

Educational (1898) Department.

ORDINARY MS.

G.O., No. 162

DATED 11.3.98.

135
14/8/98

INDEXED.



1070

[Despatch Abstract.]

Resending, with remarks, letter from the D. B. I.
explaining the several points noticed in the Order
of Govt reviewing the report on the College of
Engineering for 1896.

BACK PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

Educational (1898) Department.

CURRENT No. 95

Trans No 954305

H.M.

From

The Dir of Pub. Instruction,
Madras.

Order No 162 of 11.3.98.
min

Recorded.

2. The Govt considers the
explanation as to the net
cost of students sub-
siding, & notes how far
the defects in the Draft
class are attributable to
the insufficiency of the Prof.

Dated 20 January 1898.

Received } 25th Jan 1898
Registered }
Enclosures two

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Note. It is presumed nothing need be

said about Mr. Keeling's request at

Mr. P. that the reflections in the

G.O. may be modified. The D.P.I.

takes no notice of it.

It is submitted that the reflection
in the G.O. may be somewhat
modified in view of the facts stated
by Mr. Keeling.

To The D.P.I. Dec 28 290

SUBJECT.

Submitting with remarks

certain extracts from a letter of
the Principal, College of Engineering
explaining the several points notic-
-ed in the order of Government
reviewing the report on the College
of Engineering for 1896.

DESPATCHED
24 JAN 1898

BACK PAPERS.

G.O.	No.	Department.	Date.
	541-2:22-9-97		97/9/22
	807:7-10-95		95/10/7
	521-2:21-6-95		95/6/21
	383-6:10-6-93		93/6/10

FURTHER PAPERS.

G.O.	No.	Department.	Date.

Extracts from letter of the Principal, College of

Engineering, Madras, to the Director of Public Instruction, Madras.
 Encls 4, 6-8-95
 Letter no 423
 20-1-98
 No 961-C dated 4th November 1897.

(1) Referring to G. No 541 Educational dated 22nd September 1897, paragraph I have the honour to explain ^{that} the increase during 1896 in "Fines and other Receipts" was due mainly to the sale of College publications. The proceeds of the "Manual of Building Construction" amounted to Rs. 576 out of the total of Rs. 352.

2. The Government observes in the same paragraph of the order that the net cost of educating each student, Rs. 252, though lower than in 1895, shews a considerable increase on 1893, when it was only Rs. 209. The smallness of the last figure is due partly to the exceptionally large number of students on the rolls in 1893, a number which was undoubtedly too great for the staff and accommodation, and partly to the fact that a portion of the Receipts amounting to Rs. 1931 though pertaining to 1892 was not credited until 1893 vide my No 215/C dated 25th June 1895. Allowing for this, the actual figures for 1893 become:-

Total charges Rs. 67070.
 Fees & other Receipts Rs. 14026.
 Net cost to Government Rs. 53044.
 Average attendance 244.
 Net cost per student Rs. 217.

3. In regard to the remark that "the net cost of educating each student x x x is still high," I have the honour to append a comparative financial statement of the Engineering Colleges in India for the latest year available:-

	Madras	Roorkee	Sibpur	Poona
Total Charges	Rs. 66290	157540	109226	36713
Receipts	Rs. 14590	+ 26792	12745	13377
Net charges	Rs. 51700	130747	96481	73336
Number of students	* 220	130	313	+ 245
Net cost per student	Rs. 235	726	303	299

* College students 136; Workshop apprentices 109.

* This figure is the average number on the rolls so that the comparison may be made on a uniform plan.

+ Receipts from fees alone Rs. 3764.

4. The rate for the education of each student in the Madras College depends on two variables, the total charges and the number of students. The total charges must be expected to increase as improved methods and appliances, enlarged staff and extended courses of instruction are introduced. The number of students depends mainly on the accommodation and the staff. In all the classes except the Engineering class more qualified candidates generally seek admission than can be accepted. I submit that, while due attention should be paid to economy in detail, expenditure on this college is indirectly remunerative. Numbers of persons are annually sent out from it into the ~~world~~ ^{is} world able to render immediate and useful service to Government and the community; and it ^{is} on these persons that the future development of the resources of the country depends to no inconsiderable extent. It is my conviction that, as funds become available, the present expenditure on the College may, with profit, be greatly increased. How little is now spent in comparison with the sums devoted in other provinces to Engineering Education is obvious from the figures quoted in the preceding paragraph.

5. From the first paragraph of the Government order, it appears that my statement in paragraph 6 of the Annual Report for 1896 viz that "no probationers were admitted during the year" is not accepted. I can only repeat that this statement is absolutely correct and that on the 31st December 1896, there was no military probationer in the College. This being so, I submit that the fall in total numbers from 231 to 225 i.e. by 6 students, is attributable to the causes I assigned.

6. In the third paragraph of the order, dissatisfaction is expressed in regard to the following points:—(1) the low average percentage of marks attained by the Engineer class (2) the failures in Estimating in the Draftsman class (3) need for improvement in the instruction given in Building Construction and Engineering subjects generally. As regards (1), apart from variations in the style of the examinations in successive years, small classes of six or seven students cannot be expected to exhibit the same merit. The senior division of 1896 did not attain the average marks of

previous years; but I cannot regard a class in which every member satisfies the Board as an unsuccessful class, and I much regret that Government should feel dissatisfied at a such a result. I may point out here that these same students appeared for the B.E. degree Examination of the Madras University and that 67 per cent passed. That percentage is a high one for degree examinations, and does not indicate a low average of attainments. As regards (2) and (3), I would represent that improvement in training needs increased staff. The college is undermanned in every department. I require one additional Professor, one Chief Instructor, one Assistant Instructor and an adequate Workshop staff. Additional Clerical Establishment in both the Head Clerk's and Librarian's offices is indispensable. Until these wants are supplied little can be done towards fulfilling the demands of Government. Details of requirements will form the subject of a separate communication.

7. A reference to the current Time-Table will convince you that the staff are now working under a strain which cannot be indefinitely continued. I ask whether there is any institution in the whole Presidency where the hours approach those which obtain in this college. Moreover, the time-table does not shew the full tale of work exacted from the staff. They have in addition to prepare lectures and examine and correct plans, Estimates and surveys; and they really have not an hour in the day to call their own. The students' time-table will shew that the average attendance for each class is 25 periods of $1\frac{1}{2}$ hours per week or about 37 hours regular work in class exclusive of home work. I ask whether those are not unusual hours as compared with other institutions.

8. I enclose a memorandum on this subject from Mr. Keeling, the ^{ag.} Professor of Engineering. Mr. Keeling is responsible to me for nearly all the Engineering instruction conveyed in this College. His opinion as to the excessive work falling on the present staff and as to what is required to effect the improvements desired by Government is unqualified.

* * *
Abstract
/True Copy/

J. G. S. S. S.
Director of Public Instruction.

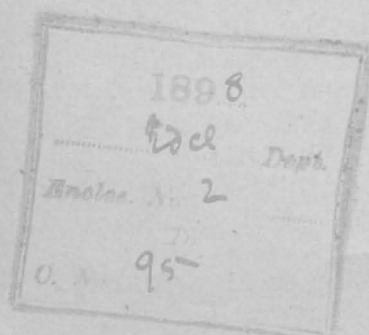
To

Enclosed by D.P.S. The Principal.

Letter No. 422
2

I have read the Proceedings of Government on the working of the College in 1896. In justice to the staff under my control, I have the honour to make the following remarks on the Government order and to request that you will forward them to Government through the Director of Public Instruction.

Estimating:-Government have noted with dissatisfaction the failure of the Draftsman class in this subject and call attention to a former report wherein a similar comment was made. The two Draftsman classes number respectively 30 and 34 students. The Instructor in charge of the subject after having explained the methods of taking out quantities can then only proceed to instil the practice of these methods by giving the class drawings from which to take out the quantities. The time per week allotted to this subject is 330 minutes. The number of weeks available for the subject is 33; of this time one-third is devoted to lecture; the remaining time is utilized for practising i.e. the actual taking out of quantities from a drawing. Let me take the most favourable case i.e. the class with the least number of students viz 30. The time given to the subject is 330 minute per week and (neglecting lectures when individual instruction is impossible) there are 22 weeks available. The Instructor can therefore devote 11 minutes per week to explaining to each individual student his mistakes in his practical work. The maximum annual individual instruction each student can obtain is therefore 11×22 minutes or 4 hours, 2 minutes. This allows no time for students coming and going to the Instructor's desk or vice versa. I forward herewith a plan and an estimate and ask the following question. "Is it reasonable to suppose that an instructor can go through this drawing and estimate item by item and explain it to a student within the time mentioned, viz, 4 hours" which time be it borne in mind cannot be given without interruption, but is broken into small periods. The length of time devoted to lecturing is only just sufficient to complete the theory and methods. Theory the ordinary native student will learn like a parrot, but when he comes to apply it



he in nine-hundred and ninety nine cases out of a thousand fails ignominiously and it is in teaching application of methods where the time and staff available is so ridiculously inadequate.

Drawing:- In drawing the same remarks as to time available for individual instruction apply. Engineering Drawing can only be taught efficiently by individual instruction except at its very outset. A reference to the table of numbers in each class will shew that it is only when taking an Engineer class alone, that 10 minutes and this insufficient individual instruction per student can be given in a lecture. This but seldom occurs and the time available is therefore lamentably insufficient. The enclosed time table shows that in ~~any~~ many cases classes have to be doubled up. Omitting the Engineering classes and taking the smallest class of subordinates (Engineer Subordinate Class Ist Division) the time available for Building Drawing per week is 300 minutes the number of students 22 and ^{the} time available per student per week is nearly 14 minutes. I ask "what instruction worthy of the name can be given in that time? The number of weeks available for instruction during one year for this class is 30. The total time is therefore $14 \times 30/60$ i.e. 7 hours per annum. But in this particular case it so happens the time is less, as the class is doubled up with the Senior Engineer Class which is doing not Building Drawing but Machine Drawing and ^{the} time is therefore not even 7 hours per annum.

General remarks:- It is the same with every subject and every class throughout the College, insufficient time and insufficient staff. It may be argued that the lecture given for one class in one subject will do for another in the same but this cannot be as the syllabuses are different in each case. In addition to lectures it must be borne in mind that the staff have to correct students' work i.e. Plans Estimates, Examples &c and to draw up new plans and estimates all of which should be done out of lecture hours, but the work of this nature is so heavy that it is impossible to get satisfactorily through it out of lecture hours. Moreover lectures must be prepared. The staff are much overworked and are asked to do what in two subjects I venture to think I have shewn to be an impossibility. I am prepared to shew the same in connection with every subject taught by me and the staff under me. I have referred to these two (Estimating Draftsman class, 1st Division and Building Drawing Engineer Subordinate class 1st Division) subjects as they were particularly mentioned

in the Government Order. The defect in instruction lies in the fact that the College staff ^{is} utterly inadequate in numbers to the task set it. I may be told that what happened in this college in 1896 is no concern of mine, but the circumstances of 1896 and 1897 are similar and what happened in 1896 may happen in any subject in subsequent years. Knowing therefore the circumstances which led to the expression of Government's dissatisfaction, I hope I may be excused for a seeming intrusion and would respectfully ask Government to take the foregoing circumstances into consideration and in some way modify the reflections publicly passed on an over worked staff which is doing its utmost.

(Sd) H.T. Keeling,

Ag. Professor of Engineering.

/True Copy/

J. G. Gurnea
Director of Public Instruction.

CURRENT No 95 Edcl

OFFICE OF THE DIRECTOR OF
PUBLIC INSTRUCTION,
Madras, 20 January 1898.

No. 423.

From

THE HONOURABLE MR. D. DUNCAN, M.A., D.Sc. LL.D.,

DIRECTOR OF PUBLIC INSTRUCTION,

Madras,

To

The Secretary to Government,

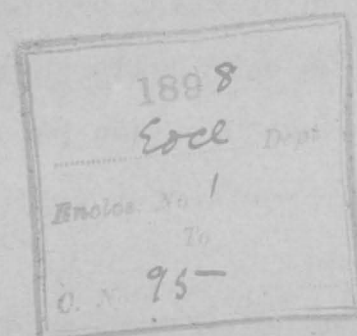
Educational Department.

SIR,

With reference to G.O. No 541, Educational, dated 22nd September 1897, I have the honour to submit the enclosed extracts from the letter of the Principal, College of Engineering, No 961-C, dated 4th November 1897, and from a memorandum addressed to the Principal by the acting Professor of Engineering explaining the several points noticed in the G.O. and to offer the following remarks:-

(1) By his remark that there were no military probationers in the College on the 31st December 1896, Major Love meant that there were none undergoing the ^{preliminary} ~~probationary~~ course of instruction which military students are required to pass through, before being admitted to the regular course of studies for the Engineer Subordinate Class, and the period of which has been reduced from one year to six months, to be eventually abolished, as per G.O. No 307, Educational, dated 7th October 1895. For the word "probationers" in paragraph 6 of my review the word "students" should be substituted.

(2) The Principal and the acting Professor of Engineering attribute the unsatisfactory results noticed in sub-paragraph 2 of the Government order to the inadequacy of the College staff. In addressing me on this subject in March 1897, the Principal proposed to strengthen the Junior staff of instructors and



applied for the services of an additional technical Assistant; but in view of the heavy financial strain the Government has been subjected to and the orders of Government that no proposal involving additional expenditure to the State should be submitted to it, I transferred to the College, to fill one of the vernacular assistantships then vacant, a trained B.A., L.T. who had passed the Intermediate Technical Examination in Mensuration, Levelling and Setting Out, and Inorganic Chemistry, and the Elementary Technical Examination in Drawing, with a view to his being utilized also as a technical instructor during his spare hours. As this assistant gradually gains an insight into the working of the College he will be able to make himself more useful than he has been. Mr. Keeling, the acting Professor of Engineering, points out very forcibly that the time now devoted to Estimating, Drawing and certain other subjects is quite inadequate. Of this there cannot be any difference of opinion. But until the present financial pressure is over, the College of Engineering cannot have any expensive additions to its staff. As regards Major Love's remarks in paragraph 6 of his letter, I beg to state that the observations of Government and of mine in regard to the work of ^{the} Engineer Class were based on the report of the Board of Examiners, which characterized the class as "below the average", and the Principal has not said anything to prove that the class was possessed of any great merit.

(3) With reference to the sub-paragraph 5 of the G.O., I fully endorse Major Love's remarks, which shew that the College is very economically worked. The difference in the net cost per student as noted in the Principal's report for 1896 and in paragraph 3 of his letter, No 961-C, dated 4th November 1897, is due to the calculation of the net cost with reference to the average daily attendance in the one case and with reference to the average number on the rolls in the other. The latter method of calculation should, I think, be accepted as the more accurate. It is the method followed in the Departmental statistics.

I have the honour to be,

Sir,

Your most obedient servant,

J. J. J. J.
Director of Public Instruction.

Educational (1898) Department.

CURRENT No. 305

From The Dir of Pub. Instruction,

Dec. 8. 98

No. 2212

Dated 3 March 1898.

Received } 4. 3. 98
Registered }

Enclosures /

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SUBJECT.

Suby copy of a letter from the Principal, College of Eng reporting that an error has been made in para 6 of his letter No. 961-C of 4 November 1897.



BACK PAPERS.

G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.

No 1806-C. *Forwarded to DR's
Reference No. 2212
3-3-98*

College of Engineering
21st February 1898.

To

The Director of Public Instruction,

Madras.

Sir,

I have the honour to report with regret that an error has inadvertently been made in paragraph 6 of my No 961-C dated 4th November 1897. It is there stated that "these same students (i.e. the third year men of the Engineer Class of 1896) appeared for the B.E. degree Examination of the Madras University and that 67 per cent passed." The statement was based on paragraph 16 of the Annual Report for 1896; but it escaped my notice that this paragraph had reference to the University Examination of 1896, for which the third year men of the Engineer Class of 1895 presented themselves.

2. The actual number of third year students of the Engineer Class presenting themselves for the B.E. degree Examination of January 1896 was five, of whom two were successful. The percentage of passes was therefore 40.

3. While regretting the mistake which has been made, I submit that the oversight does not affect my argument that a class in which every member satisfies the Board should not be regarded as an unsuccessful class.

I have &c

(Sd) H.D. Love, Major R.E.

Principal.

/True Copy/

H. D. Love

Director of Public Instruction.

22/2

Madras, 3 March 18

No. ~~22-2~~ 22/2

From

THE HONORABLE MR. D. DUNCAN, M.A., D.SC., LL.D.,

DIRECTOR OF PUBLIC INSTRUCTION,

Madras,

To

THE SECRETARY TO GOVERNMENT,

Educational DEPARTMENT,

Fort St. George.

SIR,

In continuation of my letter No 423 dated 20th January 1898, I have the honour to submit, for the information of Government, the enclosed copy of a letter from the Principal, College of Engineering, No 1606-C dated 21st February 1898, and to state that the statement now made by Major Love only goes to support the remark of the Board of Examiners that the third Engineer class was "below the average" in attainments.

I have the honour to be,

Sir,

Your most obedient servant,

D. Duncan

Director of Public Instruction.

When given for copying 11/3
When copied _____
When examined } 12-3- } 1898.
When signed _____

READ AGAIN G.O., No
189 .

DATED

CURRENT No.

ENCLOSURES TO C. No.

ORDER OF GOVERNMENT.

A A A A A A A

LETTER OF GOVERNMENT.

STATEMENT WITH DITTO

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