory	40,800
Tools and plant	16,000
Dye house and plant	42,000
Hostel	41,200
Two residences for weaving and dyeing experts	30,000
Total ..	3,30,000

26. The central building as designed is a plain rectangular structure with a verandah all round. On the ground floor is the show room alluded to in paragraph 4, and the office of the Superintendent and his clerks, two store rooms and two class rooms. On the upper floor, there are two more class rooms, a large drawing office and two rooms, one of which might be used as a library and the other as an office for the weaving expert.

27. The mechanical workshop consists of three lines of sheds arranged in a rectangle 156' by 173' and the whole forms a separate enclosure which will prevent petty pilfering. Provision is made for a machine shop, a spinning and metal working shop, a forge and foundry, a carpenters' shop and an industrial section in which for the present it is proposed to instal rice-cleaning machinery, oil mills and cotton gins. The buildings are estimated to cost Rs. 47,500 and the equipment of tools Rupees 68,500. Provision is made for a central generating plant consisting of a suction gas producer and a gas engine direct coupled to a 36 K.W. dynamo. From the switch-board power will be distributed to any point where it may be required in any building connected with the institution. Besides the gas engine, provision is also made for three different types of oil engines so that the students may have opportunities for getting a practical acquaintance with various kinds of motive power they are likely to have to deal with in after life. The petrol engine and pump will be a portable set and will be available for work in the neighbourhood of the institution. For both educational and experimental work, it is proposed to sink a well about 20' in diameter and to such depth that it will contain at least 10' of water. This well will also be available for tests of pumps and various types of water lifts. If there is a good natural supply, the water may be used for the irrigation of the gardens but if the supply turns out unexpectedly small, the water can be returned to the well and only so much daily removed as will suffice to keep it clean. Till a site has been acquired and borings made, it will be impossible to say what the cost of this will be. An allowance therefore has been made which will be ample to cover any probable contingencies. Each workshop is provided with an adequate equipment of tools, but nothing has been introduced which is not likely to be wanted many times over in the districts around within the course of next few years.

28. *Weaving factory.*—The weaving factory, like the workshop, is a rectangular range of sheds 186' long and 109' wide. Adequate provision has been made for a large number of looms, for ample space for experiments of warping machinery and a special class room and laboratory for advanced students. The estimate for equipment amounts to Rs. 16,000 made up of a lump sum of Rs. 10,000 and Rs. 6,000 the balance of the estimate for Atherton's dressing machinery, originally submitted with my letter of the 24th November 1909 and published in G.O. No. 369 of the 3rd February 1910. There is a large amount of weaving plant available from the Salem Weaving Factory some of which is already in Madura and the remainder in the workshop attached to my office.

In the estimates, a lump sum of Rs. 42,000 has been included to make provision for a dye-house. It is not yet settled that instruction in dyeing should be provided, but I think there is little doubt that the dyeing expert will report in favour of the establishment of a tinctorial laboratory in Madura and an approximately estimated cost is therefore included in order that Government may be able to form some idea of what is likely to be the ultimate cost of the establishment of the Madura Industrial school.

29. The hostel provides accommodation for 120 boys at a cost of Rs. 41,200. The accommodation provided is possibly somewhat luxurious for boys of the artizan classes and somewhat beyond that to which they have hitherto been accustomed, but it is not better than that provided in the Chingleput Reformatory school and my idea is that the permanent elevation of industrial classes can only be accomplished by accustoming them to a higher standard of living to obtain which they will necessarily have to work more efficiently.

30. The recurring estimate amounts to Rs. 81,618 and the details are given in the tabular statement appended. The estimate includes Rs. 15,000 on account of the dye-house and tinctorial laboratory and it is hardly likely that this will be exceeded as there would be no industrial students to provide for and a good deal of the empirical instruction which is likely to be called for will be carried out by the materials supplied by the students themselves.

ENCLOSURES.

Statement of recurring annual expenditure.

Particulars.	Monthly pay.	Average cost per month.	Total charges for a year.	Total.
<i>Weaving section</i>	RS.	RS.	RS.	
Weaving Expert	750	1,375	16,500	
Weaving Assistant	200			
Three maistries at Rs. 25 each	75			
Dressing Master	350			
<i>General education classes—</i>				
Two teachers, 1 (25), 1 (20)	45	60	720	
Two peons, 1 (8), 1 (7)	15			
Hostel charges for 100 boys at Rs. 5 per mensem	..			
Scholarships for 20 boys each at Rs. 1 for first year, Rs. 2 for the second year, Rs. 3 for the third year, Rs. 4 for the fourth year and Rs. 5 for the fifth year.	..			
<i>Supplies and services—</i>				
Materials and wages	..	..	3,000	
Sundry tools other than machinery	..	..	1,000	
Petty works	..	..	500	
Contingencies	..	..	500	
Total, Weaving section	..	..	..	31,820
<i>Mechanical Engineering section.</i>				
Superintendent	300—10—400	878½	10,546	
Assistant Superintendent	50—5—200			
<i>Technical or Mechanical section—</i>				
Drawing master	30—2—50	878½	10,546	
Fitter	30—2—50			
Turner	30—2—50			
Blacksmith	30—2—50			
Moulder	30—2—50			
Carpentry instructor	30—2—50			
<i>Industrial classes—</i>				
Metal work instructor	30—2—50	15		
Clerk for workshop	20—1—30			
Two peons, 1 (8), 1 (7)	15			
<i>Scholarships—</i>				
Technical section	..	500	6,000	
Industrial section at Rs. 1 for 15 students for the first year, Rs. 2 each for second year, Rs. 3 for third year, Rs. 4 for fourth year and Rs. 5 for fifth year.	..	225	2,700	
Hostel charges for 75 students in the three industrial classes for five years' course.	..	..	4,500	
<i>Supplies and services—</i>				
Materials, etc.	..	..	3,000	
Tools (sundry)	..	..	2,000	
Petty works	..	..	1,000	
Contingencies	..	..	2,000	
Total, Mechanical Engineering section	..	..	..	31,746
<i>Dyeing section.</i>				
Dyeing Expert	750	895	10,740	
Assistant	100			
Clerk	30			
Two peons, 1 (8), 1 (7)	15			
Lump provision for materials, etc.	..	..	4,260	
Total, Dyeing section	..	..	..	15,000

Statement of recurring annual expenditure—cont.

Particulars.	Monthly pay.	Average cost per month.	Total charges for a year.	Total.
<i>General Office establishment.</i>				
Head clerk	RS. 50—1—60	193½	2,322	
Account clerk	.. 30—1—40			
Store-keeper	.. 40—1—50			
Two clerks, each	.. 20—1—30			
Three peons, 1 (8), 2 (7)		22	3,052	
Two nightwatchmen at Rs. 7 each		14		
Two sweepers, 1 (5), 1 (6)		11		
Scavenger		7		
Gardener		7	..	..
Total, General Office establishment	..	254½	..	3,052
Grand total	..	..	..	81,618

ABSTRACT.

Weaving section	RS. 31,820
Engineering section	31,746
Dyeing section	15,000
Office section	3,052
Total	81,618

Estimate Form—Abstract.

Quantity.	Description of work.	Rate.	Per	Amount.	Total.
	<i>Madura Industrial School.</i>	RS.		RS.	RS.
	Central building—				
	Area 132' × 65' = 8,580 sq. ft.—				
	Rate per square foot Rs. 4-9-0				
	Furniture and fixings				
	Lump sum.			39,146½	
	Grand total of estimate			4,853½	
	<i>Madura Industrial School.</i>				
	Mechanical workshop—				
	Plinth area—				
	2 × 156 × 32 = 9,984.				
	1 × 156 × 52 = 8,112.				
	2 × 30 × 13 = 780.				
	Total area = 18,876 or 19,000 sq. ft.	2½		47,500	
	Grand total of estimate			47,500	
	<i>Mechanical Shop (machinery).</i>				
	Gas engine with suction gas producer of about 50 h.p.,				
	Lump sum.			8,000	
	20 h.p. Ruston & Proctor oil-engine			4,000	
	10½ h.p. Hornsby oil-engine			2,000	
	6 h.p. Petrol engine with pump			2,400	
	36 K.W. dynamo, 225 volts direct coupled to gas engine			2,500	
	Motors of 35 total h.p. as follows:—				
	One 12 h.p. with starter			950	
	One 8 h.p. with starter			750	
	One 5 h.p. with starter			550	
	Two 3 h.p. with starter			800	
	Humphrey's gas pump lifting 20,000 gallons per hour	400		3,000	
	Rees Roturbo pump 6" diameter including piping			900	
	Well in compound			2,000	
No. 3	Rotary oil mills to crush from 50 to 60 lb. of seeds per hour	250		750	
" 2	Platt's cotton gins including leather rollers	600		1,200	
" 1	Rice mill "Fillipina" with accessories complete			7,600	
" 1	Rice-huller "Barnard and Lee", capacity 15 bushels of paddy per hour			800	
" 1	Lathe 10½" centres and 15' bed			1,500	
	Lathe 6"			850	
	Lathe 4"			480	
	Planing machine			1,000	

Estimate Form—Abstract—cont.

Quantity.	Description of work.	Rate.	Per	Amount.	Total.
	<i>Mechanical shop (Machinery)—cont.</i>	RS.		RS.	RS.
	Shaping machine	..	..	600	
	Slotting machine	..	..	935	
	Drilling machine	..	..	600	
4 sets.	Universal mulling machine with dividing plate and cutters ..	..	..	3,000	
	Stock and dies	115	..	460	
	Tool grinders	..	..	350	
	Double grinders	..	..	210	
No. 6	Fitter's benches	120	..	720	
	Fitter's tools	..	..	300	
	Shafting and brackets	..	..	2,000	
	Belting	..	..	1,000	
	<i>Smithshop and Foundry.</i>				
No. 2	Blowers, 350 and 400	..	..	750	
1	Rivetting forge	..	..	150	
6	Smith's hearths	200	..	1,200	
2	Portable forges	120	..	240	
8	Anvils	60	..	480	
6	Stands, tools, etc.	Lump sum.	..	1,000	
	Crucible, fitting furnace and special tools	Lump sum.	..	2,000	
	<i>Metal workshop.</i>				
1	Drawing press	..	..	4,500	
1	Cutting out press	..	..	840	
2	Spinning lathes	500	..	1,000	
2	Small lathes	300	..	600	
	Buffing and polishing lathes	Lump sum.	..	500	
	Special tools	Lump sum.	..	525	
	Drop hammer	..	..	900	
	<i>Carpenter's shop.</i>				
10	Carpenter's bench	50	..	500	
	Tools	Lump sum.	..	500	
	Emery grinders	..	..	600	
	Total	..	..	..	68,500
	<i>Weaving shed at Maḍura.</i>				
	Plinth area	..	..	..	
	Terraced and tiled = 14,300 square feet	2/12	..	39,325	
	Shafting and pulleys	..	..	1,000	
	Miscellaneous work	..	..	475	
	Grand total	..	..	..	40,800
	<i>Weaving machinery.</i>				
	Atherton's dressing machine	..	..	6,000	
	Looms and other warping machinery	Lump sum.	..	10,000	
	Total	..	..	..	16,000
	<i>Hostel for 120 students.</i>				
	Plinth area for the whole building 14,975 sq. ft. (including latrine).	2/12	..	41,181	or say
	Total	..	..	..	41,200

Extract from some notes submitted by the Director of Public Instruction, Bengal, to the Educational Conference at Allahabad.

"Textile manufactures.—The Superintendent of Industries says that present methods and existing facilities already probably meet the serious demands for instruction. Government has done much; the results are disappointing, because students turned out cannot find satisfactory employment. Employers and those who have urged heavy expenditure on Government do not aid in putting the training gained at such institutions to a practical use. Until more practical application is made it would be useless to expend large sums of money on expensive schemes of education. At the same time he considers a good technical institute would be suitable in Calcutta.

The Principal of the Government Weaving Institute, Serampur, makes the same complaints and adds an account of the Institute which provides for the annual admission (with ample scholarships) of 75 pupils annually to (1) classes destined to turn out teachers, managers and foremen of the weaving industries, (2) actual hand-workers.

At the present moment the total numbers are only 71 which means that the institute is not half full. Furthermore, the men who have just passed out from the higher class and who are trying to induce the leaders and capitalists of Bengal to assist them in opening factories have hitherto met with nothing but disappointment. Until the present institution fills and until some practical support is given to the passed students it would seem useless to make further efforts.

N. Ref. on Cur. No. 417, dated 5th May 1911.

Submitted to Government in continuation of this office letter R.C. No. 417, dated 18th April 1911.

J. H. STONE,
Ag. Director of Public Instruction.

ENCLOSURE.

*Annual report of the Government Weaving Institute, Serampore
for the year 1909-1910.*

This institute has been established with the object of giving technical instruction in the best and latest methods of hand-weaving, of extending a knowledge of the mechanical improvements which make the modern hand-loom so vastly more effective a machine than the primitive looms yet widely used by native weavers in Bengal, and so of strengthening and reviving the hand-loom weaving industry in this country. With these objects in view two quite distinct grades of instruction are given, forming higher and lower classes:—

(1) to young men of a fair degree of education who may be trained as teachers, managers and organizers of weaving factories. These form the higher classes;

(2) to actual weavers from Serampore and other places. These form the lower or artisan class.

The institute was opened by D. J. Macpherson, Esq., M.A., C.I.E., I.C.S., Commissioner of the Burdwan division, on the 11th January 1909.

The institute has been located in a hired building as a temporary measure till better accommodation can be afforded. The number of admissions to the classes in each year has therefore been limited to 75. Of these 20 will be reserved for candidates from Eastern Bengal and Assam.

General history of the institute from its commencement.

The classes opened with 30 students in the higher class and one actual weaver in the artisan class. During the course of two months the numbers gradually swelled to 75, of these 70 belonged to the higher class the five to the artisan class, but the first sessional examination was the means of weeding the higher class of the idlers. The classes in January 1910 stood as follows: 35 in the higher class and 39 in the lower class, thus proving that the actual weavers are also being attracted to the institute.

The annual examination of the high class was held in December 1909, and gentlemen who are actually connected with the weaving industry were appointed as examiners, as I wished to have their opinion on the general knowledge the boys had acquired during the year.

I am pleased to be able to state that the examiners' reports in the several subjects were most satisfactory. They were highly satisfied at the clear intelligent answers given by the majority of the boys. The results of these examinations are given in Appendix No. A, and they will prove themselves.

With the commencement of the new term, which started on the 8th January 1910, twenty-two boys who passed in these examinations were promoted to the 2nd year's course of the higher class. Twenty-seven new students were also admitted to the 1st year's course, thus making a total of 49 in the higher class.

The number of students in the artisan class are constantly fluctuating as the period of instruction in this class is much shorter, and at present they muster 45.

A course of instruction in practical weaving, fabric structure, design and analysis of cloth, drawing and dyeing is given to this class through the medium of the vernacular.

I have not been able to hold any examinations in this class, as most of the students are illiterate.

At the commencement of this institute much difficulty was experienced in getting the actual weavers to join, as, apart from their prejudices, they were under the impression that they could learn nothing more than what they already knew. I am pleased to be able to state that in a little while they changed their minds and were full of wonder when they saw how easily their cherished trade secrets could be analysed and worked out after a little instruction, even by youngsters. This difficulty has been overcome, and at present there is no trouble in getting *bonâ fide* weavers to fill the places of those who pass out. Another attraction is the simple course of dyeing that they are taught. Up to the present time they had to buy dyed yarns at high prices, and the weavers tell me that the knowledge of dyeing they get is quite sufficient for them to earn a livelihood apart from weaving.

Prior to the establishment of the Weaving Institute, Serampore, weavers limited themselves to the manufacture of *dhootis* with coloured borders, and with few exceptions flowered borders were considered family secrets, handed down to them from father to son and these border designs were limited; now they are able to produce any design working up to about 10 or 12 shafts from design paper. The drawing lessons they get are a great assistance to them in producing new and original designs.

During the period under report the institute had the privilege of being inspected by His Honour the Lieutenant-Governor of Bengal and the following gentlemen:—

- (1) Hon'ble Mr. J. G. Cumming, I.C.S. (Secretary, General Department);
- (2) D. J. Macpherson, Esq., M.A., C.I.E., I.C.S. (Commissioner of the Burdwan Division);
- (3) Hon'ble Mr. H. W. Orange, C.I.E. (Director-General of Education in India);
- (4) Hon'ble Mr. G. W. Kuchler, M.A. (Director of Public Instruction, Bengal);
- (5) H. R. James, Esq., M.A. (Offg. Director of Public Instruction, Bengal);
- (6) C. W. Cotton, Esq., I.C.S. (Director of Industries, Madras);
- (7) J. R. Cunningham, Esq. (Assistant Director of Public Instruction, Bengal);
- (8) F. De L. Booth Tucker, Esq., I.C.S. (Salvation Army);
- (9) Dr. Arthur Du Pre Denning, M.S., B.Sc., PH.D., etc. (Superintendent of Industries, Bengal);

and several other gentlemen who are interested in the hand-loom weaving industry in India.

The last inspection report given by the Hon'ble Mr. Kuchler, Director of Public Instruction (Bengal), is very encouraging as he was in the best position to mark the real improvement made by this institute between the period of his first visit in March 1909 and the last in January 1910 after his return from England.

The course of studies for the higher class is given in detail below:—

1st year's course.

- | | |
|-------------------------------------|-----------------------------------|
| (a) Practical dyeing. | (e) Design and analysis of cloth. |
| (b) Sketching of textile machinery. | (f) Preparation of yarn. |
| (c) Model drawing. | (g) Textile fibres. |
| (d) Freehand drawing. | (h) Fabric structure. |

2nd year's course.

- | | |
|----------------------------|-----------------------------------|
| (a) Practical weaving. | (d) Textile chemistry. |
| (b) Construction of works. | (e) Design and analysis of cloth. |
| (c) Engineering drawing. | (f) Fabric structure. |
| (g) Weaving mechanism. | |

Artisan class.

- | | |
|------------------------|-----------------------------------|
| (a) Practical weaving. | (c) Design and analysis of cloth. |
| (b) Freehand drawing. | (d) Practical dyeing. |

Two competitive examinations are held yearly in the higher classes, and the first 20 boys of each year secure scholarships of Rs. 15 each per mensem.

The students are also encouraged to study for the City and Guilds London Examinations which are being held at Bombay, but I hope in the near future that Serampore will be made an examining centre for Bengal. These examinations are recognised by all technical institutes both in Europe and in India and carry much weight in the textile industry.

The students of the higher class who pass the final examinations at the end of the two years' course will receive certificates from the Director of Public Instruction, Bengal. The weavers of the artisan class receive certificates of merits from the institute after they have completed the prescribed course of training in that class.

SCHOLARSHIPS.

Forty Government scholarships of Rs. 15 each have been allotted to the students of the higher classes to enable them to maintain themselves while they are undergoing a course of study at the institute. These scholarships are awarded every term to the first 20 boys of each class who pass their examinations, thus maintaining a keen competition among the boys for places in the classes.

Twenty Government scholarships of Rs. 6 each per mensem and twenty scholarships of Rs. 4 each per mensem tenable from four months to one year have been provided for the artisan class. These scholarships do not suffice for the maintenance of the weavers and their families and the district boards and municipalities have been called on to supplement them when sending their nominees so as to bring them up to at least Rs. 10 a month, which is roughly estimated as the cost of maintenance of a weaver at Serampore.

The majority of the district boards have generously come forward with the required assistance, and in some cases they have offered appointments to their nominees after they have completed the prescribed course of training. The list of these district boards and municipalities is given in appendix B.

EASTERN BENGAL AND ASSAM GOVERNMENT.

The Eastern Bengal and Assam Government has sent three students this year to undergo a course of study in the higher class. Of these two are regular students and one has taken up a special course in weaving and dyeing, as he has hopes of being nominated for a State technical scholarship to enable him to complete his studies in England. Next year I hope to have a few more from that province.

EQUIPMENT.

The institute is fairly well equipped with modern fly-shuttle hand-loom and preparatory machinery of various types both of Indian and European manufacture, but I would strongly advise that at this stage that a few Dobby and Jacquard hand-loom would be introduced, and, if possible, one or two power looms driven by a small oil-engine. Two power looms and oil-engine would probably cost about Rs. 1,500 and the cost of the Jacquard's and Dobby power loom will amount to about Rs. 200. My reason for advising that power looms should also be introduced is because it can hardly be expected that all the students of the higher class passing out of this institute will limit themselves to hand power machinery when there is such a demand for skilled labour in the mills. The theory course of both hand and power loom weaving is practically identical.

OUTLYING CENTRES.

The scheme further provides for five outlying weaving schools at which a less comprehensive course of instruction is given in vernacular to the artisan classes or the actual weavers.

At each of these schools 20 scholarships of Re. 4 each per mensem have been provided as subsistent allowance for the weavers during the period they are undergoing a course of instruction.

So far I have only been able to open only one of these weaving schools owing to the great pressure of work here. This school has been opened at Bihar and a teacher trained at the Government Weaving Institute, Serampore, has been put in charge.

This school is supervised by me from time to time.

As soon as the other outlying centres have been opened, which I hope to be able to do during the course of this year, much of my time will be taken up in supervising them.

A weaving school has also been opened at Sambalpur this year to teach the Gandas, who form the criminal tribes of that district, the use of the fly-shuttle loom, thus affording them an opportunity of earning a livelihood. I have pleasure in stating that this venture has been a decided success. It has been proved at this school that a Ganda weaver after he has had a couple of months of training in the fly-shuttle loom is easily able to earn Rs. 15 to Rs. 20 per mensem. This weaving school is outside the scheme, but I have been obliged to visit it several times to assist the Deputy Commissioner in working it on a proper basis.

STAFF.

The Teaching staff I have is as under:—

	RS.
Assistant Principal, Mr. P. N. De	250
Drawingmaster, Babu, Khirad Chandra Bhattacharji	50
Jobber, Babu Sashi Kumar Mazumdar	50

and

Four temporary practical weaving teachers	20 each.
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This staff is inadequate to cope with the work of teaching, and I have been greatly handicapped throughout the year for the want of qualified assistants.

It is impossible for me to continue any longer as I am doing at present, and I must have assistance at an early date. The major portion of the class lectures have to be taken by me, besides having to conduct and supervise the practical classes and office work.

My time at present is so occupied with petty matters which have to be attended to that I have no time to devote to the organizing of the outlying centres and the general improvement of the institute which is an absolute necessity.

CLERICAL STAFF.

I have one typist in the office on a salary of Rs. 30 a month who is expected to do all the clerical work in the office, and also to keep accounts. The work which is daily increasing is beyond the scope of one man, and naturally the work of the office is in arrears. If this congestion could only be relieved it will be a great assistance to me, and a saving of much of my time. What I really require is another general clerk with a knowledge of office routine and accounts, and this is an immediate necessity.

HOSTEL.

There are at present 32 students in the hostel, of whom 22 are Hindus, 4 Muhammadans and 6 Christians.

A separate building has been taken for the accommodation of the Hindu students on a monthly rent of Rs. 28 per mensem and the Muhammadan and Christian students are living in the school building. A hostel superintendent has not as yet been appointed, although the matter has gone before Government for sanction.

HEALTH OF THE BOYS.

The general health of the boys is not satisfactory owing to the frequent outbreaks of diarrhoea, fever, cholera and malaria in Serampore and its neighbourhood.

During the malarial months, namely, August, September and October, at Serampore, the sickness is very great and this year I have been obliged to combine the midsummer holidays with the Durga Puja holidays, and keep the institute closed for these months.

No provision has been made for a doctor to look after the health of the boys in the hostel, and hence no record has been kept of the nature of the diseases and the number of patients treated.

I would strongly advise that some arrangements should be made with the local hospital here to provide for the services of a Doctor Babu to visit the hostel every day. During the year under report two resident students died of cholera, one of them was admitted to the public hospital here and died of the complaint, the other went home and died on his arrival.

DISCIPLINE.

I have nothing special to report under this head. One student was expelled for being found drunk in the hostel, and the names of two other students were struck off the rolls for having decamped to Singapore without informing any of the authorities in this institute.

ATHLETICS.

An athletic club has been started. The students are very keen on cricket, football and badminton and five matches were played during the season with some out side clubs, but unfortunately the students of this institute were beaten. There are no available grounds in Serampore near the institute which can be used as a play-ground for the boys and this is a great drawback to them.

LIBRARY.

No arrangements have yet been made for providing this institute with a library or even a few textile journals, magazines and newspapers. It is chiefly through the reading of articles in these papers that touch can be kept with the advancements of the times.

There is a small local library at Serampore that some of the students attend, but unfortunately this library provides no books on textile manufacture. It will be a great boon to the students and staff of this institute if a few reference books at least could be provided as a small beginning.

Statements showing the expenditure for 1909-10 under the several heads.

Salaries and establishments.	Travelling allowance.	Contingencies.	Scholarships.	Total.
RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.
12,607 5 10	1,538 13 6	6,982 8 7	6,753 10 7	27,882 6 6

APPENDIX A.

SERAMPORE GOVERNMENT WEAVING INSTITUTE.

Subjects.

Names in order of merit.	Model drawing.	Free-hand drawing.	Textile fibres.	Yarn preparation.	Analysis of cloth.	Fabric structure.	Machinery sketching.	Total of marks obtained.
1. Srinibash Saha	70	80	131	174	165	155	91	866
2. Bejoy Krishna Mukherji	62	70	115	130	174	155	90	846
3. Charu Chandr Bhattacharji	70	90	104	153	170	155	95	837
4. Narendra Kumar Rose	35	85	101	181	163	133	91	789
5. Moti Lal Laha	55	80	130	149	139	125	92	770
6. Ganga Charan Dhar	68	45	110	116	177	128	72	718
7. Nani Gopal Mitra	42	65	102	150	187	103	49	699
8. Nalit Mohan Mukherji	34	65	78	162	165	97	56	667
9. Joy Gopal Banerji	34	40	84	177	134	120	58	647
10. Satish Chandra Mitra	34	38	98	173	118	67	62	640
11. Hrishikesh Mukherji	35	34	104	166	125	113	45	622
12. Aditya Narayan Mukherji	48	35	115	121	140	89	60	608
13. Sudhir Kumar Banerji	35	50	129	156	79	94	58	601
14. Provash Chandra Chakraberty	34	24	93	145	78	103	53	530
15. Lalit Mohan Sen	15	60	112	164	158	(a)	(a)	509
16. Satya Aradhan Chatterji	34	45	63	86	93	116	60	497
17. Horendra Nath Banerji	34	74	71	43	57	89	40	408
18. Profulla Kumar Adhya	25	34	36	101	84	74	46	400
19. Nalin Behari Nundi	45	20	64	84	70	60	50	393
20. Suresh Chandra Bhattacharji	34	40	43	103	50	39	49	358
21. Mohit Kumar Chatterji	34	40	35	93	72	43	41	358
22. Ramgopal Banerji	20	75	(a)	(a)	79	55	64	293
23. Jnanendra Nath Ghose	34	50	16	33	70	55	34	292
24. Kali Pada Gupta	34	38	69	23	40	59	22	285
25. Anukul Chandra Ghose	34	34	37	35	42	22	49	253
26. Moti Lal Ghose	36	20	39	47	45	12	34	234
27. Nilmony Pyne	15	24	28	26	70	25	45	233
28. Nani Gopal Goswami	15	20	10	2	43	(a)	20	110
Marks allotted to each subject	100	100	150	210	210	200	100	..
Grand Total	..	..	..	..	..	..	..	1,070

APPENDIX B.

LIST OF DISTRICT BOARDS AND MUNICIPALITIES

(Who have granted scholarships.)

1. Burdwan municipality	One scholarship of Rs. 4 per mensem.
2. Serampore	Two scholarships of Rs. 6 each per mensem.
1. Bankura District Board	Two scholarships of Rs. 6 each per mensem.
2. Balasore	Do.
3. Palamau	One scholarship of Rs. 10 per mensem.
4. Bhagalpur	One scholarship of Rs. 6 per mensem.
5. Hazaribagh	Do.
6. Khulna	Do.
7. Howrah	Do.
8. 24-Parganas	Two scholarships of Rs. 6 each per mensem.
9. Patna	Three scholarships of Rs. 4 do.
10. Midnapore	Two scholarships of Rs. 6 do.
11. Hooghly	Ten scholarships of Rs. 6 do.

SERAMPORE,
The 18th April 1910.

E. HOOGWERF,
Principal, Govt. Weaving Institute.

VIII

Official Memorandum No. 1073-3, Educational, dated 27th October 1911.

The letter from the Superintendent of Industrial Education, dated the 26th April 1911, submitting a scheme for the re-organization of the Madura Technical Institute is referred to Mr. James, Principal of the College of Engineering, for remarks on the proposal relating to the mechanical engineering department of the institute.

(By Order.)

M. S. MASCARENHAS,
Under Secretary to Government.

To Mr. W. H. James, Principal, College of Engineering,
through the Director of Public Instruction.

IX

Letter—from W. H. JAMES, Esq., B.Sc., Principal, College of Engineering, Madras.

To—the Secretary to Government, Educational Department (through the Director of Public Instruction, Madras).

Dated—the 29th November 1911.

No.—1544-C.

With reference to Memorandum No. 1073-3, Educational, dated 27th October 1911, I have the honour to submit the following remarks.

2. As I understand the proposals of the Director of Industries, they practically involve the establishment of separate industrial and technical classes in mechanical engineering at Madura.

3. Confining my remarks to the latter, it is rightly pointed out that the necessity for the technical classes will depend on the policy of Government in regard to this college, and particularly as to whether it is intended to restrict our mechanical engineering instruction to only the engineer class students. This in itself necessitates the erection and equipment of up-to-date workshops, etc., and I have in previous communications suggested that use could also be made of the plant in connection with the training of mechanical engineer subordinates. If the proposals for Madura are accepted, it must mean the duplication to some extent of teaching facilities and equipment.

4. It is difficult to gauge what the demand may be in the future for men of the type under consideration, but I question whether for a long while it will be such as to justify the establishment of several schools for their training, and if Government decide on starting with one school, Madras, as the commercial centre appears the only possible location whether the decision may be to form a class at this college or under separate control elsewhere. As far as the students themselves are concerned it cannot but be to their advantage that they should come in contact even indirectly with the advanced work done at the college, and if called on to submit a scheme for training in this connection I would probably suggest that students who show promise should be afforded opportunities for going on to higher work than might be considered advisable for the class in general.

5. I agree with the Director of Industries in thinking that in addition to theoretical instruction these mechanical engineer subordinates should have real practical training, and in the tentative proposals set forth in my No. 3174-C., dated 5th March 1909, this point was covered in the suggestion that they should put in some time as improvers in shops working under ordinary commercial conditions. My experience leads me to the conclusion that this practical training cannot be carried on efficiently in an establishment partly devoted to educational purposes, and if this view is accepted the majority of students would in any case have to come to Madras for such training.

ENCLOSURE.

Letter—from the Principal, College of Engineering, Madras.

To—the Director of Public Instruction, Madras.

Dated—the 5th March 1909.

No.—3174-C.

In connection with the proposed expansion of the college and the provision of new laboratories and workshops, I have the honour to submit, for the consideration of Government, the suggestion that a want, which to some extent has already been felt and must become more pressing in the near future, might be served by the institution of classes for the training of men as subordinates for mechanical engineering work.

2. It is intended that these men should be of the type of foreman mechanic and the training would be such as to enable them to take charge of small central stations, mill installations, etc., or they might look after the running and repairs of pumping plants and other machinery in grouped districts.

When the college is provided with the necessary laboratory and workshop equipment for the existing classes the extra expense to Government in the way of additional apparatus and tools for the proposed class should be comparatively small and it would to a great extent only mean that the workshop equipment would be more continuously in use than could otherwise be the case.

3. With regard to the employment of the students it should be clearly understood that Government would accept no responsibility in the matter of guaranteed appointments, and the class would then develop naturally according to the demand for the services of such men.

4. It will be understood that nothing can actually be done in connection with the class until we have our new laboratories and workshops in working order, but it might assist in making the proposal clearer if some indication is given of the lines along which the class might be worked—

(a) *Admission.*—It is in the first place most essential that the right type of man should be admitted and admission should therefore be by selection on the part of the Principal.

(b) *College course.*—The course might extend over a period of about three years and during that time the idea would be to give just the necessary combined theoretical and workshop training to enable the men to carry out their intended duties in a satisfactory and efficient manner. The course itself might be something as follows:—

First year	..	<i>Theory.</i> —Geometrical drawing. Lectures on materials and descriptive engineering. <i>Workshop.</i> —Carpentry and simple fitting.
Second year	..	<i>Theory.</i> —Machine drawing. Lectures on tools and manipulations and elementary theory of steam, gas and oil-engines. <i>Workshop.</i> —Machine work and general fitting. Blacksmiths' work. Simple electrical work, jointing, etc.
Third year	..	<i>Theory.</i> —Drawing and lectures to follow on second year with in addition very elementary theory and description of electrical machinery. <i>Workshop.</i> —Foundry work. General overhaul of machinery, setting of valves, marking out work, etc. Fitting up of electrical machines, etc.

Examinations both practical and theoretical would be held from time to time to test the students' progress.

5. After the three years' course at the college the student might join a suitable commercial workshop as an improver for one or two years in order to obtain experience under ordinary practical conditions and would finally be granted a certificate or diploma on the satisfactory completion of this period of service.

6. In addition to the above the possibility might also be considered of instituting a course of instruction for motor drivers extending over a period of say nine months to afford the training necessary to enable a man of average intelligence to keep a car in decent order, carry out ordinary running repairs and become a fairly competent driver.

N. Ref. on Cur. No. 417, dated 15th December 1911.

Submitted to Government together with a copy of the Principal's letter No. 3174-C., dated 5th March 1909, referred to in paragraph 5 of the letter. The suggestions contained therein were embodied in this office letter Ref. on Cur. No. 1601, dated 17th July 1909, disposed of in G.O. No. 3072, Revenue, dated 12th November 1909.

A. G. BOURNE,
Director of Public Instruction.

Order—No. 647, Educational, dated 18th July 1912.

The papers read above relate to the re-organization of the Technical Institute at Madura and the scheme formulated by the Hon'ble Mr. Chatterton in that regard. Subject to certain modifications indicated in the following paragraphs the Government approve generally of the proposals submitted.

2. They accept the desirability of providing technical instruction at Madura in weaving and dyeing and opening industrial classes for weavers, carpenters and blacksmiths, but the mechanical engineering section should in their opinion for the present be strictly limited to *elementary* classes for the benefit of intelligent artisans. Nor are they prepared at this stage to sanction any outlay on endeavours to teach metal work at the institute; sufficient provision for instruction of an artistic character already exists in the School of Arts at Madras and it is questionable whether in the present state of industrial development any useful purpose would be served by teaching the artisans of Madura modern alloys and methods of casting.

3. The technical classes in the institute should be open to all sections of the community, monthly fees being levied and admission confined to those who in the judgment of the head of the institute possess a sufficient knowledge of English to benefit by the instruction given. It should be regarded as a matter of cardinal importance to restrict high-grade training to the class of persons who have the means and the will to make subsequent provision for their own employment. The Government realize that the adoption of this principle may at the outset render it difficult to secure students in sufficient number for economical working; but they consider it essential to avoid the alternative course of increasing the number by the grant of scholarships, experience having shown that this procedure only too often results in the training being wasted on students who have no intention, or at least no prospects, of utilizing it in their after life.

4. Under the head of weaving the Government agree that the most important problem for solution is the possibility of improving the indigenous methods of sizing. In order that a definite programme of experiments in this direction may be drawn up the Superintendent of Industrial Education will be requested to submit with his recommendations the report on this subject by Professor Fox of Manchester to which reference is made in paragraph 17 of Mr. Chatterton's letter. The Government accept the conclusion that it is necessary to secure the services of a European expert for this department of the institute, but they doubt the need for a weaver as well as a sizer. The qualification specially required is thorough acquaintance with the details of the sizing processes, and if the scientific English weaver is not also an experienced sizer the wiser course would, the Government incline to think, be to import a sizer from England and to engage an expert weaver in India; the services of the former could probably be obtained for a salary of less than Rs. 750 *per mensem* and it should suffice to fix the remuneration of the latter at not more than Rs. 400 *per mensem*. The Superintendent will be requested to report his considered views on this question. Meanwhile the opening of weaving classes need not be delayed; temporary buildings may at once be put up on the site recently acquired for the technical institute and this branch of the work may be started on a provisional basis under the supervision of M.R.Ry. N. Subramanya Aiyar.

5. As regards instruction in dyeing, Dr. Marsden, the tinctorial expert, should be able by this time to give sound advice, and if in his opinion there is an opening at Madura for such a class, detailed proposals may be submitted for its establishment at an early date.

6. As already indicated in paragraph 2 *supra* the Government are not prepared to accept the proposals in paragraph 21 of Mr. Chatterton's letter for the creation of a complete mechanical department. Whatever may become expedient in the future, they are clearly of opinion that the course of training should be confined in the first instance to instruction of a strictly elementary character and of an industrial rather than a technical nature. Intelligent artisans should have preference but admission to the class need not be confined to members of the artisan caste; it should be open to all sections of the community.

7. In the case of other industrial classes, however, it should be a cardinal principle that the pupils, wherever possible, must be drawn from the castes whose occupations are the trades to be taught at the institute. The age limit for admission may appropriately be fixed at about 14 years and the Government agree that the course of instruction should ordinarily last for a period of five years, provision being made simultaneously for some measure of general education. They approve the proposal to grant stipends and rent-free accommodation, but consider that for the present at least the pupils should be required to pay for their own board. It must be clearly understood that the industrial classes in general are to be conducted on educational rather than commercial lines.

8. The arrangements outlined with regard to the industrial classes in weaving in paragraph 20 of Mr. Chatterton's letter commend themselves generally to the Government and they have no objection to the Superintendent's invoking the assistance of the elected members of the Legislative Council or of associations such as the South Indian Chamber of Commerce and the National Fund and Industrial Association, if he considers such a course likely to facilitate the selection of satisfactory pupils.

With some reluctance they accept the conclusion that the development of the manufacture of gold thread is an enterprise which cannot with advantage be further pursued at the present juncture.

9. The arrangements recommended for the training of blacksmiths and carpenters in paragraph 22 of Mr. Chatterton's letter appear generally suitable and the Government approve the suggestion to confine admission to these classes in the first instance to residents of Madura and its immediate vicinity.

10. There is no objection to the continuance of a small permanent show-room for the exhibition of articles manufactured by the local artisans provided that it is worked on lines similar to those followed in the Victoria Technical Institute at Madras. The finished products worked up in the industrial classes should however be disposed of by auction.

11. Orders in regard to the acquisition of a site have been separately passed in G.O. No. 309 W., dated 24th February 1912. The conclusions arrived at in the preceding paragraphs will render it possible to reduce the expenditure upon machinery and buildings and at the same time to effect economies in the recurring outlay on the institute, and the Government desire that a revised estimate of cost should now be drawn up and submitted for approval. The buildings should be designed so as to allow of development and care should be taken to leave sufficient space for future expansion. A bungalow will be required for the Superintendent of the Institute at a cost not exceeding Rs. 13,100, being the scale appropriate for an officer in receipt of a salary of Rs. 750 *per mensem*, but there is no need to make similar provision for the weaving and dyeing experts whose appointments have not yet been permanently sanctioned. The amount of hostel accommodation necessary will require re-examination and attention should in this connection be devoted to the questions—

- (i) whether separate accommodation for the older and for the younger pupils is required,
- (ii) what provision, if any, should be made for resident wardens, and
- (iii) whether it is not desirable to provide for a hospital or dispensary on the spot.

(True Extract.)

L. DAVIDSON,
Ag. Secretary to Government.

To the Director of Public Instruction (with plans returned).
" Revenue Department.
" Public Works Department.
" Financial Department.

EDUCATIONAL DEPARTMENT.

NOTES TO G.O. No. 647, EDUCATIONAL, DATED
18TH JULY 1912.

[SUBJECT.—*Re-organization of the Technical Institute, Madura*].

Previous papers :

G.O. No.	313 -14	Edl., dated	12th May	1905.
" "	755	L., "	25th "	1908.
" "	504	Edl., "	8th July	"
" "	521	Rev., "	24th February	1909.
" "	1625	" "	18th June	"
" "	3072	" "	12th November	"
" "	2	" "	17th February	1910.
" "	565	" "	19th "	"
" "	1479	" "	6th May	"
" "	1623	" "	17th "	"
" "	2617	" "	10th August	"
" "	2774	" "	23rd "	"
" "	3446	" "	27th October	"
" "	1302	W., "	23rd November	"
" "	3835	Rev., "	3rd December	"
" "	3836	" "	3rd "	"
" "	745	Edl., "	16th "	"
" "	4051	Rev., "	19th "	"
" "	65	Edl., "	3rd February	1911.
" "	241	" "	25th April	"
" "	269	" "	8th May	"
" "	1618	Rev., "	30th "	"
" "	621	Edl., "	5th September	"

REVENUE DEPARTMENT.

I

The Honourable Rao Bahadur Ramabhadra Nayudu :—

Question 10. Will the Government be pleased to consider the question of helping the revival of the industry of lace-making in which the Muhammadans in the town of Madura have been engaged for generations past?

With reference to the question above, attention is invited to paragraph 24 of Mr. Havell's report of 1885 on page 7 of the selections from the Government Records, Vol. VI, and to page 4 of Mr. Hadaway's Monograph on "Tinsel and Wire" published recently. It is seen therefrom that the lace-making industry had sunk into insignificance years ago and that "a few Musalmans (in Madura) still carry on the industry to supply a surviving demand in Tinnevely, Trichinopoly and Travancore".

2. Attention is also invited to paragraph 3 (3) of the despatch to the Secretary of State, No. 2 (Mis.), dated 17th February 1910, in which the Secretary of State has been asked to place Mr. Chatterton on special duty to study, among other subjects, the manufacture of machine-made gold thread in France to judge of the possibility of developing it in this Presidency.

The following answer may perhaps be given :—

"The question of developing the manufacture of gold thread in this Presidency is now under the consideration of the Department of Industries and with this object Mr. Chatterton has been asked to study the manufacture of machine-made gold thread in France".

E.S.J.—23-3-10.

It will be seen from Mr. Hadaway's Monograph on "Wire and Tinsel" put up below that the "lace-making" referred to by Honourable Member is the manufacture of gold thread. The following draft answer is submitted for approval.

"The possibility of re-establishing the manufacture of gold thread in this
A. G. CARDEW. | Presidency will be examined by the
Department of Industries".

2. It is perhaps unnecessary to refer to Mr. Chatterton's enquiries in the draft answer as we do not yet know whether the Secretary of State will place him on special duty.

F. NOYCE—23-3-10.

The answer suggested by the Under Secretary is submitted for approval.

A. G. CARDEW—24-3-10.

Approved. But why in Heaven's name does not the Honourable Member put some capital into the business if he is so keen about it.

J. N. A[TKINSON]—24-3-10.

To the Legislative Department.

A. G. CARDEW—24-3-10.

REVENUE DEPARTMENT.

Attention is invited to the answer given to Question No. X at the last Legislative Council meeting.

No answer has yet been received to Despatch No. 2, dated 17th February 1910, in which the Secretary of State was moved to place Mr. Chatterton on special duty to study, among other matters, the manufacture of gold thread. Orders are requested as to whether Mr. Chatterton's return from furlough may be awaited before referring to the Director of Industries the subject of the question and answer.

E.S.J.—20-4-10.

The question of re-establishing the manufacture of gold thread in this Presidency cannot be taken up until Mr. Chatterton's return from furlough, I submit.

F. NOYCE—24-4-10.

Yes, but in order to close the file and put things in train, a copy of the question and answer had better be sent to the Director of Industries with a direction to report in due course. Then a reminder should be sent on 15th October.

A. G. CARDEW—25-4-10.

A draft official memorandum is submitted for approval.

E.S.J.—29-4-10.

Issue.

F. NOYCE—30-4-10.

[Official-Memorandum No. 1798-A/10-1, dated 2nd May 1910.]

From the Director of Industries, dated 19th July 1910, No. 18 G.

At the meeting of the Legislative Council held on the 5th April last a question was asked whether Government would consider the desirability of helping the revival of the lace-making industry in Madura, i.e., the manufacture of gold thread. The Government promised in reply that the subject would be examined by the Department of Industries. The Director of Industries was accordingly asked in Official Memorandum No. 1798-A/10-1, dated 2nd May 1910, to report on the subject in due course. The Director now submits the report in his letter No. 18 G., dated 19th July 1910.

2. Mr. Chatterton is studying the subject of the manufacture of gold thread by machinery in France. The factory started at Perambur by a private capitalist and mentioned in Mr. Hadaway's Monograph on "Wire and Tinsel" has shown

no results but negative ones and is at present in a moribund condition. The failure of the factory, the Director states, is due to gross mismanagement, and the drawing and flattening machinery in it, which gave no trouble whatever, may be confidently recommended as a substitute for the hand processes now in use, while the spinning machinery will require further experiment. He states also that the decline of the industry is solely due to the excessive cost of hand manufacture, an entirely disproportionate amount of time being spent on drawing and flattening and the process of spinning being most laborious. Unless the Government consider it desirable to defer action until Mr. Chatterton's return or until the Perambur factory actually shuts down, the Director suggests that the various machines at the factory may be sent to Madura to be set up in the Weaving Institute and the gold lace workers there induced to give them a trial. The workers are to provide their own materials and to dispose of their finished article themselves. The suggestion therefore involves no expenditure to Government, except that necessary for the transport of the machines to Madura and setting them up. The Director states that the proprietor of the factory having reached the end of his resources is willing to accede to any proposal which will afford him the slightest hope of getting out of his difficulties, and that having no use for the machinery at present, a loan of it to Government does not involve any loss to him. He does not say whether he actually consulted the proprietor as to the loan and whether he consented to it.

3. In paragraph 2 of his letter No. 7 G., dated 16th July 1910, the Director stated that he was submitting a report separately about the Weaving Institute, but it has not yet been received.

Orders are requested as to whether the present proposals to obtain a loan of the machines at Perambur and to set them up at Madura may be approved or whether Mr. Chatterton's return (29th October) should be awaited.

E.S.J.—3-8-10.

Mr. Tressler is not particularly lucid. It seems advisable, I submit, to defer any action in the matter until Mr. Chatterton returns from leave. He will be in a position to say whether the machinery at the Perambur factory is the best for the purpose and whether it is likely to be a success at Madura. If he considers that it is, it might perhaps be worthwhile for Government to buy it outright from the proprietor.

F. NOYCE—4-8-10.

Mr. Tressler proposes to send the machinery to the Weaving Institute in Madura, but so far as I know the Weaving Institute does not yet exist. Where is the file about it?

A. G. CARDEW—5-8-10.

In paragraph 4 of G.O. No. 1479, dated 6th May 1910, the Director of Industries was asked to submit proposals for the establishment of the institute as soon as possible. In paragraph 2 of demi-official No. 2228-A/10-2, dated 13th June 1910, the Director was also told to employ Mr. Dewal in working out in full detail and on the spot the scheme for the

Pages 32-33 of notes to G.O. No. 2358, dated 16th July 1910.

establishment of the institute. In paragraph 2 of his letter No. 7-G., dated 16th July 1910, the Director stated that he was submitting a separate report on the subject of the institute. It has not yet been received. In the linked file a draft official memorandum is submitted asking the Director when the report may be expected.

E.S.J.—6-8-10.

"Weaving Institute" may possibly be a slip on Mr. Tressler's part for "Technical Institute" or he may propose to open the Weaving Institute in temporary buildings. The latter appears to be the case, as Mr. Tressler on page 16 of the current file in the linked file talks of carrying out experiments at "our own weaving school" within three months or so.

F. NOYCE—6-8-10.

To lie over till the report on the Weaving Institute is received.

A. G. CARDEW—9-8-10.

The proposals about the Weaving Institute are in the linked file. Submitted that this file may now be transferred to Educational.

S.R.G.—15-12-10.

V.P.—20-12-10.

Will Educational accept transfer?

F. NOYCE—21-12-10.

To the Educational Department.

EDUCATIONAL DEPARTMENT.

Mr. Tressler's proposal is that Government should obtain a loan of the machinery owned by the proprietor of the gold lace factory at Perambore and set it up at the Madura Weaving School for purposes of demonstrating the advantages of manufacturing gold lace with the help of machinery. There is no objection to this proposal as the Secretary of State has stated "that State funds can be expended on familiar-

Paragraph 7 of the Secretary of State's despatch on page 18 of G.O. No. 3446, Revenue, dated 27th October 1910.

the machinery required is not to be purchased, the expenditure connected with the proposed experiment is not likely to be heavy and it may be tried when the proposed Weaving school at Madura has been started.

2. Before any action is taken in the matter, however, the proposals of Mr. Tressler may, it is submitted, be referred for remarks to Mr. Chatterton, who was placed on special duty while on furlough to study, among other subjects, the manufacture of machine-made gold thread in France—*vide* paragraph 3 (3) of the despatch to the Secretary of State, No. 2, Revenue, dated 17th February 1910. The remarks should be submitted through the Director of Public Instruction.

T.K.—10-1-11.

K. RANGASWAMI AIYANGAR—10-1-11.

Please see the main file linked. We have no weaving expert at present, and there seems little chance of getting the Madura Weaving Institute started at any very early date. Mr. Tressler's letter is now six months old, and it is doubtful whether the proposals in paragraph 6 still hold good or at any rate whether they will still be good by the time the school is in working order. It seems a pity not to take advantage of the proposal to get the loan of this machinery, but I don't see what we can do except refer Mr. Tressler's letter to the Superintendent of Industrial

Education through the Director of Public Instruction for remarks. Mr. Chatterton has been studying this question while on leave, and he may have other proposals to make.

C. A. INNES—11-1-11.

I agree.

M. H[AMMICK]—16-1-11.

Please draft.

C. A. INNES—17-1-11.

Draft submitted for approval.

T.K.—17-1-11.

K. RANGASWAMI AIYANGAR—17-1-11.

Issue.

C. A. INNES—18-1-11.

[Memorandum No. 2554-1, dated 19th January 1911.]

II

REVENUE DEPARTMENT.

Letter from the Director of Industries, No. 96 G., dated 27th August 1910.

Resolution No. 33 of the Industrial Conference held at Ootacamund in September 1908 is as follows:—

"The Conference considers that six weaving institutions, approximately similar in character to the Manchester or Bradford Textile schools, but on a moderate scale, be established at Vizagapatam, Masulipatam, Jammalamadugu, Conjeevaram, Coimbatore and Madura (as alternatives Kumbakonam, Tanjore, Trichinopoly or Palghat) each under the superintendence of an Indian expert in textile manufacture."

Mr. Chatterton's proposals as to how the above recommendation should be given effect to are contained in his demi-official No. 32 G, dated 6th January 1909 (pages 3-4 of Notes to G.O. No. 1479, dated 6th May 1910). They are that of the six institutions recommended by the Conference, five should be factories similar to that at Salem and that the sixth only need be a high class school for the teaching of the technics of weaving. In this high class school, Mr. Chatterton stated that men should be trained to become managers of weaving factories and the work turned out should be with the sole object of affording the students a practical training. He recommended that this school should be located at Madura, and that Mr. Dewal should be engaged to be in charge of it. In paragraphs 5-10 of his letter No. 32 G, dated 15th March 1909, Mr. Chatterton outlined the scheme of work for the school and stated that Mr. Dewal should be directed to carry out the scheme on his arrival.

Pages 3-5 of G.O. No. 1479, dated 6th May 1910.

The Acting Director now submits detailed proposals for starting and working the school as directed in paragraph 4 of G.O. No. 1479, dated 6th May 1910. These proposals are based on a memorandum prepared by Mr. Cotton after an inspection of the Serampore Weaving school in Bengal and discussion of the subject with Mr. Churchill at Ahmednagar, Commissioner Booth Tucker of the Salvation Army at Lahore and Mr. Hoogerwerf of the Serampore school. The courses proposed are the same as those adopted in the Serampore school, which themselves are said to be modelled on those followed in the Manchester School of Technology. Mr. Dewal has also been consulted. Before examining the proposals, it may be stated that the land on which the institute is to be located has not yet been acquired. In a letter, dated 3rd September 1910, the Collector of Madura has stated that the land acquisition notification will be submitted in two weeks. In the meanwhile, the plan and estimates submitted by Mr. Tressler for the construction of the building for the weaving institute have been forwarded to the Public Works Department on the 2nd instant.

2. The scheme outlined by Mr. Chatterton in his letter No. 32 G, dated 15th March 1909, for working the institute was not very definite. Instead of the high class school for teaching the technics of the industry, which he advocated in his demi-official, dated 6th January 1909, already referred to, he felt very doubtful

Paragraph 9, page 4, of G.O. No. 1479, Revenue, dated 6th May 1910.

Paragraph 5, page 3, *ibid.*

of small hand-loom factories that any material advance in the industry could be effected. He therefore said that the weaving institute must be regarded as an

Paragraphs 5, 9 and 10 on pages 3-5 of G.O. No. 1479, Revenue, dated 6th May 1910.

Paragraphs 7 and 8, page 4 *ibid.*

equipped with 20 hand-loom of the type in use at the Salem factory and with any other new types of hand-loom which may be desirable to experiment with, with two or three sets of jacquard harness for pattern weaving and with some warping and sizing machinery which were already at Salem and an oil-engine to drive them. There was no suggestion as to what kind of men or students should be admitted to the institute or school, what course of training or teaching should be provided for them or what staff would be required, etc.

3. The proposals now submitted by Mr. Cotton and Mr. Tressler appear to be well thought out. They are briefly as follows:—

(i) *Scope of the institute.*—Mr. Chatterton's opinion is, as already stated, that the salvation of the weaving industry lies in the organization of hand-loom factories. Mr. Cotton's opinion is the same and he is further of opinion that the revival of the industry will not benefit the old weaving communities so much as a small class of capitalists who will spring up possessing the brains and enterprise to specialize in lines where power looms cannot compete. He draws this conclusion from the fact that a fairly large number of weaving factories have already sprung up on the Malabar Coast in which the operatives are not the hereditary weavers but Christians, Tiyas and others, and the same tendency is being seen in other districts also. This development of the weaving industry, Mr. Cotton considers, will set up a demand for three classes of weavers:—

- (1) The educated class, with a theoretical as well as a practical knowledge of weaving,
- (2) The maistry or foreman class, capable of teaching practical weaving in the vernacular, and
- (3) The artisan class.

Mr. Cotton proposes that the Madura weaving institute or school should provide training for the first two classes only, the third class being provided for "in the district schools which it is also under contemplation to open." The Bengal Government is said to be working on these lines at Serampore. The "district schools" referred to are, it is presumed, the five other schools to be established with reference to the recommendation of the Industrial Conference. It may also be stated that many of the industrial schools which exist in various places also teach weaving

Vide page 12 of G.O. No. 1625, Revenue, dated 18th June 1909.

Condition (1) on page 5 of G.O. No. 1623, Revenue, dated 17th May 1910.

will, therefore, form a training ground for the third class of weavers above mentioned. In addition to training the first two classes of weavers, it is proposed that the institute should conduct practical experiments on a commercial scale with new looms or any new developments of the weaving problem. Mr. Tressler is in complete agreement with this scheme. Submitted that this may be approved.

(ii) *Courses of training.*—Following the courses at Serampore, it is proposed that the students of the first class (A class) should undergo a two years' course and those of the second class (B class) a single year's course.

(iii) *Qualifications and number of students to be admitted.*—(a) *A class.*—At Serampore the entrance examination of the Calcutta University is said to be required for admission to the A class. Mr. Cotton proposes that "failed matriculates" might be considered eligible for admission at Madura for this class, preference being given to those who are weavers by caste, or have family business connections with the industry, such as the sons of small weaving factory owners in Malabar. Submitted that matriculates or those that have studied up to the matriculation standard may be declared as eligible for admission. But it is for consideration whether for persons of this qualification, even supposing they belong to weaver caste or have business connection with the trade, a course of two years is long enough to give them a thorough practical and theoretical knowledge of weaving. A matriculate of the weaver caste will probably know as little of weaving (practical) as a matriculate of any other caste. The syllabus of the subjects to be studied is to be modelled on that adopted at Serampore and given in paragraph 5 of Mr. Cotton's memorandum. To turn out a thoroughly practical man, it would perhaps be advisable to spread the course over three years. The question, however, is one which might be decided after the experience of the first two years' working.

The number of students admitted to the A class at Serampore in the beginning of 1909 was 25. At the end of six months an examination was held which eliminated 30 and only 27 took the examination at the end of the first year, and the second year began with a class of only 22. Mr. Cotton considers that these numbers are too large for Madras requirements, and that a class of twelve students would probably be large enough to begin with. Submitted that this proposal may be approved.

(b) *B class.*—At Serampore this class is open to adult weavers or the sons of weavers only. The number of students admitted to this class is not stated. Mr. Cotton proposes that at Madura 24 students should be admitted to this class, but he does not say anything as to the qualification of the students to be admitted. Mr. Tressler suggests that the qualification should be that corresponding to the third form and that admission should be limited to weavers or those connected with the weaving industry, preference being given to men previously trained in the district weaving schools and who have shown marked ability and are fit for a foreman's post. For men to be trained for such posts, some educational qualification appears, it is submitted, necessary and that proposed by Mr. Tressler may, it is submitted, be accepted. The course of one year proposed for this class appears sufficient as the students will have previous practical knowledge of weaving.

(c) In addition to the two classes A and B, Mr. Dewal suggests an additional class corresponding to the "evening classes" in England, in which artisans could be trained on the same lines as those to be followed in the district schools.

Mr. Tressler remarks that there is much to be said for this proposal, but suggests that the question may, for the present, remain in abeyance as he doubts whether it will be possible to work in a third course without detriment to the other two. At any rate, if the evening class is opened, additional staff than that now suggested for the institute will be required.

Submitted that for the present classes A and B as suggested by Mr. Tressler seem sufficient.

(iv) *Syllabuses.*—The syllabuses for the two classes A and B at Serampore are given in paragraphs 5 and 7 of Mr. Cotton's memorandum. Mr. Cotton suggests that the syllabuses for Madura may be modelled on them, though they are somewhat ambitious, subject to such modifications as local requirements suggest. Mr. Tressler states that the majority of the subjects in the syllabuses appear to be essential and recommends that they may be adopted with two additional subjects, namely,—

- (1) textile laboratory work suggested by Mr. Dewal, and
- (2) accounts, that is, calculating costs and maintaining working accounts.

These additional subjects are only for the A class. Mr. Tressler has also drawn up time-tables for the two classes. Mr. Tressler further suggests that practical weaving should be chiefly taught on looms of the type used at the Salem Weaving

factory and not on a large number of different types of looms as at Serampore, although the various looms in common use in the country should be kept in order that the students may become conversant with their working also. It will be observed from paragraph 3 of Mr. Cotton's memorandum that the Salem factory loom, which is an adaptation of the English hand-loom, is the most serviceable hand-loom on the market at present and that this has been demonstrated at numberless weaving competitions.

Paragraph 5, page 3, of G.O. No. 1479, dated 6th May 1910.

Submitted that Mr. Tressler's proposals regarding the syllabuses may be approved.

(v) *Staff for the institute.*—Mr. Tressler states that no special instructors will be required to teach drawing, engineering drawing, etc., included in the syllabuses as these subjects are taught already in Madura "Technical Institute" and can be learnt there. For teaching weaving proper, Mr. Dewal wants two assistants (one on Rs. 100—150 and the other on Rs. 50—75) for the first year's work and two more for the second year's. As the number of students will be only 36 in the first year (12 in the A class and 24 in the B class), Mr. Tressler considers that to begin with no assistants beyond a practical weaver on Rs. 30 and a general clerk on Rs. 20 will be required.

As the time-table is arranged, it seems that Mr. Dewal with the help of the practical weaver proposed can well undertake all the teaching involved. Submitted that Mr. Tressler's proposal may be approved.

(vi) *Equipment.*—A list of the looms and other plant stated to be required is given in appendix III to Mr. Tressler's letter. Of the articles mentioned in the list, several are already in the possession of the department. The others costing about Rs. 8,836 [including the testing machinery of the value of Rs. 1,511 mentioned in appendix III (b)] are to be purchased. But, to begin with, Mr. Tressler states that 20 Salem looms and the other articles * marked with an asterisk in appendix III (a), excluding the plant already available, will be sufficient. These articles which are to be purchased cost about Rs. 4,300—paragraph 9, of Mr. Tressler's letter.

	rs.
* 20 Salem looms (Rs. 80 each) ..	1,600
3 jacquard harness	225
4 dobbies	330
1 dobie piano	120
Shafting and erection	2,000
	4,275

mentioned in appendix III (b)] are to be purchased. But, to begin with, Mr. Tressler states that 20 Salem looms and the other articles * marked with an asterisk in appendix III (a), excluding the plant already available, will be sufficient. These articles which are to be purchased cost about Rs. 4,300—paragraph 9, of Mr. Tressler's letter.

The looms are made in the Director's workshop. If the other articles are to be obtained from England, an indent for them may, it is submitted, be called for.

(vii) *Fees and scholarships.*—At Serampore tuition is free, but 40 scholarships are awarded on the results of examinations for students of the A class and 40 to students of the B class. The A class scholarships are of the value of Rs. 15 each *per mensem* and are distributed equally between students in the first and second years, i.e., 20 scholarships are given to the first-year students and 20 to the second-year students. In the B class, *adult* weavers get a scholarship of Rs. 6 *per mensem* in addition to a stipend of Rs. 4 *per mensem* from their respective district boards and boys a scholarship of Rs. 4 and a stipend of Rs. 6 from district boards. In effect, 40 B class students get Rs. 10 *per mensem* each.

Both Mr. Cotton and Mr. Tressler consider that at Madura no scholarships need be given for the A class students and that tuition should be free, (Mr. Cotton believes that there will be a considerable competition for admission to the A class as there is at the Agricultural College, Coimbatore.) Both also agree that the B class students, who will be weavers or those connected with the weaving industry, should be given stipends. Mr. Tressler proposes that every student in this class should be given a fixed stipend of Rs. 5 *per mensem* by Government and a stipend of Rs. 4 by the district boards as in Bengal. It is doubtful if the district boards could be got to contribute the stipends suggested. When the question of taking over the

Madura and Tinnevely technical institutes was under consideration, the question was raised whether the district boards should be asked to contribute towards the maintenance of the institutes. The Hon'ble Mr. Hammick stated in his note, dated 8th April 1909, that he did not think that the district boards should be asked to contribute. The Government are already giving scholarships in industrial schools of the value of Rs. 6,792 *per annum*. For a sum of Rs. 4 *per mensem* for each of the 24 students in the Weaving institute, i.e., a sum of Rs. 1,152 *per annum*, it is perhaps unnecessary to ask the district boards to contribute. Orders are requested.

Page 3 of Notes to G.O. No. 1625, dated 18th June 1909.

Foot of page 11 of Notes to G.O. No. 1625, dated 18th June 1909.

Paragraph 4, page 3, of G.O. No. 1623, dated 17th May 1910.

4. Though scholarships are not to be given to the A class students, Mr. Tressler proposes that a registration fee of Rs. 10 should be charged for every student for admission to the class, which fee shall in no case be refunded. The object is not explained. In the Agricultural College, Coimbatore, no registration fee is charged, but every student has to deposit, on joining the college, a sum of Rs. 5 as "caution money" as a fund out of which to pay fines, cost of damages, etc., and this fund has to be made good at the beginning of each session. The amount standing to the credit of each student is however repaid when he leaves the college. Orders are requested as to whether the registration fee should be charged.

5. Mr. Tressler summarizes his proposals in the form of a prospectus, which will have to be altered in the light of the orders which may be passed on the proposals. The prospectus appears also to require alteration in the following respects:—

(i) The words "at the District Weaving schools shortly to be established in various centres" in paragraph 3 of the prospectus should be altered into "at the Weaving schools to be established in selected Weaving centres." The words as they stand will give the impression that in every weaving centre in all the districts it is intended to establish schools, while what is apparently meant by the Director is the establishment of the five other schools recommended by the Industrial Conference.

(ii) In paragraph 4 of the prospectus it is not stated that for admission to the A class, preference will be given to weavers by caste or to those who have family business connection with the industry. Mr. Cotton appears to mean that such preference should be given. This condition should therefore, it is submitted, be introduced in paragraph 4.

6. *Weavers' Co-operative Societies.*—In paragraph 4 of G.O. No. 3507, Revenue, dated 20th December 1909, it was stated that Government agreed with Mr. Cotton as to the useful results which might follow from the development of co-operative credit for weavers and that the Director should in communication with the Registrar of Co-operative Credit Societies endeavour to take practical action to start such societies. It is apparently with reference to this order that Mr. Cotton proposes in paragraph 2 of his memorandum that an experiment may be made in this direction by starting one or two societies at selected centres, such as at Nakkapalli in the Vizagapatam district. The remarks of the Registrar of Co-operative Credit Societies may, it is submitted, be first obtained through the Board of Revenue.

E.S.J. — 10-9-10.

I submit this file for orders on the preliminary point as to whether it is not desirable that it should lie over until the Secretary of State's Despatch regarding the future of the Department of Industries which is on its way has been received and disposed of.

F. NOYCE—14-9-10.

I think it certainly should lie over. But put note-file and current file meanwhile in print at Madras and show proof when ready.

A. G. CARDEW—15-9-10.

The current and note has been printed [up]. When the order (now in draft)

Why "up".

A. G. CARDEW.

transferring industrial schools to Educational has been issued, this file may, it is submitted, be transferred to Educational for disposal. In the meanwhile, it may lie over.

E.S.J.—15-10-10.

F. NOYCE—17-10-10.

A. G. CARDEW—18-10-10.

The order transferring Industrial schools to the Educational Department has been issued. For orders whether the file may be transferred to the Educational Department or should be dealt with in Revenue.

S.R.G.—15-11-10.

V.P.—19-11-10.

It may, I submit, continue to lie over until Mr. Chatterton's proposal that the Department of Industries should continue to exist until 31st March 1911 has been disposed of.

F. NOYCE—21-11-10.

In the notes in the linked* file below Honourable Member have practically decided that the Department must be handed over to Educational on 1st January 1911. This file can be disposed of as soon as Honourable Member passes formal orders to this effect on Mr. Chatterton's letter in the linked file below. (G.O. No. 3835, Revenue, dated 3rd December 1910).

L. M. WYNCH—28-11-10.

Mr. Chatterton's letter requesting that the abolition of the Department of Industries might be postponed to 31st March 1911 was disposed of in G.O. Mis. No. 3035 dated 3rd December 1910, where it was decided that the Department of Industries should be abolished on 31st December 1910 as directed in G.O. No. 3446, dated 27th October 1910. Submitted that this file may now be transferred to the Educational Department.

S.R.G.—15-12-10.

V.P.—20-12-10.

Will Educational accept transfer?

F. NOYCE—21-12-10.

To the Educational Department.

EDUCATIONAL DEPARTMENT.

This file relates to the "weaving institute" which it is proposed to establish at Madura. It has been lying over in the Revenue Department pending the decision of the question regarding the future of the Department of Industries. As that Department has been abolished with effect from the 1st of this month, this and two other connected files, one relating to the manufacture of golden thread or lace, and the other relating to the manufacture of damask by the Basel Mission with yarns purchased and supplied by Government have been transferred to this department for disposal.

2. The question of the Madura Weaving Institute is dealt with in the notes on pages 5 to 9 *ante* and orders have to be passed on the following points:—

- (1) Scope of the Institute,
- (2) Courses of training,
- (3) Qualifications and number of students to be admitted,
- (4) Syllabuses of study,
- (5) Teaching staff,
- (6) Equipment, and,
- (7) Fees and scholarships.

3. *Scope of the Institute*—As the Secretary of State has ruled that the State should not interfere with private enterprise and that its industrial policy should be purely instructional and avoid the semblance of a commercial venture, the Secretary of State's despatch on pages 17 and 18 of G.O. No. 3446, Revenue, dated 27th October 1910.

Weaving Institute to be started at Madura should not be organized as a factory in order to demonstrate that articles can be manufactured and sold to the public at a profit. Its scope should be purely educational and should be strictly limited to giving instruction in the techniques of weaving. The proposals now submitted appear however to have been drawn up with the idea of turning the school into a factory and these will have to be revised if the Government agree that the school should be organized as a purely educational institution and not as a factory.

4. If the scope of the institution is limited, the proposals already made relating to the staff, equipment and other matters will also have to be reconsidered.

5. It is for consideration whether the Director of Public Instruction may be called upon to submit revised proposals with reference to the decision of the Secretary of State.

6. The files relating to the manufacture of golden thread and damask at the Madura Weaving Institute are linked herewith.

T.K.—10-1-11.

K. RANGASWAMI AIYANGAR—10-1-11.

Obviously we cannot sanction Mr. Tressler's proposals as they stand nor would much be gained by doing so. We have no weaving expert at present and cannot start work till we get one. How does matter stand in regard to this expert? Mr. Chatterton has been called on to submit proposals I think. Does not Mr. Chatterton propose to visit a number of Northern India weaving schools and institutions during his five weeks' tour up there?

Mr. Tressler's (or rather Mr. Cotton's) proposed institute follows the model of the school already existing at Serampore, and I doubt if there is anything in the proposals which seriously conflicts with the Secretary of State's principles. But clearly I think the Superintendent of Industrial Education must be given an opportunity of having his say on the proposals before Government commit themselves to them. Before I submit to the Honourable Member please answer the queries above.

C. A. INNES—11-1-11.

(1) As regards the *weaving expert*, Mr. Chatterton was requested, in paragraph 2 of G.O. No. 3836, Revenue, dated 3rd December 1910, dispensing with the services of Mr. Deval, to submit recommendations for the selection of a weaving expert. In reply to this, he stated on the 15th December last as follows:—

"I have not deemed it advisable to take any immediate steps to secure the services of another weaving expert pending some decision on the part of Government as to the kind of work to be taken up at the Weaving Institute which it is proposed to establish in Madura." *Vide* Mr. Chatterton's letter No. 43 G., dated 15th December 1910, with G.O., No. 768, Educational, dated 29th December 1910. But in an interview with the Secretary on the 5th instant, Mr. Chatterton seems to have stated that he did not wish to engage a weaving expert as that person might perhaps be amalgamated with the Superintendent of the Madura Technical Institute—please see the Secretary's note dated 5th January 1911 in the linked file V.

(2) *Mr. Chatterton's visit to the weaving schools in Northern India.*—In his letter No. 138 G., dated 3rd December 1910, Mr. Chatterton requested permission to take advantage of the opportunity of his visit to the Allahabad Exhibition to visit the Bengal weaving school at Serampore and the various industrial schools recently started in the United Provinces and in paragraph 3 of G.O. No. 4051, Revenue, dated 19th December 1910, he has been permitted to visit any weaving and industrial schools which could be conveniently visited from Allahabad.

T.K.—12-1-11.

K. RANGASWAMI AIYANGAR—12-1-11.

The Director of Public Instruction may be requested to obtain Mr. Chatterton's remarks on Mr. Tressler's proposals, revised proposals being submitted if Mr. Chatterton thinks it necessary.

C. A. INNES—13-1-11.

I agree. The Director of Public Instruction can obtain Mr. Chatterton's further views on this subject after he returns from Allahabad. He told me that he had very little opinion of the school at Serampore from what he had heard of it and that he would visit it and report fully on the matter. We cannot do anything until he returns.

M. H[AMMICK]—16-1-11.

Please draft.

C. A. INNES—17-1-11.

Draft submitted for approval.

T.K.—17-1-11.

K. RANGASWAMI AIYANGAR—17-1-11.

Issue.

C. A. INNES—18-1-11.

[Memorandum No. 2553-1, dated 19th January 1911.]

The Director of Public Instruction reports that Mr. Chatterton has prepared a draft of his proposals for the Madura Technical Institute, but that owing to the sickness of the draftsman and to the large amount of work in connection with the installation of engines and pumps he (Mr. Chatterton) has been unable to get the plans completed. Mr. Chatterton considers that it is likely that the plans and estimates will not be ready for two or three weeks, but that if Government desire to consider the draft he has prepared, he would submit the same at once. The Director of Public Instruction has, however, asked Mr. Chatterton to submit the proposals in a complete form as soon as possible.

2. Mr. Tressler has recently been appointed to be in charge of the pumping operations and Mr. Chatterton will therefore be relieved of his duties in regard to these operations as soon as Mr. Tressler joins. Mr. Chatterton may therefore be able to get the scheme ready sooner than he anticipates, and it seems to be better to get the scheme in as complete a form as possible. The receipt of the complete proposals may therefore be awaited.

3. In the memorandum No. 2554-1, Educational, dated 19th January 1911, Mr. Chatterton was asked to report on the subject of introducing the manufacture of gold threads into the Madura Technical Institute. With reference to this Mr. Chatterton states that he has dealt with this question in connection with the proposals for the weaving Institute, Madura, which he has drawn up.

K. RANGASWAMI AIYANGAR—23-4-11.

The complete scheme promised may be awaited. Reminder to go about the 20th May.

M. S. MASCARENHAS—28-4-11.

Approved.

L. DAVIDSON—1-5-11.

For perusal.

L. DAVIDSON—1-5-11.

Yes. We want the whole scheme when ready.

M. H[AMMICK]—2-5-11.

III

Construction of buildings for the Technical and Weaving Institutes at Madura.

Attention is invited to the Revenue note, dated 19th October 1910 on pages 14 and 15 of the notes connected with G.O. No. 1302 W., dated 23rd November 1910. The proposal to construct a weaving shed costing approximately Rs. 13,700 has been approved in the Government Order and the Chief Engineer has been asked to arrange for the submission of detailed plans and estimates for the work. Separate orders have to be issued on the other proposals. The file may be sent u.o. to Educational who have to consider the proposals.

P.S.N.—3-12-10.

P.K.S.—5-12-10.

P. HAWKINS—8-12-10.

To the Educational Department.

EDUCATIONAL DEPARTMENT.

With his letter No. 95 G., dated 8th August 1910, Mr. Tressler, the Acting Director of Industries, submitted rough plans and estimates for the construction of new buildings for the Madura Technical Institute and for a weaving shed at Madura. The cost of the proposed buildings as revised by the Chief Engineer, Public Works Department, amounted to Rs. 1,27,500 as detailed below :—

	RS.
Technical Institute	53,600
Workshops	54,200
Store	6,000
Weaving shed	13,700
Total	1,27,500

2. In G.O. No. 1302 W., dated 23rd November 1910, the Government approved the construction of a weaving shed at an approximate cost of Rs. 13,700, as the work was considered to be urgent, and held over for further consideration the question of according administrative approval for the remaining buildings—*vide* the Revenue Department note, dated 20th October 1910 on pages 21 and 22 of G.O. No. 1302 W., dated 23rd November 1910.

3. The question now for consideration is whether administrative approval may be given for the construction of new buildings for the Madura Technical Institute, which are roughly estimated to cost about Rs. 1,13,800 (Rs. 1,27,500—Rs. 13,700). This estimate excludes the cost of buildings required as residences for the staff of the Technical Institute—*vide* the last paragraph of Mr. Tressler's letter on page 3 of G.O. No. 1302 W., dated 23rd November 1910.

4. In G.O. No. 2617, Revenue, dated 10th August 1910, it was decided that a full report as to the scope of the Technical Institute and the buildings and staff required for it should be submitted to Government by Mr. Chatterton after his return

from leave. This report has not yet been received. This question of according administrative approval for the construction of new buildings for the Technical Institute may lie over till the receipt of the report by Mr. Chatterton, to whom a reminder may now be sent.

T.K.—30-12-10.

The receipt of the report called for from Mr. Chatterton may perhaps be awaited.

K. RANGASWAMI AIYANGAR—3-1-11.

We should certainly have Mr. Chatterton's report before we embark on this expenditure.

C. A. INNES—3-1-11.

Mr. Chatterton must certainly be now consulted as to what kind of buildings he wishes to put up on the site of the new Industrial school in Madura. When he has reported on the subject, we can order the preparation of plans and estimates.

M. H[AMMICK]—7-1-11.

Mr. Chatterton, I think, has promised his report by February next.

C. A. INNES—9-1-11.

Mr. Chatterton has promised his report by the end of February next. These papers may perhaps be sent u.o. to the Director of Public Instruction for perusal and return.

K. RANGASWAMI AIYANGAR—9-1-11.

C. A. INNES—10-1-11.

To the Director of Public Instruction.

OFFICE OF THE DIRECTOR OF PUBLIC INSTRUCTION.

Returned after perusal.

J. H. STONE—12-1-11.

Await report.

C. A. INNES—16-1-11.

IV

From the Director of Public Instruction, dated 5th May 1911, No. 417.

With his letter read above the Hon'ble Mr. A. Chatterton, Superintendent of Industrial Education, submits proposals for the re-organization of the Technical Institute at Madura. Prior to 1889 this institute was only an industrial school maintained by the Municipal Council of Madura. In the year 1889 this school was converted with the sanction of

Government into a technico-normal institute to be maintained by the District Board of Madura with the assistance of a contribution of Rs. 1,000 from the municipality and of the Government grants under the provisions of the Grant-in-Aid Code. In the year 1900 the normal or training section was handed over to Government and the institute became a purely technical school. The cost of maintaining the school being high, averaging about Rs. 10,000 a year, the District Board requested the Government in 1908 to take over the management of the institute. The Government then

Ibid.

declined to take it over, but subsequently in 1910, as Mr. Chatterton who was then Director of Industries, recommended in connection with the question of establishing

a weaving institute at Madura, that this school ought to be taken over by Government, re-modelled and made to serve the industrial needs of the extreme south of India, the Government decided to take over the institute with effect from 1st April 1910 and called for proposals as to the scope of the institute.

2. Mr. Chatterton had in the meantime gone on leave and Mr. Cotton who acted for him submitted certain proposals for the re-organization of the institute. The Government considered that his proposals had not been carefully or clearly worked out and directed that a full report as to the scope of the institute and as to the buildings and staff required for it should be submitted by Mr. Chatterton as soon as possible after his return from leave. But in the meanwhile the industrial operations of this Government received a set back by the decision of the Secretary of State declining to sanction the creation of a Department of Industries under a Director

Pages 17 and 18 of G.O. No. 3446, Revenue, dated 27th October 1910. State's despatch on this subject. This was to the following effect:—

"State funds may be expended upon familiarizing the people with such improvements in the methods as modern science and the practice of European countries can suggest; further than this the State should not go and it

"must be left to private enterprise to demonstrate that these improvements can be adopted with commercial advantage. Within the limits here indicated, it appears to me that the objects which the Industrial Conference had in view can all be accomplished by means of technical and industrial schools".

In G.O. No. 745, Educational, dated 16th December 1910, Mr. Chatterton was requested in submitting the report called for in G.O. No. 2617, Revenue, dated 10th August 1910, regarding the future scope of the institute, to be guided by the general lines of policy laid down by the Secretary of State.

3. In his present report Mr. Chatterton deals not only with the re-organization of the technical institute at Madura, but also with the question of establishing a weaving institute in regard to which a report was called for in G.O. No. 1479, Revenue, dated 6th May 1910, and also with the question of introducing the manufacture of gold thread into the Madura weaving institute, which was raised in connection with an interpellation at the meeting of the Legislative Council held on the 5th April 1910.

4. The general considerations on which Mr. Chatterton has formulated his proposals are—

(1) that the technical and industrial education to be provided in the institute at Madura should be connected with the industries of the town and that in respect to industrial education provision should be made not only for the development of existing industries, but also for remedying any obvious defects which may retard their growth;

(2) that the principal industries carried on in Madura and its neighbourhood are cotton spinning, hand-loom weaving in silk and cotton and the dyeing of cotton yarn, and that besides these, all the minor industries of Southern India are to be found in the bazaars, some of them enjoying a high reputation, such, for instance, as wood-carving, copper repoussé work and the manufacture of small brass castings of lizards, snakes, frogs, beetles, etc.;

(3) that although Madura is an industrial town of considerable importance and much of the industrial development is of recent origin, the industries in Madura with the exception of the spinning mills are worked on purely native lines and that there has been no development of mechanical engineering, for which some provision is called for.

Mr. Chatterton therefore proposes that the Madura Technical Institute when re-organized should comprise three different departments—

- (i) a weaving department,
- (ii) a mechanical engineering department, and
- (iii) a dyeing department.

5. *Weaving department.*—The weaving department is to consist of two classes, a higher or technical class and a lower or industrial class. The former is intended for those who wish to become masters or managers of factories and the latter for artisans who will not ordinarily rise beyond the position of foremen or maistries in organized factories or who will carry on their trade in a small way in the bazaar. Admission to the technical classes is to be restricted to those who are sufficiently well educated to receive instruction in English and should be about the standard reached by those who obtain the secondary school-leaving certificate but no hard and fast rule need be laid down and Mr. Chatterton would prefer to leave it to the head of the institution to admit such students as he considers capable of benefiting by the courses of instruction. The number of students to be admitted is not to be restricted. The course of instruction is to last for two years and might perhaps be extended to three years and the class is to be open to all castes. A fee of Rs. 5 per mensem is to be charged from each student.

6. The industrial class is to consist ultimately of 100 students. The course should extend to five years and 20 boys should be taken at the beginning of each year. The class should be open only to weavers by caste and boys between 14 and 16 years of age should be admitted and apprenticed to the institute for five years. All the boys should be lodged in a hostel and fed and clothed; in addition each boy should be paid a rupee a month during the first year, Rs. 2 a month during the second year, Rs. 3 a month during the third year, Rs. 4 a month during the fourth year and Rs. 5 a month during the fifth year. Half of this sum should be given to him monthly and the other half should be held in reserve and paid over to him at the time he leaves the school so that it may enable him to make a start as an artisan without having recourse to borrowing. Provision is to be made for giving general education to the boys. The working day is to be eight hours, of which three hours are to be devoted to general education and the remaining five to practical instruction in weaving.

7. The weaving department of the institute has been designed by Mr. Chatterton generally on the lines of the Government Weaving Institute at Serampore, the annual report of which for the year 1909-10 will be found on pages 27 to 31 of the current file. No fees appear however to be charged in that institution either for the higher or the lower class. On the other hand, forty Government scholarships of Rs. 15 each have been allotted for the higher class and twenty scholarships of Rs. 6 each per mensem and twenty of Rs. 4 per mensem tenable from four months to one year for the lower class. The scholarships for the higher class are awarded every term to the first twenty boys of each class who pass the competitive examinations, of which two are held every year.

8. The proposal of Mr. Chatterton to charge a fee of Rs. 5 per mensem for the higher class to be opened at Madura seems to be of doubtful expediency. It is a matter of considerable doubt, which is shared by Mr. Chatterton also, whether at the outset it will be possible to attract students to this class unless scholarships are offered as an inducement for them to come to the school; but Mr. Chatterton is opposed to any system of scholarships as he considers it useless to give a technical training to a large number of students who do not see their way to make any use of it afterwards and who go in for such training merely as a speculation. He observes that the levy of a fee will not only ensure that persons who have definite ideas as to their future course alone resort to the school, but will also prevent overcrowding and points out that students were willing to pay a fee at the Chrometannery at Sembiam. It is true that if the system of scholarships were introduced, persons who have no idea of adopting weaving as their profession would seek admission into the class on account of the scholarships, but with the exercise of proper care in selecting candidates and with a system of periodical examinations similar to that in force at the Serampore institute on the results of which the award of the scholarships is to depend, it will be possible to weed out the undesirables and maintain a

leaven of students who are likely on leaving the school to utilize their training for the development of the industry. It will no doubt be difficult in the beginning for the men who pass out of the institute to find employment in the weaving line, but as time goes on and the weaving industry expands there is certain to be a demand for these men; for if the weaving industry is to develop at all, it is as necessary to have men who can be employed in the capacity of managers and supervisors as trained artisans and weavers, who actually work at the looms.

9. In the case of the School of Arts, Madras, where the conditions are more or less similar to the proposed weaving institute, the Government have instituted a system of scholarships which are to be awarded in the discretion of the Superintendent to pupils of exceptional merit as a reward or as a means of enabling them to continue their studies. It would thus appear that if the proposed institute is to work satisfactorily, it will be necessary to offer scholarships to students as an inducement for their joining the school. If a fee of Rs. 5 per mensem is to be levied, as suggested by Mr. Chatterton, it is very improbable that a sufficient number of students will be obtained, and if this turns out to be the case, there will probably be no justification for the large expenditure which will have to be incurred on the institute.

10. The lower or industrial class proposed by Mr. Chatterton differs in some essential respects from the corresponding class at Serampore. In the Serampore school persons whose occupation is weaving are admitted and are given a short training for a period extending from four to twelve months; but in the Madura institute, it is proposed to apprentice boys of the weaving caste between the ages of 14 and 16 years and to give them a regular training for a period of five years. The proposal that they should be fed, clothed and lodged in the hostel attached to the institute is necessary in order to compel the pupils to attend the schools until the expiry of the period of apprenticeship.

11. As regards the provision of general education for the pupils of this class, it is observed that classes for imparting general education to pupils of the School of Arts, Madras, which had been in existence for several years were abolished in the year 1909 on the grounds,

- (i) that these classes were "quite out of place" in a School of Arts,
- (ii) that if students wanted to learn English, they should study it elsewhere, and
- (iii) that knowledge of English was not necessary for artistic training.

Mr. Chatterton says that although he had hitherto held the opinion that it was undesirable to mix up general education with industrial education, increased experience of the artisans of this country leads him to think that a certain amount of general education is absolutely essential to the children of the artisan classes and that this should be provided in the industrial school. This proposal seems to be sound and may be accepted.

12. The weaving department is to be under the general supervision of the expert whose appointment has been sanctioned by the Secretary of State. But as a suitable man could not be got in this country for a salary of Rs. 400 a month, which was fixed with the view of employing Mr. Dewal, Mr. Chatterton suggests that the Secretary of State should be addressed to send out a weaving expert from England on the same terms as the dyeing expert. The expert should be a man of sufficient attainments to inspire confidence into the weavers of Madura and must be allowed to do private consulting work. He should be got for the specific purpose of carrying out the experiments outlined in Professor Fox's note communicated with G.O. No. 2774, Revenue, dated 23rd August 1910 and he should bring with him a skilful sizer on a salary of Rs. 350 or Rs. 400. Pending the settlement of these points, Mr. Chatterton suggests that the industrial class should be opened and placed under the supervision of Mr. N. Subramania Aiyar who was weaving assistant at the Salem

from leave. This report has not yet been received. This question of according administrative approval for the construction of new buildings for the Technical Institute may lie over till the receipt of the report by Mr. Chatterton, to whom a reminder may now be sent.

T.K.—30-12-10.

The receipt of the report called for from Mr. Chatterton may perhaps be awaited.

K. RANGASWAMI AIYANGAR—3-1-11.

We should certainly have Mr. Chatterton's report before we embark on this expenditure.

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Mr. Chatterton must certainly be now consulted as to what kind of buildings he wishes to put up on the site of the new Industrial school in Madura. When he has reported on the subject, we can order the preparation of plans and estimates.

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Mr. Chatterton, I think, has promised his report by February next.

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To the Director of Public Instruction.

OFFICE OF THE DIRECTOR OF PUBLIC INSTRUCTION.

Returned after perusal.

J. H. STONE—12-1-11.

Await report.

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IV

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Director of Industries, recommended in connection with the question of establishing

a weaving institute at Madura, that this school ought to be taken over by Government, re-modelled and made to serve the industrial needs of the extreme south of India, the Government decided to take over the institute with effect from 1st April 1910 and called for proposals as to the scope of the institute.

2. Mr. Chatterton had in the meantime gone on leave and Mr. Cotton who acted for him submitted certain proposals for the re-organization of the institute. The Government considered that his proposals had not been carefully or clearly worked out and directed that a full report as to the scope of the institute and as to the buildings and staff required for it should be submitted by Mr. Chatterton as soon as possible after his return from leave. But in the meanwhile the industrial operations of this Government received a set back by the decision of the Secretary of State declining to sanction the creation of a Department of Industries under a Director of Industries and also by the policy laid down in paragraph 7 of the Secretary of State's despatch on this subject. This was to the following effect:—

"State funds may be expended upon familiarizing the people with such improvements in the methods as modern science and the practice of European countries can suggest; further than this the State should not go and it must be left to private enterprise to demonstrate that these improvements can be adopted with commercial advantage. Within the limits here indicated, it appears to me that the objects which the Industrial Conference had in view can all be accomplished by means of technical and industrial schools".

Page 18 *ibid.*

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4. The general considerations on which Mr. Chatterton has formulated his proposals are—

(1) that the technical and industrial education to be provided in the institute at Madura should be connected with the industries of the town and that in respect to industrial education provision should be made not only for the development of existing industries, but also for remedying any obvious defects which may retard their growth;

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Mr. Chatterton therefore proposes that the Madura Technical Institute when re-organized should comprise three different departments—

- (i) a weaving department,
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5. *Weaving department.*—The weaving department is to consist of two classes, a higher or technical class and a lower or industrial class. The former is intended for those who wish to become masters or managers of factories and the latter for artizans who will not ordinarily rise beyond the position of foremen or maistries in organized factories or who will carry on their trade in a small way in the bazaar. Admission to the technical classes is to be restricted to those who are sufficiently well educated to receive instruction in English and should be about the standard reached by those who obtain the secondary school-leaving certificate but no hard and fast rule need be laid down and Mr. Chatterton would prefer to leave it to the head of the institution to admit such students as he considers capable of benefiting by the courses of instruction. The number of students to be admitted is not to be restricted. The course of instruction is to last for two years and might perhaps be extended to three years and the class is to be open to all castes. A fee of Rs. 5 per mensem is to be charged from each student.

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8. The proposal of Mr. Chatterton to charge a fee of Rs. 5 per mensem for the higher class to be opened at Madura seems to be of doubtful expediency. It is a matter of considerable doubt, which is shared by Mr. Chatterton also, whether at the outset it will be possible to attract students to this class unless scholarships are offered as an inducement for them to come to the school; but Mr. Chatterton is opposed to any system of scholarships as he considers it useless to give a technical training to a large number of students who do not see their way to make any use of it afterwards and who go in for such training merely as a speculation. He observes that the levy of a fee will not only ensure that persons who have definite ideas as to their future course alone resort to the school, but will also prevent overcrowding and points out that students were willing to pay a fee at the Chromettanery at Sembiam. It is true that if the system of scholarships were introduced, persons who have no idea of adopting weaving as their profession would seek admission into the class on account of the scholarships, but with the exercise of proper care in selecting candidates and with a system of periodical examinations similar to that in force at the Serampore institute on the results of which the award of the scholarships is to depend, it will be possible to weed out the undesirables and maintain a

leaven of students who are likely on leaving the school to utilize their training for the development of the industry. It will no doubt be difficult in the beginning for the men who pass out of the institute to find employment in the weaving line, but as time goes on and the weaving industry expands there is certain to be a demand for these men; for if the weaving industry is to develop at all, it is as necessary to have men who can be employed in the capacity of managers and supervisors as trained artizans and weavers, who actually work at the looms.

9. In the case of the School of Arts, Madras, where the conditions are more or less similar to the proposed weaving institute, the Government have instituted a system of scholarships which are to be awarded in the discretion of the Superintendent to pupils of exceptional merit as a reward or as a means of enabling them to continue their studies. It would thus appear that if the proposed institute is to work satisfactorily, it will be necessary to offer scholarships to students as an inducement for their joining the school. If a fee of Rs. 5 per mensem is to be levied, as suggested by Mr. Chatterton, it is very improbable that a sufficient number of students will be obtained, and if this turns out to be the case, there will probably be no justification for the large expenditure which will have to be incurred on the institute.

10. The lower or industrial class proposed by Mr. Chatterton differs in some essential respects from the corresponding class at Serampore. In the Serampore school persons whose occupation is weaving are admitted and are given a short training for a period extending from four to twelve months; but in the Madura institute, it is proposed to apprentice boys of the weaving caste between the ages of 14 and 16 years and to give them a regular training for a period of five years. The proposal that they should be fed, clothed and lodged in the hostel attached to the institute is necessary in order to compel the pupils to attend the schools until the expiry of the period of apprenticeship.

11. As regards the provision of general education for the pupils of this class, it is observed that classes for imparting general education to pupils of the School of Arts, Madras, which had been in existence for several years were abolished in the year 1909 on the grounds,

- (i) that these classes were "quite out of place" in a School of Arts,
- (ii) that if students wanted to learn English, they should study it elsewhere, and
- (iii) that knowledge of English was not necessary for artistic training.

Mr. Chatterton says that although he had hitherto held the opinion that it was undesirable to mix up general education with industrial education, increased experience of the artizans of this country leads him to think that a certain amount of general education is absolutely essential to the children of the artizan classes and that this should be provided in the industrial school. This proposal seems to be sound and may be accepted.

12. The weaving department is to be under the general supervision of the expert whose appointment has been sanctioned by the Secretary of State. But as a suitable man could not be got in this country for a salary of Rs. 400 a month, which was fixed with the view of employing Mr. Dewal, Mr. Chatterton suggests that the Secretary of State should be addressed to send out a weaving expert from England on the same terms as the dyeing expert. The expert should be a man of sufficient attainments to inspire confidence into the weavers of Madura and must be allowed to do private consulting work. He should be got for the specific purpose of carrying out the experiments outlined in Professor Fox's note communicated with G.O. No. 2774, Revenue, dated 23rd August 1910 and he should bring with him a skilful sizer on a salary of Rs. 350 or Rs. 400. Pending the settlement of these points, Mr. Chatterton suggests that the industrial class should be opened and placed under the supervision of Mr. N. Subramania Aiyar who was weaving assistant at the Salem

factory. It is submitted that the proposals of Mr. Chatterton may be accepted, the Secretary of State being requested through the Government of India to send out a weaving expert on the same terms as the dyeing expert he has recently sent.

13. *Mechanical Engineering Department.*—This department like the weaving department is to have two classes, a higher and a lower. The higher class would be the Mechanical Engineering class and admission to it is to be restricted to those who have obtained the school leaving certificate or who have received an education equivalent thereto. There is to be no caste restriction about admission and the boys should be apprenticed for three years, those who do well being given a further period of two years' training in the Department of Industries, making the total course extend to five years. The boys to be admitted should be about 16 years of age and ten boys are to be admitted every year. The boys should be apprenticed to the institute and should be paid Rs. 3, Rs. 5 and Rs. 7 a month during the first three years and Rs. 15 and Rs. 20 per mensem respectively during the fourth and fifth years. The school should be equipped with a small mechanical workshop containing sufficient machinery and tools to deal with the work likely to be sent in and it should also have a small foundry where brass and gun-metal casting could be made. Mr. Chatterton's idea is that this workshop should do the repair work connected with the pumping and boring operations and also undertake private work in connection with ryots' installations. The object of this class is not to turn out engineer subordinates or draftsmen, but an intelligent class of mechanics somewhat resembling the old English mill-wrights.

14. The lower or industrial class is to comprise three sections, namely, (i) carpentry, (ii) blacksmith's work, and (iii) metal work sections. The course in each section would extend to five years. As in the weaving industrial class, no general education qualifications are to be prescribed and admission is restricted to caste workmen; for the present admission is to be confined to the residents of Madura. Five boys a year are to be admitted into each section and are to work under the same general conditions as the weaving class, that is, they will be apprenticed to the institute and would be fed and clothed and paid a monthly allowance. Mr. Chatterton considers that it is not necessary that these boys should be required to live in the hostel apparently because he would restrict the admissions to the residents of Madura. But in this case there would be difficulty in enforcing the terms of apprenticeship. An alternative proposal made by Mr. Chatterton is to make the boys live in the hostel and to throw the classes open to the admission of all boys even from outside Madura. The latter alternative seems to be preferable, for if the students are to be apprenticed for five years, it is better to have legal power to insist on the fulfilment of the indentures, and this can be secured only by making them stay in the hostel and by providing food, clothes and lodging there, as is proposed to be done in the case of students of the industrial class in the weaving department. The maximum number of students each year for the three industrial classes under this head will be 15 and the ultimate strength at the end of five years will be 75, and if a hostel is constructed in connection with the institute, it had better be big enough to hold the residents of the lower or industrial classes of both the weaving and mechanical departments.

15. The Madura technical institute at present consists of a technical and an industrial section. The technical section consists only of drawing classes, while the industrial section consists of four departments, namely—

- | | |
|------------------|------------------------|
| (1) Carpentry. | (3) Metal work. |
| (2) Rattan work. | (4) Blacksmith's work. |

In paragraph 6 of his memorandum of the 9th May 1910, on the re-organization of the technical institute, Mr. Cotton observed with reference to the rattan department that all artistic rattan work should cease and that that branch should be treated in future merely as an adjunct to the carpentry department, that is to say, that boys should be only taught simple caning of furniture to enable them when they set up as carpenters in the bazaar to

make a complete chair without calling in a rattan maker to fill the framework. In regard to the blacksmith's department, he observed—

“The trend of industrial development in this country seems to be at present in the direction of small factories for cotton-ginning, rice-hulling and the crushing of sugar-cane, and oil-seeds and fibre-extraction are likely before long to interest many small capitalists. These will give employment to a superior type of artisans and it is the business of the Department of Industries to anticipate the demand and endeavour to turn out students who can readily find employment in these concerns.”

These proposals were approved in G.O. No. 2617, Revenue, dated 10th August 1910.

16. The question of making provision for the training of mechanical foremen and fitters was first raised in the course of the discussion at the Budget Conference of 1908. It was then suggested that classes for the training of these subordinates might be opened in the College of Engineering when the new buildings had been constructed and that in the meantime the P. T. Lee Chengalvaraya Nayakar's technical and industrial institute, Vepery, might be utilized for such training, the institute being assisted by a grant from Government. As regards the mufassal, it was considered that the Madura technical institute would form a suitable place for imparting such instruction in the south and that another institution might be established or selected for the purpose in the north of the Presidency. The proposal of Mr. Chatterton to open a mechanical department in the Madura institute gives effect to the above suggestion and the proposals made in Mr. Cotton's memorandum referred to above. The equipment necessary for the workshop attached to the school is fully dealt with in paragraph 21 of Mr. Chatterton's letter and the cost of this is estimated at Rs. 63,500. The proposals made by Mr. Chatterton may, it is submitted, be approved.

17. *Dyeing Department.*—Mr. Chatterton considers that a tinctorial laboratory and dyeing house at Madura will prove extremely useful in developing the industries of the town, but he does not propose to submit any proposals for its establishment pending the report of the recently appointed dyeing expert, Dr. Marsden. The dyeing industry is not now worked on a highly organized factory system and in Madura especially there is a very large amount of capital invested in this industry which is worked on primitive methods. Mr. Chatterton therefore considers that there will be no opening for the employment of trained chemists, but he would leave the matter to be considered after receipt of Dr. Marsden's report. He however expresses the opinion that if a tinctorial laboratory is established, the dyeing expert will have to be appointed principal of the whole institution.

18. *Staff.*—The following staff is proposed for the various departments:—

Weaving department.

	Rs.
One weaving expert	750
One weaving assistant	200
One dressing master or sizer	350
Three maistries on Rs. 25 each	75

General education class.

One teacher	25
One „	20
Two peons, one on Rs. 8 and the other on Rs. 7	15

Mechanical engineering department.

	Rs.
One Superintendent	300—10—400
One assistant superintendent	150—5—200
One drawing master	30—2—50
One fitter	30—2—50
One turner	30—2—50
One blacksmith	30—2—50
One moulder	30—2—50
One carpentry instructor	30—2—50
One metal work instructor	30—2—50
One clerk	20—1—30
Two peons, one on Rs. 8 and the other on Rs. 7	15

Dyeing department.

One dyeing expert	750
One dyeing assistant	100
One clerk	30
Two peons, one on Rs. 8 and the other on Rs. 7	15

General office establishment.

One head clerk	50—1—60
One account clerk	30—1—40
One store-keeper	40—1—50
Two clerks, each on	20—1—30
Three peons, 1 (8), 2 (7)	22
Two night watchmen on Rs. 7 each	14
Two sweepers, 1 (5), 1 (6)	11
One scavenger	7
One gardener	7

The total cost of the proposed establishment is Rs. 3,463½ *per mensem* or Rupees 41,558 *per annum*. The existing establishment of the institute is all temporary with the exception of the Superintendent (Rs. 300—10—400) whose appointment was sanctioned by the Government of India in Home department letter No. 14, dated 12th January 1911. If the proposed appointment of a weaving expert on Rs. 750 is approved, the sanction of the

Secretary of State will have to be obtained for the proposal—*vide* paragraph 12 *supra*.

19. *Admission of students.*—Mr. Chatterton suggests that the nomination of candidates for admission to the industrial classes both in the weaving and the mechanical departments might be placed in the hands of the elected members of the Legislative Council and certain semi-public associations, such as, the South Indian Chamber of Commerce and the National Fund and Industrial Association. He states that he makes this suggestion with some diffidence. It is however observed that this proposal cannot be accepted. The admission should be left entirely to the discretion of the officers in charge of the several departments of the institute, and any interference with their discretion will, it is feared, lead to undesirable results, at any rate at the outset.

20. *Site.*—The existing site of the technical institute being too small for the remodelled institute, the Government approved in G.O. No. 1479, Revenue, dated 6th May 1910, the acquisition of a site selected by Mr. Cotton, measuring 10.49 acres. Mr. Chatterton does not approve of this site which the Collector considers to be undesirable. He states that a greater part of the land is on too low a level and that the cost of diverting the Girdumal channel has been considerably under-estimated. He therefore proposes to acquire a site on the road to Pasumalai just outside the toll-bar. The site suggested by him is on the road to Pasumalai comparatively close to the weavers' quarters and not too far away for the boys to come there every day and would afford facilities for the construction of hostels and quarters for the Principal. He however points out that the exact plot to be selected should be decided only in the irrigation season when the area covered by irrigation and the facilities for draining may be better seen. He expects that the cost of the site will be met by the sale proceeds of the existing site and buildings of the institute.

21. *Buildings.*—Mr. Chatterton also submits rough plans and estimates of the buildings required for the institute. The plans submitted seem to be suitable. The question of the buildings required are discussed in paragraphs 25 to 30 of Mr. Chatterton's letter. The cost of these buildings including tools and plant amounts to Rs. 3,30,000. Provision is made for the construction of a hostel at a cost of Rs. 41,200. The number of boys in the industrial classes will be 175 (100 in the weaving school and 75 in the carpentry, blacksmith's work and metal work classes) but the proposed hostel provides accommodation only for 120 boys. It seems necessary also to construct a small hospital and to appoint a medical officer of the sub-assistant surgeon grade at least to be in medical charge of the institute. Accidents are likely to happen in a mechanical engineering institute where various kinds of machines are at work and it is absolutely necessary to make provision for medical help.

22. Mr. Chatterton's proposals seem to have been carefully worked out and may be approved. The cost of the proposals is an initial expenditure of Rs. 3,30,000 and a recurring expenditure of Rs. 81,618.

23. *Show-room.*—There appears to be a small show-room now at the institute. Mr. Chatterton recommends the continuance of this in respect of the minor industries taught in the institute.

24. *Sale of manufactured articles.*—One other point which has to be considered in connection with these proposals is the manner of disposal of the articles manufactured in the industrial section. In paragraph 2 of G.O. No. 745, Educational, dated 16th December 1910, the Government observed that they did not consider

Page 18 of G.O. No. 3446, Revenue, dated 27th October 1910. that the instructions of the Secretary of State in paragraph 7 of his despatch No. 50, Revenue, dated 29th July 1910, were

intended to prevent the finished products of technical and industrial training institutions from being disposed of by way of sale, and stated that Mr. Chatterton should deal with this point in his report regarding the future scope and aim of the Madura technical institute and that he should state what arrangements could be made for the disposal of finished products so as to ensure as little interference as possible with private enterprise.

25. Mr. Chatterton refers to this question in paragraph 8 of his report. He is not clear how far the recent orders of the Secretary of State preclude Government industrial schools from selling the products manufactured in them, but he is certain that unless the articles manufactured in the schools are sold the cost of maintaining them will be abnormally high. He considers that a large amount of "repetition work" must be undertaken in industrial schools in order to provide facilities for acquiring ease and rapidity in carrying out manual operations and that if the manufactured products were sold it should not be difficult to make the work to a large extent self-supporting. But how to do this so as not to compete in any way with private enterprise is, he considers, a very difficult problem. He suggests, however, that the products of the school should be taken over by local traders and that endeavours should, as far as possible, be made to dispose of the work through the agency of middlemen or contractors and that private orders should not be undertaken.

26. The orders of the Secretary of State do not, it is submitted, seem to prohibit the sale of manufactured articles. The Secretary of State lays down that State effort in the direction of improving or introducing new industries should "avoid the semblance of a commercial venture," but Paragraph 7 of the despatch on page 18 of G.O. No. 3446, Revenue, dated 27th October 1910. he expressly states that the objects the Government have in view can all be accomplished by means of technical and

industrial schools and that it is in such schools that a knowledge of new industries and new processes can best be imparted, that the use of new implements can best be taught and the technical skill of the artizan most readily improved. In a weaving school, he says, the indigenous hand loom can be improved and the advantage of the improvement demonstrated, and that in a leather school the method of chrome tanning can be demonstrated and taught. His objection seems to be to converting the leather or weaving school into a Government factory in order to demonstrate that

articles can be manufactured and sold to the public at a profit. He nowhere states that articles manufactured in an industrial school in the course of imparting instruction should not be sold. It will be observed that in the case of the articles manufactured at the School of Arts the Government have held that "it is proper to sell such

Paragraph 5 of G.O. No. 524, Educational, dated 3rd August 1905. "products of the industrial department of the School of Arts as are worthy specimens of Indian art and to execute orders

"in a small way in order to teach the pupils business habits, to stimulate their interest in their work, to ensure the highest skill and finish in their production and to obviate waste of materials. But to employ skilled workmen to make articles for sale and to experiment in manufacture on a large scale whether in competition with existing private enterprise or with the view of creating a new market would be to infringe the general principle."

These directions appear to be in entire accord with the orders of the Secretary of State. If these directions are borne in mind and if the work of the institute is limited to industrial instruction and all attempts at manufacturing articles on a commercial basis are avoided, there will be no objection whatever to the sale of the articles manufactured at the institute.

27. In paragraph 8 of his letter Mr. Chatterton himself states that, as a matter of fact, there has never been any complaint regarding the competition of industrial schools on the part of local traders or artisans and that there is ample evidence to show that these schools are welcomed as conveniences by the wealthier non-trading portion of the population. In the case of the leather trade school which it is proposed to open in Madras it has been decided that articles manufactured in the school should

be sold at auction in convenient periods, but that otherwise no sales should take place in the school. Perhaps a similar course may be followed in this case also.

28. *Manufacture of gold thread.*—At the meeting of the Legislative Council held on the 5th April 1910 a question was asked whether the Government would consider the desirability of helping the lace-making industry in Madura. The Government promised to examine the possibility of re-establishing the industry and asked the Director of Industries to report on the subject. Mr. Tressler, Acting Director of Industries, submitted a report in his letter No. 18-G., dated 19th July 1910. He proposed that the Government should obtain a loan of the lace-making machinery owned by the proprietor of the gold-lace factory at Perambur and set it up at the Madura weaving school for the purpose of demonstrating the advantages of manufacturing gold lace with the help of machinery. In memorandum No. 2554-1, Educational, dated 19th January 1911, Mr. Tressler's report was referred to Mr. Chatterton for remarks. Mr. Chatterton deals with this matter in paragraph 23 of his present letter. He has been in communication with the owners of the Perambur lace factory and does not think that they will agree to lend their machinery to Government as suggested by Mr. Tressler. The problem of re-establishing the lace-making industry, Mr. Chatterton states, is a very much more difficult one than Mr. Tressler seems to imagine and the failure of the firm to carry on the business successfully is largely due to the fact that they did not themselves undertake the spinning of silk thread or the drawing of silver wire. Mr. Chatterton considers that nothing can be done to revive the industry unless the work is carried on commercially and that the ruling of the Secretary of State absolutely precludes the setting up of an experimental lace factory by Government. The order of the Secretary of State no doubt precludes the setting up of a *lace factory* to manufacture gold lace on a commercial scale, but they do not, as has already been pointed out, prohibit the methods of lace-making being demonstrated and taught in an industrial school. It may be noted that Mr. Chatterton has recently

This has since been disposed of—please see G.O. No. 1618, Revenue, dated 30th May 1911.

submitted a report on the enquiries he made regarding the manufacture of gold thread in France, which is being dealt with in the Revenue department.

K. RANGASWAMI AYYANGAR—1-6-11.

The office-note gives a summary of the case which it is not necessary to repeat. In my own remarks I propose to follow the order adopted in Mr. Chatterton's report, paragraph by paragraph.

2. *Paragraph 4.*—The statement of the objects for which it is desirable to provide may be accepted with some reservation in the case of metal work to which further reference will be made when dealing with paragraph 14 *infra*. The continuance of the small permanent show-room managed on the lines of the Victoria Technical Institute seems clearly desirable. The question of site will be referred to *infra* in connection with paragraph 16.

3. *Paragraph 5.*—The school final certificate furnishes a suitable standard of general education for admission to the technical classes, but it may be agreed to allow the head of the institution some discretion instead of prescribing a rigid rule. The levy of fees is expedient and there will probably be no need to lay down any limit as to the number admitted. It seems a matter of cardinal importance to restrict high grade training to the class of persons who have the means and the will to make subsequent provision for their own employment.

4. *Paragraph 6.*—The method of apprenticeship appears to be sound. The legal basis is the Apprentices Act, 1850. This enactment provides for the apprenticing of children between the ages of 10 and 18 for terms not exceeding seven years or extending beyond the age of 21. The engagement is entered into by the father or guardian under section 8. The contract must be in the form given in schedule A or to the like effect. Schedule A provides *inter alia* that the employer shall "find and allow unto the said apprentice good, wholesome and sufficient food, clothes, lodging washing and all other things necessary, fit and reasonable for an apprentice". Under section 25 it is laid down that the words "master and owner" shall be understood to include bodies corporate as well as individuals, and there is therefore no difficulty in the way of apprenticing boys to an institute.

It is perhaps open to doubt whether the minimum period of apprenticeship need be so long as five years in the case of carpentry. But the age limit for admission may well be fixed at fourteen years.

5. *Paragraph 7.*—We may, it is submitted, accept the conclusion that some provision should be made for the general education of apprentices lodged in the hostel attached to the institute; also that in addition to free board, lodging and instruction it is necessary to offer some monetary compensation.

6. *Paragraph 8.*—As to the sale of manufactured products it is for consideration whether the best solution is not a combination of the plan suggested by Mr. Chatterton and of the method of sale by auction. I would in the first instance offer such products to local traders at wholesale rates fixed so as (i) to recoup the cost of raw materials including, if possible, spoilt materials and (ii) also to allow a reasonable wholesale profit, if that addition is not entirely swallowed up by the cost price of spoilt material. If on these terms local traders are not willing to take over all manufactured articles, the balance might be sold by auction with upset prices fixed on the same principles but liable to reduction should the auction prove that they are in excess of the market value.

There is considerable force in Mr. Chatterton's argument that the extent to which an industrial school competes with the artisan and bazaar trader is counter-balanced by the increased demand which such schools create and by the circumstance that the pupils themselves come from the same class as the local artisans. With reference to his remark about the abnormal cost of maintaining such schools unless the products can be sold, it is desirable to emphasize the fact that the financial aspect of the case is a subsidiary one. The great danger of running such institutions on commercial lines is that repetition work is overdone and the interests of the apprentices are sacrificed in the desire to carry out private orders at a profit.

7. *Paragraphs 9 and 10.*—Experience at the Hewett Weaving School at Barabanki and the Government Weaving Institute at Serampur constitutes a strong argument against the grant of technical scholarships and for the restriction of technical (as opposed to industrial) education to classes who have definite ideas and prospects of future employment.

8. *Paragraph 11.*—The policy of putting hand-loom weaving factories in the fore-front of the scheme for technical and industrial education in weaving is in accordance with past experience. Mr. Cotton, whom I consulted on the subject, puts this aspect of the case clearly and forcibly in the following extract:—

“You really cannot help the weaver. Outside the factories the individual weaver has to slave for the Chetti from whom he gets advances of cash and yarn and to whom he has probably mortgaged his loom, but he works at home, can choose his own time and though in a chronic state of indebtedness has wild interludes of reckless extravagance and enjoyment. If you give him better tools—that is (for example) if you teach him to use the fly shuttle—it either only encourages him to be more lazy, as he can turn out the same output in about half the time he used to take, or if his output is increased, to put additional profits into the pocket of the Chetti. The factory system means practically the abandonment of the hereditary weaver castes. It is alien to their inherited instincts to submit to regular hours of work, and consequently we find in such factories as these the majority of the weavers have no traditional connection with weaving. On the West Coast it provides employment for Christians; the Chaliyas keep studiously away. In Tamil districts respectable Vellalas and even Brahmans are found. The warps are handed over ready sized and ready to put on the looms, regular hours are insisted on, and very fair wages are paid at so much per yard woven. Any considerable extension of these factories will cause the disappearance of the hereditary weavers altogether. Machinery has left certain lines free from competition, such as the Madura lace cloths, Benares kinkobs and the like. But these the hand-loom factories invade with improved appliances and preliminary processes, controlled labour and consequently greatly increased output. It means the capture of the last redoubt. I am sorry that the Conjeeveram experiment has failed. Three public-spirited Brahmans of that town formed a weavers’ co-operative society, making themselves sureties for any liabilities and encouraged the weavers to get out of the Chetti’s clutches by buying yarn or in some cases ready sized warps for them and paying for the cloths woven at market rates. But several of the original members who were allowed to work in their homes sold the yarn supplied and absconded or sold the cloth when made to a Chetti and never paid for the yarn issued. When I visited Conjeeveram I found that the few remaining members had been gathered together into a *quasi*-factory where it was hoped by some exercise of discipline and supervision to cultivate more regular habits of work”.

If the home-working weaver is bound to go, the introduction of the system of apprenticeship at Madura should serve to accustom him when young to the inevitable alternative of factory labour.

9. *Paragraph 12.*—The future of technical and industrial instruction in dyeing must clearly await the result of Dr. Marsden’s enquiries. His proposals may necessitate some extension of the hostel accommodation provided in Mr. Chatterton’s scheme.

10. *Paragraph 13.*—So far as the Engineering College is concerned, it has been decided to postpone examination of the lines of instruction in mechanical engineering. *Vide* page 14 of notes in G.O. No. 3072, until plans and estimates for the new buildings are ready. The Honourable Revenue, dated 12th November 1909.

Member has in the meantime expressed the opinion that the instruction given in that institution should be restricted as far as possible to pupils who require higher training. A mechanical workshop at Madura will, it is submitted, in any case be desirable, particularly if it is conducted with special reference to the local needs of the agricultural community and to the operations of the pumping and boring department. It would seem wiser to confine instruction at Madura to the training of intelligent artisans rather than to attempt instruction of a more advanced character.

11. *Paragraph 14.*—Metal work of the artistic character is sufficiently provided for by the School of Arts and it is perhaps open to doubt whether any useful purpose will be served by teaching the local artisans modern alloys and methods of casting. It does not seem likely that the demand for brass and copper vessels will ever die out entirely, and if not, work of this character will always provide a measure of

employment. The local artisan cannot compete against the drawing press and spinning lathe, and if it is intended to instruct him in the use of such machinery, such a course is surely open to the criticism so often advanced against technical education, namely, that it is useless to provide instruction where the scope for commercial employment is limited and shows no signs of development. Would it not be wiser to endeavour to place apprentices with private employers, where they are to be found, rather than to make instruction of this character part of the curriculum at the technical institute?

12. *Paragraph 15.*—It is premature to say in whose hands the superintendence of the institute should be placed. This must necessarily depend upon—

- (a) personal considerations, and
- (b) the relative amount of leisure enjoyed by the two experts.

13. *Paragraph 16.*—In paragraph 3 of G.O. No. 1479, Revenue, dated 6th May 1910, the proposal to acquire a specified site measuring 10.49 acres was approved and the Madura Collector was requested at an early date to submit a draft notification after ascertaining from the Executive Engineer that there was no objection to the suggested diversion of an irrigation channel in the charge of the Public Works

Department. It has since been ascertained that a notification for the acquisition of 9.55 acres was issued by the Public Works Department on 23rd January 1911—*vide* page 142 of Part I of the *Fort St. George Gazette* of 24th January 1911. There is however no information in what stage the acquisition is at present. The Collector has been asked by telegram to report this and also to stop further proceedings.

K. RANGASWAMI AYYANGAR—5-8-11.

I understand that no notification under the Land Acquisition Act, 1894, has yet been published and it is therefore not too late to change the site. As Mr. Chatterton says it would be more convenient to decide the exact location during the irrigation season, I would suggest that he be given instructions to do so immediately in consultation with the Collector who apparently shares his views as to the merits of placing the institute by the road to Pasumalai just outside the toll-bar. It may be an expensive business raising the level of paddy fields, and wet land in that vicinity is apparently very costly. Mr. Cotton’s site was estimated at Rs. 1,250 an acre without any allowance for trees or the 15 *per cent.* for compensation, and in respect of another site near the weavers’ quarters the tahsildar put the cost of raising the level at Rs. 1,500 an acre. From G.O. No. 241, Educational, dated 25th April 1911, however, it appears that the sale value of the present premises is Rs. 30,000 which ought to cover the cost of the new acquisition. It is doubtful, however, whether Rs. 15,000 will be sufficient for the Principal’s bungalow including site.

14. *Paragraph 17.*—The case for fixing the emoluments of the weaving expert at the same figure as the salary of the dyeing expert, viz., Rs. 750, is strong. For Rs. 400 *per mensem* we are not likely to get anything but a foreman, perhaps of a superior type; and something more than that is required in order to deal with the class of technical students.

The Secretary of State has sanctioned the entertainment of these experts “for instructional purposes only”. But as Paragraph 9 of G.O. No. 3446, Revenue, dated 27th October 1910, one part of their functions (see paragraph 7) consists in familiarizing their pupils

with such improvements in the methods of production as modern science and the practice of European countries can suggest, there is presumably no objection to Mr. Chatterton’s proposal that the weaving expert should examine the possibility of improving indigenous methods of sizing. Professor Fox’s report to which he refers is not in the Secretariat, having been sent to him in original. If the course of action recommended be approved, I take it Mr. Chatterton should be instructed to return this report for scrutiny as a preliminary to addressing the Secretary of State with a request to engage an expert on the salary recommended and a skilled sizer. There is no immediate hurry, as neither of these men can commence work until the site has been acquired and buildings put up, but it would be as well to initiate enquiries at once and to make certain that the Secretary of State will not raise objections. The new sizing machine will be of use in any case for the purpose of supplying warps to the industrial school. In paragraph 18 Mr. Chatterton proposes to defer the actual purchase until after the arrival of the weaving expert.

15. *Paragraph 19.*—The starting of the industrial section of the school must also be deferred until suitable premises have been constructed and the question who should supervise it does not call for immediate decision. Mr. Cotton, I may say, doubts whether N. Subramanya Aiyar would make a good superintendent.

Paragraph 18 develops the position previously referred to that it is undesirable to grant technical scholarships for weaving and necessary to charge fees, the rate proposed (Rs. 5 *per mensem*) being based upon what students were willing to pay at the Sembiam tannery. The period of the course of instruction must be left for decision after the arrival of the weaving expert. Mr. Chatterton's revised plan for the weaving shed may presumably be accepted subject to scrutiny in the Public Works Department.

16. *Paragraph 20.*—The proposed strength of the industrial class in weaving, the age of recruitment, the period of apprenticeship and the remuneration during that period appear suitable, as also the arrangements for general education, though experience may very likely dictate modifications. The idea of giving nominations to the school to the additional members of the Legislative Council and associations such as the South Indian Chamber of Commerce is calculated to engage the interest of leaders of the Indian community and, I submit, deserves trial. But the number of such nominations should be limited and in cases where they are not made with sufficient care the Superintendent should have the right of veto. The boys ought, I think, to be taken only from the weaving caste.

17. *Paragraph 21.*—The mechanical department will conveniently work in with the pumping and boring operations under Mr. Chatterton's control and I see no objection to utilizing the Madura workshop for the purpose of carrying out repair work, in view of the specific statement that engineering firms do not desire custom of this character. In this section of the institute there is no need to insist on caste restrictions, and as it is desired to bring into being an intelligent class of mechanics, the remuneration suggested during the period of apprenticeship is, I submit, not excessive. It is necessary to fix the rates considerably higher during the fourth and fifth years; otherwise the brighter pupils will be tempted to go out and earn their livelihood instead of continuing their training. Assuming that one boy in five is found to be worthy of the full period of training, the ultimate strength of the mechanical department will comprise 34 apprentices; in other words with 100 weaving apprentices, the accommodation provided in the hostel (120) will be insufficient.

Mr. Chatterton's proposals in regard to plant do not appear to go beyond the requirements of the case and it is, I think, a good idea to let the equipment of the school be such as to serve as a working exhibition for the benefit of the public. A well is clearly necessary. I hope it will prove practicable to obtain the raw material to be worked up with this expensive machinery by contracts with local traders.

The admission to the mechanical class being at or about 16 years of age, provision for general education may perhaps be dispensed with, but this aspect of the case should not be forgotten when deciding whom to admit. The syllabus of theoretical instruction is a matter for examination later on.

18. *Paragraph 22.*—This brings us to the last section, namely, the industrial classes for carpenters, blacksmiths and metal workers. I have expressed doubt above as to the need for making the carpentry course so long as five years. It is probably wise to confine admission in the first instance to local residents and the pupils should certainly be caste workmen. As, however, Mr. Chatterton does not intend to locate them in the hostel they cannot be brought under apprenticeship. Only experience can show whether the terms offered, viz., a stipend gradually increasing from Re. 1 to Rs. 5 *per mensem* and the provision of food and working clothes, are sufficiently attractive. In regard to the disposal of the finished products the plan suggested in paragraph 6 *supra* may be adopted.

19. *Paragraph 23* deals with the question of developing the manufacture of gold thread. Mr. Chatterton does not enter into discussion of the grounds upon which his views are based, but somewhat dogmatically asserts that at least three expert workmen would have to be imported from Europe and a regular factory started.

The Secretary of State's orders therefore stand in the way and presumably this enterprise must be definitely abandoned. It is possible, however, that before deciding on this course Government may desire to have a more detailed statement of the case from Mr. Chatterton.

20. *Paragraph 24.*—The idea that the Madura school will prove a centre of industrial experiment and research must not be allowed to develop into the subordination of instruction to enquiry, though as stated above a certain amount of investigation must be regarded as permissible or the standard of instruction will remain stereotyped and run the risk of becoming out of date.

21. *Paragraphs 25 to 29* deal with the buildings and plant proposed and Mr. Chatterton's rough estimates will require scrutiny in the Public Works Department. The last item, viz., Rs. 30,000, for two residences for the occupation of the experts is not improbably below the mark. The allotment made for a dye-house (Rs. 42,000) is purely provisional and Dr. Marsden's proposals in this direction must be awaited. As to the hostel, I have indicated above that the provision seems inadequate. Apart from the 100 weavers there will be 34 mechanical apprentices and possibly later on dyeing apprentices also, though I notice that in paragraph 30 Mr. Chatterton writes as if industrial classes in dyeing were out of the question. The ages of the boys will vary from 14 to 21, and it is for consideration whether it would not be wiser to have two hostels and divide the elder boys from the younger. The total number will probably be large enough to necessitate provision for two resident wardens chosen from the staff. Another point which is worthy of mention is that raised in the office note, viz., whether a small hospital or dispensary ought not to be included in the estimates. If upwards of a 100 apprentices are under control for a period of five years, there are sure to be cases of accidental sickness where in-patient accommodation will be required and under the form of agreement appended to the Apprentices Act, 1850, the responsibility for making provision for medical relief presumably devolves on the employer.

22. *Paragraph 30.*—In regard to the statement of recurring annual expenditure I doubt the adequacy of the general education staff; with a hundred weavers and possibly some of the mechanical apprentices two teachers will hardly be enough. Another item the adequacy of which may be questioned is the provision for raw materials, viz., Rs. 3,000 each in the weaving and mechanical sections. On the other hand the hostel charges for 75 pupils in the industrial classes are excessive. Rs. 5 *per mensem* is Mr. Chatterton's estimate of the cost of feeding and clothing a boy and if these industrial pupils are caste workers from Madura and live with their families the cost ought to be considerably less. For presumably the evening meal and anything taken in the very early morning would be provided by their parents, and the allowance of clothes might be restricted to what they have to wear during working hours.

23. The file may now go to Revenue, Public Works and Financial for remarks before circulation. But a spare copy of the current and the notes should be sent in advance to the Honourable Member for perusal and with the object of taking his orders at once as to whether Mr. Chatterton and the Collector of Madura should not definitely select a new location for the institute and send up a site plan and estimate of the cost of acquisition.

Please also procure a third proof of the current and notes taken for my use. The file will probably be some time in circulation and it is inconvenient not knowing exactly what has been said.

Circulate in proof.

L. DAVIDSON—24-7-11.

The notes have been printed. The file may now be forwarded to the Revenue, Public Works and Financial Departments for remarks.

K. RANGASWAMI AIYANGAR—5-8-11.

Yes.

L. DAVIDSON—5-8-11.

REVENUE DEPARTMENT.

Paragraph 4 of Mr. Chatterton's report.—It is proposed to continue the small show room attached to the Technical Institute, in which the local artisans can expose their products for sale and to work it on similar lines to the Victoria Technical Institute of Madras. The lines on which the Victoria Technical Institute exhibits and offers its products for sale have recently been objected to by the Trades Association of Madras as competing with private trade. Presumably the intention is that in Madura the artisans should themselves exhibit their articles and sell them, utilizing the Technical Institute's show rooms for the purpose and not that they will sell their articles through the agency of the Technical Institute.

2. *Paragraphs 13 and 21 of the report.*—It is proposed to open a mechanical workshop in connection with the institute and that the instruction given there should be specially designed to deal with agricultural engineering, that the workshops should be closely associated with the Department of Industries and that "its chief function should be to do the repair work connected with the operations of the Department of Industries of which, especially in the boring section, there is a considerable amount. It might also undertake repair work in connection with the ryots' installations, and although this would be doing private work, it would not be interfering with private enterprise, as all such work has now to be sent to Madras, a distance of between 300 and 400 miles greatly to the inconvenience of the ryots and to the annoyance of the engineering firms here who find such work far from profitable and who only undertake it because it is essential to the development of their business in other directions." Submitted that these proposals may be accepted in this department.

V.P.—16-8-11.

The file has, I think, been sent to Revenue for the Secretary's views as under the present arrangements Revenue is hardly concerned with the question except on one small point, the use of the institute as a workshop by the Pumping department. To that no objection need be raised.

J. T. GWYNN—17-8-11.

I do not think that I can add anything useful to Mr. Davidson's note. It will not be easy to get students to come in, but it would be better to let the institute run with less than half a dozen pupils than attract boys by scholarships to go through a training which they never intend to utilize.

A. G. CARDEW—18-8-11.

To the Public Works Department.

PUBLIC WORKS DEPARTMENT.

The proposals in respect of buildings have been examined by the Chief Engineer and the following remarks are offered:—

Central office.

(a) The abutment for the last arch at the end of the verandah is insufficient.

(b) In the room noted as "Drawing office" there is sufficient floor space for 26 draftsmen (at 75 square feet per draftsman). It is not clear if this room is intended for a drawing class.

Two residences for weaving and dyeing experts.

(c) A lump sum provision of Rs. 30,000 has been made for these buildings. The pay of the dyeing expert is Rs. 750 a month and that of the weaving expert is not likely, it is noted to exceed that sum. The limit of cost for an officer on Rs. 750 a month is about Rs. 13,100 or Rs. 26,200 for two residences.

2. The file may be passed on to the Financial.

M.K.—15-9-11.

P.K.S.—15-9-11.

P. HAWKINS—19-9-11.

C. A. SMITH—21-9-11.

FINANCIAL DEPARTMENT.

The following questions have been dealt with in the preceding notes:—

- (i) Re-organization of the Madura Technical Institute.
- (ii) Establishment of a weaving institute.
- (iii) Introduction of the manufacture of gold thread into the Madura Institute.

The third question may be left out of consideration as Mr. Chatterton does not recommend any action in this direction, and the Educational department propose to obtain a more detailed report from him. The first and second items have been dealt with together.

2. It is proposed that the institute should be divided into three departments:—

- (a) A weaving department.
- (b) A mechanical engineering department.
- (c) A dyeing department.

The scheme as proposed to be approved involves the following expenditure according to the estimate submitted by Mr. Chatterton:—

Recurring (establishment and other charges) Rs. 81,618 *per annum*.

Non-recurring (buildings) Rs. 3,30,000.

3. The existing and proposed establishments are shown in the following statement:—

Existing.

Proposed.

Weaving section.

	Per mensem.
	RS.
Weaving expert	750
Weaving assistant	200
Dressing master	350
Three maistries at Rs. 25 each ..	75
Total	1,375

General Educational classes.

	Per mensem.
	RS.
One teacher	25
One „	20
One peon	8
One „	7
Total	60

Mechanical Engineering section.

	Per mensem.
	RS.
Superintendent on Rs. 300—10—400. 361½	
Drawing master	30
Assistant drawing master	15
Senior carpentry instructor	35
Junior „	20
Rattan instructor	12½
Metal work instructor	30
Blacksmith	30
Total	533½

	Per mensem.
	RS.
Superintendent on Rs. 300—10—400 ..	361½
Assistant Superintendent on Rupees 150—5—200	180½
Drawing master on Rs. 30—2—50 ..	42½
Fitter on „ 30—2—50 ..	42½
Turner on „ 30—2—50 ..	42½
Blacksmith on „ 30—2—50 ..	42½
Moulder on „ 30—2—50 ..	42½
Carpentry instructor on Rs. 30—2—50. 42½	
Metal work instructor on „ 30—2—50. 42½	
Clerk for workshop on „ 20—1—30. 26½	
One peon on	8
One „	7
Total	878½

Existing.

Proposed.

Dyeing section.

	Per mensem.
	RS.
Dyeing expert	750
Dyeing assistant	100
Clerk	30
One peon	8
One „	7
Total ..	895

Office establishment (Provisional).

Per mensem.

	RS.
Head clerk	40
One clerk	20
One „	15
One storekeeper	20
Four peons on Rs. 7 each	28
Total ..	123
Grand total ..	*656 $\frac{1}{4}$

Office establishment.

Per mensem.

	RS.
Head clerk on Rs. 50—1—60	56 $\frac{2}{3}$
Account clerk on „ 30—1—40	36 $\frac{2}{3}$
Storekeeper on „ 40—1—50	46 $\frac{2}{3}$
Two clerks on „ 20—1—30 each	53 $\frac{1}{3}$
One peon on Rs. 8	8
Two peons on Rs. 7 each	14
Total ..	215 $\frac{1}{3}$
Grand total ..	3,424 $\frac{2}{3}$

or 41,090 $\frac{2}{3}$
per annum.

[* Excludes the cost on account of the weaving expert (Rs. 400) and the dyeing expert (Rs. 750) temporarily sanctioned by the Secretary of State]

The Secretary of State has already sanctioned the appointment of a weaving expert on Rs. 400 *per mensem* for three years in the first instance and of a dyeing expert for two years on Rs. 750 *per mensem*. If the pay of the former is to be raised to Rs. 750 *per mensem*, the sanction of the Secretary of State would be necessary under article 277 (3), Civil Account Code.

Other recurring charges.—These charges include the following items :—

	Estimated cost per annum.
	RS.
(i) Menial establishments debitable to contingencies	468
(ii) Scholarships	12,300
(iii) Hostel charges	10,500
(iv) Other charges	17,260
Total ..	40,528
Total recurring charges ..	81,618 $\frac{2}{3}$

Against this large outlay there will be some receipts from fees and by the sale of manufactured articles, but the realizations would be inconsiderable and will not very materially affect the ultimate cost.

4. Attention is solicited to the note by the Honourable Member to whom a separate copy of the current and notes were sent by Educational in connection with the question of acquiring a site for the institute. It will be seen that Honourable Member has directed that the question of the Mechanical Engineering department should be referred for report to the Principal of the Engineering College, and that as regards the weaving section the Honourable Member seems to intend that the scheme should be confined entirely to weavers by caste and should be modified accordingly, or that the matter may be dropped altogether. The Honourable Member also doubts the expediency of applying to the Secretary of State for the appointment

of a weaving expert with increased salary (Rs. 750). The weaving section is the most costly part of the scheme and if this portion is eliminated the recurring cost would be reduced by more than Rs. 30,000 per annum and there would be a large saving in the estimated cost for buildings. In view of Honourable Member's remarks it is perhaps not necessary to examine the staff proposed in detail at present.

5. *Compensatory assignment.*—In 1903 the Government of India promised a special assignment for the development of industrial education. Beyond, however, a sum of 64 lakh allowed for in the provincial settlement of 1904 no grant towards this object has yet been made.

Paragraph 15 of Government of India letter on page 7 of G.O. No. 313-4, Educational, dated 12th May 1905.

Paragraph 9 on pages 7-8 of notes.

The expenditure incurred in the past towards industrial education in this Presidency has to some extent been counterbalanced by receipts, but in view of the recent policy * laid down by the Secretary of State this will no longer be the case. The question of applying to India for an assignment has been separately examined, but the matter is for the present lying over as there is no definite information as to the expenditure involved in the schemes under consideration. The final settlement resolution from India is also awaited. It seems, however, doubtful whether India would sanction any special grant. In the United Provinces the Secretary of State, while sanctioning the establishment of a Technological Institute, directed that funds therefor should be provided from Provincial revenues. The scheme, as now submitted, involves a large outlay, both recurring and non-recurring, which is likely to be exceeded; and looking to the possibility of the major portion of the extra expenditure falling on provincial revenues, it appears to be desirable to examine the matter carefully with a view to keep down expenditure to the minimum. This aspect of the case may be impressed upon Mr. Chatterton when calling for a further report with reference to the Honourable Member's note. In the meanwhile, the attitude of India in the matter may be ascertained by a general reference drawing attention to the promise of 1903 and pointing out the liability thrown on State funds by the recent orders of the Secretary of State.

Extract from the *Madras Mail*, dated the 31st August 1911.

Paragraph 15 of Government of India letter on page 7 of G.O. No. 313-4, Educational, dated 12th May 1905.

K.P.A.—12-10-11.

None.

H. A. STUART.

As regards the details of the schemes set out on pages 29 and 30 *ante* we may ask the Administrative department to refer the case again to us after considering Honourable Member's remarks† in the

† As to the necessity for any mechanical engineering section, and the utility of a linked file. It seems premature at present for Financial to examine the scheme in detail.

C. REILLY—14-10-11.

H. A. STUART—15-10-11.

EDUCATIONAL DEPARTMENT.

Print up these notes *at once*.

2. I cannot find the Honourable Member's note about consulting the Principal of the Engineering College. If any reference to him is necessary it should issue *at once*.

L. DAVIDSON—17-10-11.

The Honourable Member's remarks referred to in the Chief Secretary's note above are those made by him on the advance copy of the note on the scheme for the reorganization of the Madura Technical Institute which was submitted to the Honourable Member when the original file was sent to Revenue, Public Works and Financial Departments. An extract of his remarks in the other file which is

now with Public Works Department and which was obtained for the purpose of taking this extract is placed below. In paragraph 4 of his note, the Honourable Member directed only that a reference should go at once to Mr. Chatterton about the selection of a site and that nothing further need be done on the other points raised in his note. It is for consideration whether a reference should be made to Mr. James at once about the engineering school *vide* paragraph 13 of Mr. Chatterton's letter, or whether the receipt of copies of the printed notes may be awaited and the whole file sent to Mr. James.

K. RANGASWAMI AIYANGAR—23-10-11.

Make a separate reference to Mr. James through the Director of Public Instruction. The whole file need not go to him. It ought, I think, to go to the Honourable Member without further delay, a footnote stating the nature of the reference made to Mr. James.

L. DAVIDSON—24-10-11.

A draft is submitted for approval.

T.K.—27-10-11.

K. RANGASWAMI AIYANGAR—27-10-11.

M. S. MASCARENHAS—27-10-11.

[Memorandum No. 1073-3, Educational, dated 27th October 1911.]

The notes have been printed. The file may now be submitted to the Honourable Member.

A reference has been made to Mr. James, through the Director of Public Instruction, calling for his remarks on the proposal of Mr. Chatterton relating to the mechanical engineering department of the institute.

The file about the sale of the present site of the institute is also submitted as ordered by the Secretary.

R. SUNDARAM AIYAR—2-11-11.

This file is resubmitted to the Honourable Member without waiting for Mr. James' reply to the reference dated 27th October 1911. There are two points in issue which it would be advantageous, if possible, to settle in advance. In the first place, the Financial Department is anxious to know as soon as may be whether

* Only 30 of this relates to the institute, I find; the balance is for the weaving, dyeing and leather experts, as to the utilization of which we have exact information. I am inclined to think the 30 for the institute should be retained for the present.

L. DAVIDSON—4-11-11.

required for expenditure before the 31st March 1912.

2. The second point relates to the question of site. We have an offer—*vide* the linked file immediately below—of Rs. 30,000 from the Bank of Madras for the present site and Mr. Chatterton states in his demi-official of the 13th October that if his proposals be approved, it would be feasible to transfer two or three sheds from the existing site and re-erect them temporarily on the new site, in which case the former might be handed over to the Bank of Madras not later than the 31st March 1912. On the 12th April last—*vide* page 16 of G.O. No. 241, dated 25th April 1911, the Madura Collector concurred in Mr. Chatterton's valuation of the site at Rupees 30,000. The Public Works Department have now got the file containing the joint views of the Collector and Mr. Chatterton as to the new site proposed, and it will be sent to the Honourable Member before any reply goes to the Bank of Madras.

L. DAVIDSON—4-11-11.

We undoubtedly desire to hurry this matter on. It has been hung up so long. If the new site has been approved of by the Collector and Mr. Chatterton, I should say we had better take it up at once as an urgent matter, and if the site requires money to

be spent upon it we had better enter on the land at once and spend money on it. If this is so we shall want to spend some of the Rs. 30,000 and had better not surrender it. Moreover, if as I hope Chatterton will approve of Mr. Marsden starting at once on a small school and laboratory for dyeing in Madura we shall want money for that.

As to the Bank of Madras I would say that if the new site is approved we can at once tell the Bank that they can have the existing site for Rs. 30,000 as proposed.

M. H[AMMICK]—6-11-11.

[Memorandum No. 1073-3, dated 27th October 1911.]

From the Director of Public Instruction, dated 15th December 1911, No. 417.

Reference is solicited to the Honourable Member's remarks (on the duplicate copy) in regard to the mechanical engineering department. He noted "I should certainly like to have Mr. James's opinion on the engineering school. I doubt myself whether any electric plant is necessary and whether there will be need for the upper classes suggested by Mr. Chatterton. This portion of the school will have to fit in with the new Engineering College and we shall have to consider the matter with Mr. James."

2. Mr. James's reply to the reference made to him has come in. Please see his letter dated 29th November 1911. It will be seen therefrom that he does not consider Madura a suitable location for the upper classes. He thinks that it will involve the duplication of teaching facilities and equipment. He says "it is difficult to gauge what the demand may be in the future for men of the type under consideration, but I question whether for a long while it will be such as to justify the establishment of several schools for their training, and if Government decide on starting with one school, Madras, as the commercial centre appears the only possible location, whether the decision may be to form a class at this college or under separate control elsewhere." He is therefore not in favour of the classes being opened in Madura.

3. It is for consideration whether, in view of these remarks, Mr. Chatterton's proposal to have the upper classes of the mechanical engineering department in connection with the Madura Institute should still be considered. If it is not to be, the question should be separately considered whether such classes may be established in Madras in connection with the Engineering College or under separate control elsewhere. In regard to the training of foremen and mechanics at the Engineering College, the Honourable Member remarked that the situation of the college would be very inconvenient for mechanics and men of that class. He said "for them we want a school where men already in employ can attend night classes and where boys and youths can attend as day scholars. This will be impossible in the case of the Engineering College built on the other side of the Adyar river. In my opinion we had better not attempt to make provision there for the class of mechanics and foremen." The Chief Engineer, however, did not consider the distance of the Engineering College from Madras a serious objection. He said "the question whether the site selected for the Engineering College at the Adyar is too far away from the neighbourhood of existing industries to enable use being made of it for instruction of this class of practical worker is, I submit, one for experiment. It seems to me possible that if this class of worker could be brought to recognise the value of a short course of instruction or certificate obtained at the College, the situation of the College might not be found to be altogether fatal to success."

Page 8 of notes *ibid*.

4. The Director of Public Instruction who was also consulted on the subject stated that it would be possible to provide a suitable course of theoretical and laboratory instruction in the College of

Engineering for candidates for appointments as mechanical foremen, fitters, etc., but that such a class could be arranged only when the new buildings are ready and when they are provided with the requisite laboratory and workshop equipment. He submitted certain proposals of Mr. James as to the lines along which the class should work. This scheme was objected to by the Chief Engineer who suggested some modifications in it—please see pages 6 and 7 of G.O. No. 3072, Revenue, dated 12th November 1909. The question was, however, allowed to lie over until the new College at the Adyar site was opened—*vide* the Honourable Member's remarks, dated 11th October 1909, on page 14 of the notes with G.O. No. 3072, Revenue, dated 12th November 1909, and paragraph 2 of the Government Order.

5. If the question of having the upper mechanical engineering department in Madura is to be given up as advised by Mr. James, it should be considered whether a class of the kind may be opened in Madras as suggested by him and if so under whose control. If it is to be in connection with the College of Engineering, the matter should lie over as stated above until the new buildings for which plans and estimates are just under consideration have been completed and the college has moved into them. If it is to be under separate control, it is for consideration whether one is needed in addition to the P. T. Lee Chengalvaraya Nayakar's school to which large

grants have been given to enable it to give efficient instruction to mechanical foremen and the like. Mr. Cotton when G.O. No. 565, Revenue, dated 19th February 1910.

Director of Industries considered that this institute might for the time being continue to be the sole training ground for mechanical foremen—please see paragraph 6 of his letter, dated 26th August 1909 (page 6 of G.O. No. 3072, Revenue, dated 12th November 1909). The Director of Public Instruction may be asked about the necessity for the opening of such a class outside the Engineering College and, if he considers it necessary, to submit proposals for the same.

6. About the lower classes which are to comprise carpentry, blacksmithwork and metal work, Mr. James has nothing to say and there does not seem to be any objection to Mr. Chatterton's proposals in regard to them being accepted.

7. Reference is also solicited in this connection to G.O. No. 621, Educational, dated 5th September 1911, dealing with the question of providing industrial education for artisans in the north of Madras. Mr. Chatterton proposed that a committee should be appointed of representatives of some of the Madras firms. The replies of the firms have come in and the question whether any provision should at all be made for industrial education as proposed by Mr. Chatterton will have to be decided after the committee have concluded their deliberations.

8. In regard to the weaving department, the Honourable Member remarked as follows:—

“As to the weaving school, I doubt very much whether we shall be able to persuade the Secretary of State to sanction a high salary for an Englishman as Superintendent: but that must be considered later. What occurs to me is that, if, as seems to be suggested by Mr. Cotton, it is hopeless to try and make the indigenous weaver of the weaving caste take to a weaving factory and if our weaving factories are to be run by persons who are not weavers by caste, the reason for taking all this trouble over hand weaving disappears. We are trying to fight the case for hand weaving because we desire to prevent a great caste industry dying out: we want, if possible, to keep the existing weavers at their trade. But if in any case the weaving class cannot adapt itself to the only conditions which make a continuance of the industry possible, I don't see much object in all this school. We don't want to enlist men who earn their living in other ways now in order to make them hand weavers and if it is no use trying to save the existing class of weavers, we had better drop the thing altogether. Weaving as a hand industry has died out in Europe or almost died out and there is no need to foster it here if it is not to be confined to the existing class.

“I note this here but at present nothing need be done except to order Mr. Chatterton to see about the site he thinks suitable.”

9. On this point, reference is solicited to paragraph 11 of Mr. Chatterton's letter and to paragraph 8 of the notes on page 24 *ante*. Mr. Chatterton seems more hopeful than Mr. Cotton and orders are requested as to whether Mr. Chatterton's proposals regarding the weaving department may be accepted. This involves among other things the raising of the salary of the weaving expert to Rs. 750 per mensem for which the sanction of the Secretary of State is required.

10. In regard to the dyeing department, Mr. Chatterton does not propose to send in any proposals until Dr. Marsden's report on the dyeing industry has been considered. This report was referred to Mr. Chatterton whose remarks are now with the

I think not.

L. DAVIDSON.

Director of Public Instruction who has been reminded. This may, it is submitted, be awaited.

R. SUNDARAM AIYAR—6-1-12.

I am very averse to hanging up this case as proposed. There has already been much expenditure of time on discussing details and the main outlines ought, if possible, to be settled before Imperial grants and Provincial balances have all gone elsewhere.

2. The position stands thus:—

Educational noted fully on the proposals in July; the papers were printed and circulated on 5th August 1911 to Revenue, Public Works Department and Financial for remarks before submission to the Honourable Member to whom, however, a duplicate copy was sent. Revenue noted its views on 18th August, and Public Works Department on 21st September, while on 15th October Financial returned the case with an office-note by a clerk unendorsed by the Registrar or Chief Secretary and the remark accepted by the Chief Secretary that it was “premature for Financial to examine the scheme in detail” pending consideration by Educational of the Honourable Member's remarks on the advance copy sent to him.

3. Those remarks have been copied out at A and B on pages 33 and 34, *supra*. The first point A relates to the need for expenditure at Madura on an upper mechanical department. The Honourable Member doubts the necessity. Mr. James who under instructions has been consulted advises that there is no present scope for instruction of this character in Madura as well as Madras. Whether such instruction should be given at Madras at the new Engineering College is a question consideration of which was in paragraph 2 of G.O. No. 3072, Revenue, dated 12th November 1909, deliberately postponed until the opening of the college. It is probably wiser not to incur expenditure under this head at Madura until it has been decided what should be done in Madras (a) at the new Engineering College (b) in the north of the city by evening classes or otherwise in pursuance of the recommendations of the special committee about to sit under Mr. Chatterton's presidency. At the same time the Madura scheme should be so drawn up as to admit

of future arrangements for the establishment of upper mechanical training, sufficient space being set aside for extensions.

4. There remains the matter of weaving (B at page 34). With reference

to the Honourable Member's remarks it may be urged that the object in view presumably is to convert the reckless weaver of to-day into an intelligent factory hand, and to provide for his future in this way —not to attract other sections of the community into the weaving trade.

C.R.

5. If on this further information Financial is not prepared to record an expression of its views, the file must go at once to the Honourable Member in order that he may decide at least provisionally as to the policy of Government, financial scrutiny being deferred until after such decision.

L. DAVIDSON—7-1-12.

To the Financial Department.

FINANCIAL DEPARTMENT.

I am sorry the Financial Department office-note should have annoyed the Secretary in the Educational Department. Though written by a clerk, like most office-notes, it was a good note and I thought it might assist in elucidating the position. However, in order to avoid giving further offence I have removed a subsequent office-note and return the file to the Secretary, Educational Department, with the request that he will be good enough to state clearly, in accordance with the standing orders, the proposals for which he seeks the concurrence of the Financial Department.

H. A. STUART—31-1-12.

To the Educational Department.

EDUCATIONAL DEPARTMENT.

There was no question of annoyance, merely a desire to expedite the disposal of a case which has already been pending a very long time and of which the Honourable Member writing on the 6th November 1911 said: "We undoubtedly desire to 'hurry this matter on.'"

2. For was any objection taken to the presence in the file of the Financial clerk's "office-note." The point was that it had not been accepted by the Registrar or the Chief Secretary and therefore could not be treated even as a provisional expression of the views of the Financial Department. As stated by the Chief Secretary on the 15th October the position was that Financial could not profitably scrutinize the case noted. Educational had not considered two remarks made by the Honourable Member; and Educational was accordingly requested to examine those remarks. They will be found marked **A** and **B** at pages 33 and 34 *supra*. In regard to **A** the view taken by Educational is stated on page 35, paragraph 3 of the Secretary's note. As to **B** the view of the Secretary is that provision should be made for weaving (see paragraphs 2, 8, 14, 16 and 22, pages 23 to 27 of this note) substantially as recommended by Mr. Chatterton; at page 34 paragraph 4, the Secretary states the reason why after considering Honourable Member's remark **B** he still thinks provision should be made for the conversion of the house-weaver of to-day into the intelligent factory hand of the future.

3. Consequently the proposals supported by the Educational Department are those put forward in the current by Mr. Chatterton subject to the modifications set out in the Secretary's printed note, dated 24th July 1911, from pages 24 to 25 *supra*. It is that note with paragraph 3 of the note at page 34 which represents the views of Educational.

4. From the nature of the case and the uncertainty as to the policy of Government in regard to the provision of technical instruction in weaving, mechanical engineering, and dyeing, complete financial scrutiny is at this stage impossible and it was for that reason that on the 7th January, the Educational Secretary suggested that the case should be circulated to the Honourable Member before being again examined in Financial. It is now nine months since the current was received.

L. DAVIDSON—2-2-12.

To the Financial Department.

FINANCIAL DEPARTMENT.

Orders are solicited with reference to the Chief Secretary's note above.

[Attention is solicited to portion C above.]

C.P.K.—5-2-12.

S.D.S.—6-2-12.

C. REILLY—7-2-12.

It will be best, I think, if the Honourable Member will first decide what is to be done and Financial will then examine detailed proposals for expenditure and the question of providing funds.

H. A. STUART—8-2-12.

To the Educational Department.

EDUCATIONAL DEPARTMENT.

The Honourable Member will be too busy during the next few days to touch this lengthy file. Please print at once and the complete note file can then go to him in proof—with a proof of the order passed to-day on Dr. Marsden's preliminary report as to his work at Madura.

L. DAVIDSON—9-2-12.

The notes have been printed and are submitted with a proof copy of the orders passed on Dr. Marsden's report on the dyeing industry.

R. SUNDARAM AIYAR—21-2-12.

L. DAVIDSON—22-2-12.

To avoid further long noting, I think the best plan is to take Chatterton's letter, dated 26th April 1911, and state briefly my opinion on his points.

2. I agree that it is desirable to provide technical education at Madura, for (1) weaving, (2) dyeing—not for mechanical engineering at present. We must wait and see whether the Engineering College will provide for this at the Adyar. I believe eventually it may be advisable to open classes for technical teaching in mechanical engineering in Madura, but at present I would drop the idea.

3. I agree to opening classes to provide for industrial education in—

(1) weaving, (2) carpentry, (3) blacksmiths' work—not metal work at present.

4. I agree that as regards the classes for technical instruction in weaving and dyeing, fees should be paid by the month.

5. I agree that as regards industrial education, pupils should be, as much as possible, attracted from the castes whose occupation is the trade to be taught.

6. I agree that pupils should be taken at 14 years of age about, and that it may be necessary to offer them attraction such as free boarding under agreements to remain five years—but if scholarship or free boarding is given, it should only be to children of the castes whose occupation is the employment taught. I would in the first place only offer stipends and accommodation rent-free. I would make the children pay for their boarding.

7. The school will have to be run on educational and not on commercial lines. There will be no objection to material being worked up and disposed of periodically by auction.

8. It will be particularly necessary as regards weaving to take only weavers by caste and occupation into the school. I can see no object in encouraging persons whose hereditary occupation is not weaving to take up weaving.

I should be quite ready to open a school for teaching dyeing, if Dr. Marsden considers that there is an opening for such a school. He should know enough now to be able to give a sound opinion on the point.

9. For the present the instruction in Madura in mechanical engineering should be confined to the training of intelligent artisans in elementary mechanical engineering. Such teaching would be industrial rather than technical and open to anybody—it need not be confined to the artisan castes.

10. I think orders have issued taking up the site for the institute. A bungalow will be necessary for the head of the institute, but the weaver and the dyeing expert are only sanctioned temporarily and it seems hardly possible to build for them.

11. I doubt myself whether the Secretary of State will sanction a weaving expert on Rs. 750 a month. But it seems to be impossible to obtain a man in the country who will answer our purpose, and I think we must apply for a European. He must be thoroughly acquainted with all the details of sizing. I presume the scientific weaver at home is a sizer also—if not what we want is apparently a sizer from home who could perhaps be got for less than Rs. 750 and we should in that case try and get the weaver here on Rs. 400 a month. I don't think the Secretary of State is likely to send out both a weaving expert and a sizer.

12. We should, I think, meanwhile put up temporary buildings and start the weaving school under N. Subrahmanya Aiyar.

13. I have no objection to the proposals made in paragraph 20 of Mr. Chatterton's letter as regards the industrial weaving pupils, provided that it is strictly ordered that boys from weaving castes only should be entertained as pupils. I don't think we need make any order as to nomination, but Mr. Chatterton may be told that he may apply to the persons and bodies he mentions for pupils if he can get them in that way.

14. As I have said I would not at present sanction any of the proposals in paragraph 21 of the letter.

15. As regards *blacksmith* and *carpentry* work I would sanction generally the proposals in paragraph 22.

16. The matter of gold thread work may be dropped for the present.

17. The scheme as modified will not require the expensive machinery nor such large buildings as those proposed. The recurring expenditure will also not be so great as estimated.

18. An estimate should now be worked out to show the cost of the modified scheme.

19. Care should be taken that space is left on the ground for future expansion, and that the buildings are designed to allow for development.

20. If my honourable colleagues are willing to allow the school at Madura to begin on these lines, a beginning can be made at once. This hoary-headed enigma has been baffling everybody who touches it, and I am afraid I am not at all sanguine that the thing will succeed. Indians in Madras always talk as if you had only to dump down a weaving school to get it filled at once, these files show how every step in technical and industrial education is surrounded by difficulties. I hope however this year will see a beginning made. I have faith in Dr. Marsden, and am inclined to think that he may make a dyeing school successful. He is, however, only on a two-year agreement and we shall have to go home almost at once and ask for an extension of his tenure of office. The office should see that this question is raised in good time.

M. H[AMMICK]—28-2-12.

[Print the Honourable Member's note before circulation to other Honourable Members, and let me have a spare copy. A draft on the lines of Honourable Member's note may be put in hand.]

L. DAVIDSON—1-3-12.

The notes have been printed and are submitted. A spare copy for Secretary is also put up.

R. SUNDARAM AIYAR—11-3-12.

L. DAVIDSON—12-3-12.

I am inclined to agree with the Educational Secretary in his remarks on pages 23 to 27.

2. I consider it a pity that there should be no mechanical engineering department in the proposed institute. I do not think it possible for poor students in the southern parts of the Presidency to come all the way to Madras, Guindy or Adyar for the purpose of learning this subject. The Presidency is large enough to justify the

establishment of at least three schools for mechanical engineering one for the southern districts, one for the northern and one for the central. As pointed out by Mr. Chatterton there is a growing tendency to adopt motive power and machinery and start small factories, mills, etc., and it causes very great inconvenience to people in charge of such concerns to be obliged to send their machines to Madras for repairs. The demand for mechanic foremen and fitters is bound to grow in the near future and I think it very desirable that this demand should be met by locally trained men.

3. I think it also a pity that the proposal for teaching the manufacture of gold thread should be dropped. There is a large demand in Madura for such thread in connection with lace cloths manufactured there.

4. I agree with His Excellency in his other proposals.

P. S. S[IVASWAMI AIYAR]—18-5-12.

I accept His Excellency's proposals, but like the Hon'ble Mr. Sivaswami Aiyar I should like to see provision made at Madura for training mechanics and fitters. Even if a class of that sort be established in the Engineering College, there is ample room for another at Madura. There is a growing demand for such men and the opportunities for acquiring a training are very limited. The Railway Companies train their own men and won't take in pupils except with the object of employing them. The different cotton mills are, I believe, often in want of trained fitters and mechanics; while smaller concerns are often unable to get men at all.

J. N. A[TKINSON]—25-5-12.

I have no objection to teaching mechanical engineering at Madura, provided the teaching is elementary. It can be developed later on if necessary.

My suggestion having been accepted orders should issue as soon as possible.

M. H[AMMICK]—27-5-12.

On 1st March I directed that a draft on the lines of His Excellency's notes should be put in hand. Please show.

2. Since the file went in circulation a new member has come into the Executive Council. The draft should go to him as well as other members.

Print notes up at once.

L. DAVIDSON—28-5-12.

The file has been printed up and resubmitted with a draft order.

2. As the Revenue Secretary in his note, dated 18th August 1911, does not specifically endorse the office-note of the Revenue Department, but apparently agrees with the Educational Secretary, nothing has been said in the draft of the alteration in the working of the show room suggested in that office-note.

3. His Excellency generally approves of the proposals in paragraph 22 of Mr. Chatterton's letter regarding the blacksmith and carpentry classes. Mr. Chatterton, however, raises the question whether admission to these classes should be confined to the residents of Madura or thrown open to all, though he is inclined to the former. Subject to approval, it is definitely stated in the draft that the admission should be restricted to Madura residents.

4. The Hon'ble Mr. Sivaswami Aiyar is of the opinion that the question of developing gold thread manufacture should not be dropped. But as the Hon'ble Sir John Atkinson has agreed with His Excellency, the opinion of the majority has been followed.

5. If approved, the draft may be forwarded to the Financial Department for acceptance.

6. The file has to be circulated to the Hon'ble Sir Harold Stuart.

T.K.—17-6-12.

C.R.—17-6-12.

The draft as revised should be marked in the first instance for Financial. I am afraid it is not possible to draw up in the Secretariat any satisfactory estimate of the cost of the scheme as revised in accordance with His Excellency's note; hence the call for a revised estimate in paragraph 11 of the draft.

2. On return from Financial the draft should be circulated to all members of Government. There is one point which, I think, is of sufficient importance to mention specifically, namely, that in disallowing free board His Excellency has incidentally made it impossible legally to apply the Apprentices Act, 1850, so as to introduce the system of apprenticeship on which Mr. Chatterton lays such stress in paragraph 6 of his report. This matter is touched on in paragraph 4 of my note at page 23 *supra*. It remains to be seen whether the mere provision of hostel accommodation will suffice to secure adequate control over industrial pupils and to induce them to remain at the institute for what Mr. Chatterton regards as the minimum period of training, viz., five years.

L. DAVIDSON—19-6-12.

Print note and draft urgent. And circulate, in proof, to Financial,
His Excellency and circ.

L. DAVIDSON—19-6-12.

The notes and draft have been printed and the file is resubmitted. It may now be sent to Financial.

T.K.—3-7-12.

C.R.—3-7-12.

Yes: as requested at D on page 31 *supra*, though it still seems premature to attempt Financial scrutiny.

L. DAVIDSON—4-7-12.

To the Financial Department.

To His Excellency and circ.

FINANCIAL DEPARTMENT.

Attention is solicited to the Financial Department's notes on pages 29—31 and 36 *ante*. The draft order now put up by the Educational department is based on the notes of His Excellency the Governor, the Hon'ble Sir John Atkinson and the Hon'ble Mr. Sivaswami Aiyar on pages 37—39 *ante*.

Mr. Chatterton's scheme involves an expenditure of (a) 3.30 lakhs non-recurring and (b) 82 lakhs *per annum* recurring. In paragraph 11 of the draft it is proposed

* *Vide* Educational Secretary's note above. to ask the Superintendent of Industrial Education to submit a *revised* estimate which will involve some reduction in the cost.

The draft may, it is submitted, be accepted.

V.G.K.—9-7-12.

C. REILLY—9-7-12.

A. G. CARDEW—10-7-12.

H. A. STUART—11-7-12.

To the Educational Department.

EDUCATIONAL DEPARTMENT.

Circulate the draft now to—
Hon'ble Mr. Sivaswami Aiyar.
Hon'ble Sir J. N. Atkinson.
His Excellency the Governor.

Attention is invited to Secretary's note, dated 19th June 1912, on page 40.

L. DAVIDSON.

I am by no means satisfied as to the expediency of rendering all the provisions of the Apprentices Act applicable. I accept His Excellency's decision as to free board. I approve the draft.

P. S. SIVASWAMI AIYAR—13-7-12.

I approve the draft.

J. N. ATKINSON—15-7-12.

Approved.

M. HANMICK—16-7-12.

Issue and let me have a spare copy with notes as soon as printed.

L. DAVIDSON—18-7-12.

[G.O. No. 647, Educational, dated 18th July 1912.]

No.

EDUCATIONAL,

JUNE 1912.

a complete mechanical department. Whatever may become expedient in the future, they are clearly of opinion that the course of training should be confined in the first instance to instruction of a strictly elementary character and of an industrial rather than a technical nature. Intelligent artisans should have preference but admission to the class need not be confined to members of the artisan caste; it should be open to all sections of the community.

7. In the case of other industrial classes, however, it should be a cardinal principle that the pupils should, wherever possible, be drawn from the castes whose occupations are the trades to be taught at the institute. The age limit for admission may appropriately be fixed at about 14 years and the Government agree that the course of instruction should ordinarily last for a period of five years, provision being made simultaneously for some measure of general education. They approve the proposal to grant stipends and rent-free accommodation, but consider that for the present at least the pupils should be required to pay for their own board. It must be clearly understood that the industrial classes in general are to be conducted on educational rather than commercial lines.

8. The arrangements outlined with regard to the industrial classes in weaving in paragraph 20 of Mr. Chatterton's letter commend themselves generally to the Government and they have no objection to the Superintendent's invoking the assistance of the elected members of the Legislative Council or of associations such as the South Indian Chamber of Commerce and the National Fund and Industrial Association, if he considers such a course likely to facilitate the selection of satisfactory pupils.

With some reluctance they accept the conclusion that the development of the manufacture of gold thread is an enterprise which cannot with advantage be further pursued at the present juncture.

9. The arrangements recommended for the training of blacksmiths and carpenters in paragraph 22 of Mr. Chatterton's letter appear generally suitable and the Government approve the suggestion to confine admission to these classes in the first instance to residents of Madura and its immediate vicinity.

10. There is no objection to the continuance of a small permanent show-room for the exhibition of articles manufactured by the local artisans provided that it is worked on lines similar to those followed in the Victoria Technical Institute at Madras. The finished products worked up in the industrial classes should however be disposed of by auction.

11. Orders in regard to the acquisition of a site have been separately passed in G.O. No. 309 W., dated 24th February 1912. The conclusions arrived at in the preceding paragraphs will render it possible to reduce the expenditure upon machinery and buildings and at the same time to effect economies in the recurring outlay on the institute, and the Government desire that a revised estimate of cost should now be drawn up and submitted for approval. The buildings should be designed so as to allow of development and care should be taken to leave sufficient space for future expansion. A bungalow will be required for the Superintendent of the Institute at a cost not exceeding Rs. 13,100, being receipt of a salary of Rs. 750 per mensem, but there is no need to make similar provision for the weaving and dyeing experts whose appointments have not yet been permanently sanctioned. The amount of hostel accommodation necessary will require re-examination and attention should in this connection be devoted to the questions—

- (i) whether separate accommodation for the older and for the younger pupils is required,
- (ii) what provision, if any, should be made for resident wardens, and
- (iii) whether it is not desirable to provide for a hospital or dispensary on the spot.

(True Extract)

L. DAVIDSON,
Ag. Secretary to Government.

To the Director of Public Instruction (with plans returned).
" Revenue Department.
" Public Works Department.
" Financial Department.

Signed after perusal of original dated 28/7/12

No. 647 EDUCATIONAL, 18th July JUNE 1912.

Order—No. Educational, dated June 1912.

The papers read above relate to the re-organization of the Technical Institute at Madura and the scheme formulated by the Hon'ble Mr. Chatterton in that regard. Subject to certain modifications indicated in the following paragraphs the Government approve generally of the proposals submitted.

2. They accept the desirability of providing technical instruction at Madura in weaving and dyeing and opening industrial classes for weavers, carpenters and blacksmiths, but the mechanical engineering section should in their opinion for the present be strictly limited to elementary classes for the benefit of intelligent artisans. Nor are they prepared at this stage to sanction any outlay on endeavours to teach metal work at the institute; sufficient provision for instruction of an artistic character already exists in the School of Arts at Madras and it is questionable whether in the present state of industrial development any useful purpose would be served by teaching the artisans of Madura modern alloys and methods of casting.

3. The technical classes in the institute should be open to all classes of the community, monthly fees being levied and admission confined to those who in the judgment of the head of the institute possess a sufficient knowledge of English to benefit by the instruction given. It should be regarded as a matter of cardinal importance to restrict high-grade training to the class of persons who have the means and the will to make subsequent provision for their own employment. The Government realize that the adoption of this principle may at the outset render it difficult to secure students in sufficient number for economical working; but they consider it essential to avoid the alternative course of increasing the number by the grant of scholarships, experience having shown that this procedure only too often results in the training being wasted on students who have no intention, or at least no prospects of utilizing it in their after life.

4. Under the head of weaving the Government agree that the most important problem for solution is the possibility of improving the indigenous methods of sizing. In order that a definite programme of experiments in this direction may be drawn up the Superintendent of Industrial Education will be requested to submit with his recommendations the report on this subject by Professor Fox of Manchester to which reference is made in paragraph 17 of Mr. Chatterton's letter. The Government accept the conclusion that it is necessary to secure the services of a European expert for this department of the institute, but they doubt the need for a weaver as well as a sizer. The qualification specially required is thorough acquaintance with the details of the sizing processes, and if the scientific English weaver is not also an experienced sizer the wiser course would, the Government incline to think, be to import a sizer from England and to engage an expert weaver in India; the services of the former could probably be obtained for a salary of less than Rs. 750 per mensem and it should suffice to fix the remuneration of the latter at not more than Rs. 400 per mensem. The Superintendent will be requested to report his considered views on this question. Meanwhile the opening of weaving classes need not be delayed; temporary buildings may at once be put up on the site recently acquired for the technical institute and this branch of the work may be started on a professional basis under the supervision of M.R.Ry. N. Subramanya Aiyar.

5. As regards instruction in dyeing Dr. Marsden, the tinctorial expert, should be able by this time to give sound advice, and if in his opinion there is an opening at Madura for such a class, detailed proposals may be submitted for its establishment at an early date.

6. As already indicated in paragraph 2 *supra* the Government are not prepared to accept the proposals in paragraph 21 of Mr. Chatterton's letter for the creation of

Para 4 p. 207

Para 2-3 on p. 28 Mts file
4 p. 30 Mts file

Para 5 on p. 207; Para 3 on p. 28 Mts
Para 10 Mts; Para 4 p. 28 Mts

Para 17 on p. 207
Para 14 on p. 207
Para 11 on p. 207

Para 12 on p. 207

Para 12 on p. 207 and
para 8 and 20 on p. 207

Para 9 on p. 207

Para 11 on p. 207

Sections

#

p. 707

Para 9 on p. 207

ORDINARY

PRESS SLIP.

PREFERENCE.

URGENT (a).

LOCAL AND MUNICIPAL DEPARTMENT.

Current No., dated 190 .

G.O., No. 67, dated 18. 7. 1902

Number of MS. pages sent { Correspondence including order or orders
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Docket.

Technical Institute, Madras
Approved with remark by the Superintendent
of Industrial Education for the
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copies for volumes and editors' table which are retained
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Correspondence
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Notes.

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22-7-12

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22-7-12

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