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[Despatch Abstract.]

College of Engineering.

Reviewing the report on the working of the ~~the~~ during 1896; & forwarding Copy of the Proceedings to the ~~Govt of India~~ Secretary of State.

(Letter abstract)

Forwarding Copy of proceedings reviewing the report on the working of the College of Engineering, Madras during 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.
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EDUCATIONAL

Recd. *Regd.* } 1897. *Enclosures* *Spare copies*

G.O., No. 541, 22nd September 1897.

SEPTEMBER.

College of Engineering.

Reviewing the report on the working of the — during 1896; and forwarding copy of the Proceedings to the Secretary of State.

GOVERNMENT OF MADRAS.

EDUCATIONAL DEPARTMENT.

Read—the following paper:—

From the Honourable Mr. D. DUNCAN, M.A., D.Sc., LL.D., Director of Public Instruction, to the Secretary to Government, Educational Department, dated Madras, 14th May 1897, No. 5299.

I have the honour to submit, for the information of Government, a copy of my Proceedings, No. 5145, dated 11th instant, reviewing the report on the working of the College of Engineering during the past calendar year.

Enclosure.

Proceedings of the Director of Public Instruction, dated 11th May 1897, No. 5145.

Read the following letter from Major H. D. LOVE, R.E., Principal, College of Engineering, to the Director of Public Instruction, No. 1615-C., dated 30th January 1897:—

I have the honour to submit the following review of the working of the College of Engineering during the year 1896.

2. *Establishment.*—The only change which occurred in the establishment was that due to the departure on furlough of Mr. Chatterton, the Professor of Engineering, on 29th August. Mr. H. T. Keeling, Executive Engineer, Public Works Department, was appointed to act, but, owing to urgent duties connected with floods in the Kistna district, he was unable to join until the 24th December. In the interim, the more pressing portions of the Professor's duties were undertaken by the Principal, while instruction in the Chemical Laboratory was given by M.R.Ry. T. K. Hanumantha Rau, B.A., the Assistant Professor of Chemistry at the Presidency College. The Instructor in Gymnastics, Ghaus Khan, was transferred to the Kumbakónam College, his place being taken on 9th November by Mira Khan from that institution. The Workshop Instructor, Mr. Perkins, was absent on sick leave during October and November, his duties being carried on as far as possible by the Assistant Instructor Govindaswami Rau. The Librarian and Storekeeper, Shiva Rau, reverted to his permanent post of first assistant clerk and was relieved on 16th November by S. Parthasarathi Aiyangar, B.A., from the School of Arts. The work of taking over stock had not been completed at the close of the year. The insufficiency of the clerical establishment has been again brought to notice, but no adequate relief has been afforded. The special constitution of the college and its relation to the Public Works and Military departments involves work which is foreign to other educational institutions, especially in regard to the admission and final examinations, the practical courses, the system of students' deposits, the college workshop and stores, the soldier students and the assistance given to students towards securing employment. Financial transactions occur with nearly all the district treasuries, and the quarterly reconciliation of the accounts with those of the Accountant-General involves considerable labour. The offices of both the Head Clerk and the Librarian and Storekeeper are overworked, and not only is difficulty experienced in keeping abreast of current work, but the Principal is compelled to devote time which he can ill-spare from important duties to work which might be done by a superior clerk.

3. *Numbers.*—The numbers on the rolls at the end of the session were—

Class.	Practical course.	In College. First division.	In College. Second division.	In College. Third division.	Total.
Engineer class	6	6	6	7	25
Engineer Subordinate class	16	18	21	29	84
Draftsman class	..	* 25	30	..	55
Surveyor class	..	* 21	25	..	46
Artisan class	..	..	..	..	37
Total ..	..	..	..	..	247

* Including one each who, for examination purposes, were classed as independent candidates.

Excluding the students going through the practical course on works, the total number actually in the college on the 31st December 1896 was 225. The corresponding totals for the four preceding years were 1895, 231; 1894, 265; 1893, 252; 1892, 217. The slight fall in the total numbers since 1895 is due to the non-admission of Military probationers and to the occurrence of a few casualties in the Draftsman class—items which could not be foreseen when the forecast for the year was made.

The distribution of the students by classes of the community, by districts of the Presidency, and by wealth and occupation of parents are given in appendices A, B and C. Among the most noteworthy features of the statistics are that 64 per cent. of the students are Brahmans, while no less than 28 per cent. came from a single district, Tanjore. Madras and the Chingleput district supply only 15 per cent. The numbers offering for admission were: Engineer classes 21, of whom 14 passed the entrance examination of December 1896; Engineer Subordinate class 85, of whom 78, viz., 14 F.A.'s and 64 Matriculates, qualified in April for admissions Sub-overseer and Surveyor class 92, of whom 59 qualified in December 1895; Draftsman class 59, of whom 36 qualified; Artisan class 113, of whom 45 were selected. It appears from these figures that the strength of the Engineer class is rising, that the new Sub-overseer and Surveyor class is likely to become a popular one, and that the remaining classes will be maintained at full strength during 1897.

4. *Examinations.*—The final and term examinations were conducted as usual by the Board of Examiners with Mr. Ashpitel as President. A brief abstract of the results is given below:—

(*a*) *Engineer class.*—The first division contained six third-year students, all of whom passed the final examination. Two independent candidates also presented themselves, of whom one withdrew and the other failed. The second and third divisions numbering six and seven, respectively, passed the usual term examinations.

(*b*) *Engineer Subordinate class.*—The senior division of 18 students appeared for the final examination and 14 were successful. Five independent candidates also appeared and one passed. The second and third divisions of 21 and 29, respectively, passed the usual term examinations.

(*c*) *Draftsman class.*—The senior division consisted of 24 students, of whom 11 qualified, viz., two in the second class and nine in the third class. This result cannot be regarded as satisfactory. As in 1894 the majority of the failures took place in Estimating. In 1895 special attention was given to this subject, with the result that, though improvement occurred in estimating, another subject, building drawing, was unfavourably criticised. During 1896 special attention was given to building drawing, and better results were obtained in the recent examination, but the standard in Estimating has not been maintained. Next year special attention will be given to both these subjects.

Eighteen independent candidates presented themselves, of whom seven passed, viz., two in the second class and five in the third class. Of the two second-class men, one already holds a certificate in that class. Of the five who have passed in the third class, one already holds a second-class certificate and the remainder hold third-class certificates. Three of the candidates who failed hold third-class certificates. The

majority of the failures occur in estimating. The facts recorded point to unusual difficulty experienced by the candidates, including the regular students, in dealing with the paper set in estimating. The second division of the Draftsman class appeared for a term examination with only moderate results.

(*d*) *Surveyor class.*—The first division of 20 students appeared for the final examination and 17 passed, viz., one for first-class, two for second-class and fourteen for third-class certificates. Fifteen independent candidates presented themselves and eight were successful, one gaining a second-class and seven securing third-class certificates. The former already holds a second-class certificate, and of the latter four hold third-class certificates. The junior division of the class, which will hence-forth be entitled the Sub-overseer and Surveyor class, consisting of 25 students, passed a very satisfactory term examination. This reflects credit on M.R.Ry. M. A. Anantalwar, B.A., B.C.E., who has been in sole charge of the division.

(*e*) *Artisan class.*—This class, which opened with 43 students, fell, through resignations and dismissals, to 37 at the close of the year. Evening instruction was imparted as usual, supplemented by morning surveying two days a week. The class, which is a popular one, is reserved, as far as possible, for maistries, artisans, and the sons of such persons.

The class percentages of the marks under the various subject heads compare as follows with the average results of the preceding four years:—

	1896.	Average of previous four years.
Engineer class.		
Mathematics	60	67
Science	46	52
Engineering	48	63
Drawing	53	67
Surveying	64	62
Language	53	55
Drills and Exercises	77	71
Total	54	62
Engineer Subordinate class.		
Mathematics	58	50
Engineering	50	51
Drawing	48	55
Surveying	61	56
Language	45	45
Drills and Exercises	82	70
Total	54	53
Draftsman class.		
Practical Geometry	66	59
Free-hand, Perspective, and Model Drawing	53	55
Building Drawing	50	55
Machine Drawing	54	56
Estimating	35	46
Topographical Drawing	54	50
Drills and Exercises	68	66
Total	51	52
Surveyor class.		
Chain, Compass and Plane Table Surveying	57	55
Levelling	56	61
Theodolite Surveying	41	56
Topographical Drawing	53	55
Drills and Exercises	78	65
Total	55	57

These figures show that, in regard to the students now passing out of the college, the Engineer class is, notwithstanding the uniform success of its members in passing

the examination, considerably below the average merit; that the Engineer Subordinate and Surveyor classes are of average merit; and that the Draftsman class, notwithstanding its heavy proportion of single-subject failures, is also of average merit.

5. *Practical courses.*—The reduction of the practical course from two years to one came into effect during the year. To avoid, however, the simultaneous completion of the course by two different batches of Engineers and two of Engineer Subordinates, it was decided that the batches which left the college in December 1894 and spent the year 1895 in the Public Works Workshop should complete their works course on the 30th June 1896, while the batches which left the college in December 1895 should proceed at once to works and complete the course on the 31st December 1896. The former batches consisted of two Engineers and 17 Engineer Subordinates, and the latter of six Engineers and 15 Engineer Subordinates. The whole of these with the exception of one Engineer Subordinate (who was absent through sickness upwards of two months) completed their course during the year under review. The two junior batches were transferred to Madras in two sections for their equitation course at the Body Guard school. One Engineer Subordinate student, who left the college in December 1894, was permitted to go through a special course in the college workshops. He will be transferred to works in February 1897.

The progress reports, so far as they have been received from Executive Engineers, are almost without exception favourable.

Six Engineer and 15 Engineer Subordinate students will join the works course early in 1897. The distribution to Public Works Circles was notified before the Christmas holidays, so as to avoid delay in the commencement of the practical course. One Engineer student has elected to become a Mechanical Engineer, and will go through his practical course in the Madras Railway Locomotive shops.

6. *Military students.*—The total number of soldier students on the 31st December was six, viz., two on works and four in the Engineer Subordinate class. Two others completed their works course on 30th June. Owing to the reduction of the probationary course from one year to six months, no probationers were admitted during the year; but a competitive examination was held in November and a full class of five students will join the college at the commencement of 1897. A proposal that Military Upper Subordinates required for the Burma Public Works Department shall be obtained from this college has been approved by Government and forwarded to the Government of India.

7. *Government Technical Examinations.*—Eighteen candidates appeared voluntarily for the Government Technical examinations in various engineering subjects. Of these 12 passed in one or more subjects, and six failed. Details will be found in appendix D.

8. *Surveying.*—During February the whole of the Engineer, Engineer Subordinate and Surveyor classes, comprising 109 students, were encamped at and near Avadi for sixteen days' continuous survey work. The students worked from day-light until about 11 A.M. in the field and from 3 to 6 P.M. at plotting. In July the same classes, comprising 136 students, proceeded to Poonamallee and Avadi for a similar period. The larger camp at Avadi was in charge of the Instructor in Surveying and Drawing and the smaller at Poonamallee in that of the Instructor in Engineering. Six students of the Draftsman class were attached to the latter in order to assist in the project assigned to the Engineer students. Satisfactory work was done during both periods. My thanks are due to the Commandant, Queen's Depôt, Poonamallee, who provided a large barrack room as a drawing office, and to the Executive Engineer, Military Works department, who placed a bungalow at Avadi at my disposal for a similar purpose. Thanks are also due to the Inspector-General of Ordnance for the supply of tents to supplement those belonging to the college. The total cost of the two camps was Rs. 1,192.

9. *Inspections of works.*—In addition to the usual inspections of buildings, bridges and factories, a tour was made by 85 students of the Engineer, Engineer Subordinate and Draftsman classes to the Redhills Tank System. The tour extended over five days, and the principal masonry works in the tank, the supply channel and head works were measured up. The cost of the inspection was Rs. 175.

10. *Workshops.*—The workshops were attended by the Engineer and Engineer Subordinate students, who participated in the various work executed. An iron lathe

was completed and a 1-h.p. engine commenced; sundry tools were made; moulding and brass casting were practised; benches, almirahs, drawing-tables and drawing-boards were constructed, and various repairs undertaken. The Instructor reports that the students have displayed more interest in their work than heretofore, and that a great improvement in the style of work is noticeable. The 100-ton testing machine was erected by the Workshop Instructor Mr Perkins under the supervision of the Professor of Engineering, and a series of tests, in which the Engineer students assisted, was carried out by Mr. Chatterton on timber, cement, concrete, stone, iron and steel specimens. A number of rails were tested for the Madras and South Indian Railway Companies, and it appears that considerable use is likely to be made of the testing machine by the public. My thanks are due to the officer in charge of the Arsenal for the loan of the hoisting appliances used in the erection of the machine.

During the year, a small planing machine was added to the stock of machine tools. A plan and estimate for extending the workshop on the south side was prepared by the Consulting Architect and submitted to Government. The cost is estimated at Rs. 8,636.

A scheme for training apprentices in the workshops with the view of fitting them to become teachers in technical schools was drawn up and approved.

11. *Revision of Rules.*—The development of the Surveyor class into a class for the training of Lower Subordinates for the Public Works Department and other services, which was recommended by Mr. West's Committee in March 1895, was sanctioned, and the new scheme of instruction was brought into force during 1896 in regard to the second division of the Surveyor class. The instruction in surveying remains much as before, but building construction, drawing and estimating are added to the course. Considering that the new system was introduced only in the second half of the year, the results attained by the junior division of the class in the late term examination are very creditable. The class will be a popular one, judging from the large number of applications for the admission examination of December last.

Sanction was at the same time accorded to the revision of the syllabuses proposed by the Committee above mentioned. The general features of the revision are the reduction, with the view of affording more time for practical work, of the book-work portions of the Engineer class and Engineer Subordinate class curricula, and the addition of certain branches to the Sub-overseer and Surveyor class, and Draftsman class curricula in order to render the instruction given more complete. The new syllabuses were at once taken up by all class divisions except the senior division of each class, so that the recent final examination is the last under the old syllabuses. One important point raised was the question of retaining the marks awarded by the college as a credit in the final examination totals. It was pointed out that the system served to encourage practical work, to test points which are not of a nature to be readily gauged by ordinary examinations and to create a constant incentive to work throughout the year. It was also brought to notice that the practice prevails in the other Indian Engineering colleges, as well as at Cooper's Hill, the City and Guilds of London Technical Institute and other important colleges in England. It was ultimately decided that the system should continue in force in all classes except the Draftsman class. Every effort will be made to exact the full quota of practical work from this class, notwithstanding the lack of incentive, and the matter will be reported on specially after sufficient time has elapsed to enable judgment to be formed of the effect of the change.

Independent candidates for the college certificate examinations have hitherto been persons who have at some period gone through a full course. At the instance of Colonel Pennycuick, the experiment is now to be tried of admitting other persons to the examinations for Draftsman certificates to be held in 1897 and 1898. It is not expected that the concession will be largely made use of.

Revision of the college rules, embracing the changes in the syllabuses as well as many other points, was also undertaken, and a draft code submitted. Sanction, however, had not been accorded by the close of the year, so that we are now in the rather anomalous position involved by working on a system which is not in accord with the published rules.

12. *Physical training and recreation.*—Compulsory instruction in gymnastics and drill was given as usual to all classes except the Artisan class. An improvement in the drill was observed. The concession of allowing deficiency of marks for physical

exercises up to a maximum of 25 per cent. to be made good in the case of students who regularly attend cricket practices, was extended this year to foot-ball. The latter is the more popular game, and several matches with other colleges and clubs were played. Cricket is regularly practised and the college took part in the inter-collegiate competition, but gained little success. Tennis continues to be played by a few students. The recreation ground is in good order, and the funds of the recreation club are in a satisfactory state. The athletic sports, which were to have taken place in November, fell through on account of the abnormally protracted rainfall of that month.

A former student of the College, M.R.Ry. S. A. Jagadisa Aiyar, B.A., Assistant Engineer, Public Works Department, kindly placed a sum of Rs. 33 at the disposal of the recreation club for prizes in sports. One of the prizes, a cricket bat, falls to T. Ramachendra Rau of the Engineer class, who made the best batting average among native students in the inter-collegiate competitions.

13. *Library.*—During the year, 184 books were added to the library, which now contains 3,409 volumes. The books issued to the students numbered 2,630, and to the staff 675 against 2,396 and 463, respectively, in the previous year, while 1,156 references were made to the consulting library. The new catalogue which was under preparation in 1895 was completed and published during the year.

14. *Buildings.*—The allotment of Rs. 17,000 which was made in the Public Works budget for 1895–96 was not utilized, and no addition was made to the accommodation during the year. The pressing need of additional space has, however, been again pointed out, and a plan and estimate drawn up by the Consulting Architect have been submitted. Provision has been made for one additional class room, two lecture rooms, a library and reading-room, and for a verandah along the west front of the old portion of the building. The total cost is estimated at Rs. 41,900.

15. *Attendance and conduct.*—The percentage of numbers present to numbers on the rolls was 94·4 for the Engineer and Engineer Subordinate classes, and 92·6 for the junior classes. The attendance by class divisions is given in appendix E. The conduct of the students has been satisfactory throughout the year.

16. *University examinations.*—Six candidates appeared for the B.E. degree examination of 1896, and four were successful in the Civil Branch. All were third-year students of the Engineer class. Eight candidates presented themselves for the first examination in Engineering and six passed. Of the latter, five were second-year students of the Engineer class, while the sixth was a third-year student. Of the two who failed, one was a second-year man and the other an ex-student.

17. *Financial details.*—The approximate total expenditure for the calendar year 1896 amounted to Rs. 66,290, and the income from fees, &c., to Rs. 14,590. Detailed statements of receipts and charges are given in appendix F. It should be noted that the figures for different years cannot be compared since large items for stores debited to a particular official year may appear in either of two calendar years. Full and accurate financial details are furnished with my annual returns for the official year. The average daily attendance throughout the year was 205, so that the net cost to Government of educating each student was Rs. 252.

18. *Educational Rules.*—The provisions of the Educational Rules have been carried out so far as the special constitution of the college will admit, except in regard to accommodation, which, as elsewhere reported, is insufficient. Academic costume has been worn by graduate professors and assistants not engaged in practical work.

19. *Employment of passed students of* 1895 *and* 1896.—Of the three Engineer students who completed their practical course on 31st December 1895, the senior R. N. Arokyaswami Mudaliyar, B.A., B.C.E., was appointed Assistant Engineer in the Public Works Department, and the other two accepted posts as temporary Upper Subordinates.

Of the two who completed their course on 30th June 1896, the senior S. A. Jagadisa Aiyar, B.A., was appointed an Assistant Engineer in the Public Works Department, while the other accepted employment under the Travancore Government. Of the 26 Engineer Subordinates who qualified for diplomas in December 1895, seven were appointed to the permanent and twelve to the temporary Upper Subordinate

establishment of the Public Works Department; four joined the permanent Lower Subordinate establishment; two were appointed to the Travancore Public Works Department; and one entered the Salt Department.

Of the 17 Engineer Subordinates who completed their practical course on the 30th June 1896, four were appointed to the permanent and seven to the temporary Upper Subordinate establishment of the Public Works Department; five joined the Lower Subordinate establishment, and one took service under a local board.

Of the 20 Draftsmen who passed out in December 1895, all but one are known to have been in employment during 1896 in the Public Works Department, Railways or Local Fund service; but six were unemployed towards the close of the year.

Of the 16 Surveyors who qualified in December 1895, all but four are known to have obtained employment on salaries ranging from Rs. 50 to Rs. 70. The Public Works Department, the Railways and the Revenue Department absorbed the majority.

It will be seen from the above figures that, notwithstanding the supply this year of an unusual number of Engineers and Engineer Subordinates, there has been no difficulty in securing employment.

20. *Prospects of employment.*—I regard the prospects of employment in the immediate future as good. Owing to double batches of Engineers and Engineer Subordinates leaving the college during the year, difficulty has been experienced in fulfilling the expectations of the students in regard to permanent appointments. Special sanction was obtained to the appointment of the senior engineer student of the batch of June 1896 as Assistant Engineer, and the senior student of the batch of December 1896 will be appointed to the provincial service as Apprentice Engineer under the new rules introduced by the Government of India. The permanent appointments of civilian Engineer Subordinates were two and three, respectively, in the senior and junior batches; but it is understood that the remaining students who were led to expect such appointments will be provided for as vacancies occur. This course will doubtless affect, to some extent, the prospects of subsequent batches.

At this moment there is a very large demand for temporary upper subordinates for Famine Relief work, and it is not improbable that a large proportion of the Engineers, Engineer Subordinates, Draftsmen and Surveyors of December 1896 will be absorbed by the Public Works Department.

The vacancies notified during the year in the Gazette, the public press, and by letter to the Principal, were one hundred and sixteen in number, of which sixty-eight were under Government, nineteen under local boards and municipalities, nine on railways, fifteen under Native States and five under private employers. Fourteen of the vacancies were for Engineers and Assistants, four for Supervisors, twenty-eight for Overseers, eleven for Sub-Overseers, twenty-one for Draftsmen, twenty-six for Surveyors, and nine for maistries, while three were of a miscellaneous character. Seven of the appointments carried salaries of Rs. 200 and upwards, fifteen between Rs. 100 and Rs. 200, thirty-six between Rs. 50 and Rs. 100, and fifty-eight under Rs. 50. Particulars are given in Appendix G.

21. *General.*—My thanks are due to the President of the Board of Examiners, Mr. Ashpitel, for the promptness and consideration he has displayed in the supply of the examination results. I also acknowledge the co-operation of the Professor of Engineering, Mr. Chatterton, and the Acting Professor of Mathematics, M.R.Ry. B. Hanumantha Rau, in the work of the College, as well as the willing aid rendered by the majority of the members of the junior staff. Special acknowledgment of the good work done by the Instructor in Surveying and Drawing, Sergeant Goddard, and the Instructor in Engineering, Sergeant Reynolds, is also made. Sergeant Goddard is steadily improving the style and accuracy of the survey work turned out. Sergeant Reynolds has, in addition to his regular duties, which have been carried out with energy and ability, been engaged in the preparation of a new series of pattern estimates, and of drawings for estimating purposes; and he has also compiled, for the use of the college, a Manual of Irrigation Works adapted from General Mullins' "Irrigation Manual" with the kind permission of the author. General Mullins has always taken a deep interest in this institution—an interest undiminished by retirement from active service in India—and I take this opportunity of publicly thanking him for the generous assistance which he has now rendered.

APPENDIX A.

Distribution of students by wealth and occupations of parents on the 31st December 1896.

Classes in college.	Wealth.				Occupations.								
	Richer classes.	Middle classes.	Poorer classes.	Total.	Officials.	Petty officials.	Traders.	Landholders.	Artisans.	Coolies including agricultural labourers.	Mendicants.	Others.	Total.
Engineer class—													
I	..	2	4	6	2	1	..	3	..	..	..	..	6
II	..	6	..	6	3	..	..	3	..	..	..	..	6
III	..	7	..	7	1	..	..	6	..	..	..	..	7
Engineer Subordinate class—													
I	1	17	..	18	3	..	1	13	..	..	..	1	18
II	..	19	2	21	5	1	..	13	..	..	..	2	21
III	..	29	..	29	9	3	..	15	..	..	..	2	29
Draftsman class—													
I	..	25	..	25	17	1	1	5	1	..	..	..	25
II	..	26	4	30	14	3	1	12	..	..	..	..	30
Surveyor class—													
I	1	19	1	21	10	..	..	11	..	..	..	..	21
II	..	24	1	25	11	..	..	14	..	..	..	..	25
Artisan class	..	32	5	37	30	3	1	2	1	..	..	..	37
Total ..	2	206	17	225	105	12	4	97	2	..	..	5	225

APPENDIX B.

Distribution of students by districts on the 31st December 1896.

Districts.	Engineer classes.	Engineer Subordinate class.	Draftsman class.	Surveyor class.	Artisan class.	Total.
Ganjám	..	..	1	1	..	2
Vizagapatam	..	..	..	1	1	2
Gódávari	1	..	1	3	..	5
Kistna	..	..	2	..	..	2
Nellore	..	3	..	2	..	5
Bellary	..	..	..	..	3	3
Madras	..	2	9	3	14	28
Chingleput	..	..	2	1	3	6
North Arcot	..	..	4	1	2	7
South Arcot	..	2	5	2	..	9
Tanjore	5	28	11	14	6	64
Trichinopoly	2	4	10	7	1	24
Madura	2	4	..	2	..	8
Tinnevelly	..	6	..	4	1	11
Coimbatore	1	3	3	2	4	13
Nilgiris	..	..	..	1	..	1
Salem	..	1	2	1	..	4
South Canara	..	2	3	..	..	5
Malabar	..	3	..	..	..	3
Mysore	7	..	1	..	1	9
Travancore	1	2	..	..	1	4
Cochin	..	..	1	..	..	1
Pondicherry	..	..	..	1	..	1
Pudukóttai	..	2	..	..	..	2
Ceylon	..	1	..	..	..	1
Military students	..	5	..	..	..	5
Total ..	19	68	55	46	37	225

APPENDIX C.

Distribution of students according to classes of the community on 31st December 1896.

Classes.	Europeans and Eurasians.	Native Christians.	Mohammadans.	Hindus.				Aborigines.	Others.	Total.
				Brahmans.	Non-Brahman Caste Hindus.	Pariahs.	Other low castes.			
Engineer classes	..	..	..	18	1	..	..	..	..	19
Engineer Subordinate classes ..	5	1	..	57	4	..	1	..	..	68
Draftsman classes	1	..	..	32	22	..	..	..	..	55
Surveyor class	1	..	3	35	7	..	..	..	..	46
Maistry and Artisan class	..	2	1	5	29	..	..	..	..	37
Total ..	7	3	4	147	63	..	1	..	..	225

APPENDIX D.

Government Technical Examinations of 1896.

Subject.	Grade.	Number examined.	Number passed.	
			First class.	Second class.
Building Materials and Construction	Elementary	8	1	1
	Intermediate	2	..	2
Building Drawing and Estimating	Elementary	3	..	1
	Intermediate	3	1	1
Earthwork and Road Making	Elementary	7	..	6
Surveying and Levelling	Elementary	1	1	..
	Intermediate	1	..	1
	Advanced	1	..	1
Applied Mechanics	Intermediate	3	..	2
Mensuration	Elementary	7	..	..
Machine Construction	Intermediate	3	..	1
Machine Drawing	Do.	2	..	1
Steam and Steam Engine	Do.	1	..	..
Fitter's work	Elementary	2	..	2
	Total ..	44	3	19

APPENDIX E.

Average attendance throughout 1896.

	Average number on rolls.	Agerage daily attendance.
College department—		
Engineer class, first (senior) division	6·0	5·6
Do. second division	6·0	5·8
Do. third do.	7·0	6·5
Engineer Subordinate class, first division	18·7	17·6
Do. do. second do.	21·1	19·6
* Do. do. third do.	17·7	17·1
† Military probationers	0·8	0·8
	77·3	73·0
School department—		
Draftsman class, first (senior) division	25·7	23·5
Do. second division	31·4	28·8
Surveyor class, first division	21·1	19·8
Do. second do.	25·9	24·5
Maistry and Artisan class	38·6	35·6
	142·7	132·2
Total college and school departments ...	220·0	205·2
Percentage of numbers present to numbers on the rolls—		
College department		94·4
School department		92·6

* This division joined in July.

† The probationers were absorbed in July.

APPENDIX F.

Financial Details for 1896.

	Rs.	A.	P.
Receipts—			
Tuition fees	10,398	0	0
Entrance and final examination fees	3,340	0	0
Fines and other receipts	851	13	8
Total ...	14,589	13	8
Charges—			
Principal	14,890	8	0
Professors, masters and teachers	27,845	2	7
Clerks, librarian and servants	3,300	14	8
Board of Examiners	4,500	0	0
Library and prize allowances	557	3	0
Books and instruments	596	14	9
Other Europe stores	2,654	11	2
Miscellaneous	4,555	15	2
Travelling allowances	412	13	6
Scholarships	2,700	12	6
Exchange compensation allowances	4,273	2	4
Total ...	66,288	1	8

	Rs.
Net cost to Government	51,698
Average attendance throughout the year	205
Net cost per student	252

From F. W. ASHPITEL, Esq., President of the Board of Examiners, College of Engineering, to the Director of Public Instruction, dated 28th January 1897.

I have the honour to forward herewith the report on the Civil Engineering College Examinations for 1896, together with the reports of the individual Examiners. The mark sheets have been handed over to the Principal of the college.

2. I also enclose remuneration bills amounting to Rs. 3,956–4–0 as noted below:—

	Rs.	A.	P.
F. W. Ashpitel, Esq.	1,294	0	0
C. T. R. Scovell, Esq.	1,141	4	0
A. Moffat, Esq.	918	0	0
Rao Bahadur V. Krishnama Chary	210	0	0
C. E. Phipps, Esq.	393	0	0
Total ...	3,956	4	0

Rupees three thousand nine hundred and fifty-six and annas four only.

Report on the examinations held at the College of Engineering, Madras, in December 1896.

Engineer Classes—Percentage of marks obtained.

—	E I.	E II.	E III.	Average, 1890—95.
Mathematics	60	68	64	63
Science	46	43	..	50
Engineering	48	49	74	63
Drawing	53	42	45	67
Surveying	64	66	52	67
Language	53	..	..	55
Drills and Exercises	77	..	..	70
Total ..	54	54	60	62

In the first division, six college students and one independent candidate were examined. The college students all passed, but the independent candidate failed to secure the required total number of marks. The percentage of marks obtained is the same as last year but considerably below the average, the principal failures being in engineering and drawing. The class was, in fact, below the average in every subject in which they were examined by the board and three out of the six candidates only just succeeded in qualifying. In engineering only one student and in building drawing no student obtained half marks.

In the second division, six college students were examined and, with the exception of mathematics, the percentage of marks obtained was below the average. In engineering, there was a general failure in building construction, for which there is no excuse seeing that there is a text-book available if the students will only study it. In building drawing no student obtained half marks.

In the third division, seven college students presented themselves for examination, and the class is considerably better than the other divisions. In engineering and mathematics the percentage of marks obtained is above the average and the percentage on the total marks obtained is practically up to the average. The failure is in drawing in which it will be observed that all the divisions of the Engineer class are bad.

Engineer Subordinate classes.—Percentage of marks obtained.

—	Es I.	Es II.	Es III.	Average, 1890—95.
Mathematics	58	61	..	49
Engineering	50	53	..	49
Drawing	48	50	..	56
Surveying	61	56	..	57
Language	45	..	..	46
Drills and Exercises	82	..	..	71
Total ..	54	56	54	54

In the first division, the class is apparently up to the average, but the averarge is not very high. In mathematics, engineering and surveying the percentage of marks obtained is above, but in drawing considerably below the average. In the division 18 college students and five independent candidates were examined, of whom four college students and four independent candidates failed to qualify.

In the second division, 21 college students were examined and the percentage of marks obtained is above the average in mathematics and engineering, up to the average in surveying and below the average in drawing. The general result of the examination is good and the class should do very well.

In the third division, 29 college students were examined, but the papers were few in number. The class appears to be up to the average, and several students did remarkably well.

Draftsman Class—Percentage of marks obtained.

—	D I	D II	Average, 1890—95.
Practical Geometry	66	..	62
Free-hand and Model Drawing	53	..	56
Building Drawing	50	..	57
Machine ,,	54	..	56
Estimating	35	..	48
Topographical Drawing	54	..	51
Drills and Exercises	68	..	67
Total ..	51	43	56

In the first division, 24 college students presented themselves for examination, of whom 13 failed; of 18 independent candidates, 11 failed. The principal failure is in estimating, in which no less than 11 students failed to qualify—a result which, it should be observed, is as much due to college marks as to the Board's examination. The results being so very unsatisfactory, the President of the Board called for the mark sheets and the whole of the papers were re-examined, but it was not found possible to materially modify the original result. The class was up to the average in other subjects and two college students and two independent candidates obtain second-class certificates. The work done by the class in estimating during the college course was also examined by the board and the failure does not appear to be attributable to any want of attention to this subject. It is suggested, however, that the Consulting Engineer for Railways, the Chief Engineer, Madras-Bezwada Railway, and the Irrigation office should be asked to supply the college with some of the more recent designs and estimates for bridges and irrigation works, as the selection available at the college, though much improved during recent years, is still somewhat deficient.

In the second division, the students were only examined in geometrical and free-hand drawing and two students did exceptionally well.

Surveyor Class—Percentage of marks obtained.

	S I. 1896.	Average, 1890—95.
Chain Compass and Plane Table	57	57
Levelling	56	62
Theodolite Survey	41	57
Topographical Drawing	53	56
Drills and Exercises	78	67
Total	55	59

In the first division, twenty college students and fifteen independent candidates were examined, of whom three college students and five independent candidates failed. The class is below the average in all subjects in which they were examined, though slightly better than last year.

Sub-Overseer and Surveyor class.—Though the actual percentage of marks obtained by this class is not high the result of the examination is, in the opinion of the board, most satisfactory. Several students did extremely well and only six out of 25 failed to obtain half marks, of whom only one seems to be likely to fail eventually. Taking into consideration the educational qualifications of the students the way in which they answered the papers was remarkably good and appears to reflect great credit on the instructors. The class is a new one, and it is believed had not the full time for preparation owing to the introduction of the new syllabus late in the year. The only suggestion that the board have to make is that the students should, in future, be instructed not to attempt to learn by heart the chemistry of building materials which they cannot possibly understand, but to confine their attention to the practical parts of the text-book. The text-book on building materials and construction requires, in fact, to be marked, so as to indicate to students which parts they are expected to study.

General Remarks.—With the exception of estimating in the draftsman class and drawing and engineering in the Engineer and Engineer Subordinate classes, the board are of opinion that the results of the examination may be considered to be fairly satisfactory. The reduction in the percentage of marks obtained is largely due to the strictness with which college marks are awarded as inspection of the mark sheets will show.

Read the following endorsement from the Director of Public Instruction, No. 854, dated 29th January 1897:—

Referred to the Principal, College of Engineering, Madras, for favour of remarks, if any, and scrutiny of the remuneration bills of the members of the Board of Examiners.

Read the following letter from the Principal, College of Engineering, to the Director of Public Instruction, No. 1697-C, dated 15th February 1897:—

Referring to your endorsement No. 854, dated 29th January 1897, on file from the President, Board of Examiners, herewith returned, I have the honour to offer the following remarks.

2. The mark sheets mentioned in the first paragraph of Mr. Ashpitel's covering letter were forwarded to you with my annual report No. 1613-C., dated 30th January 1897.

3. Under "Engineer classes" in the body of the report the word "failures" is misleading, seeing that all the students of the senior division passed the final examinations. The average percentage of the division was 48 in engineering and 53 in drawing.

4. The President observes that the results were not good in engineering and building drawing in the senior division of the Engineer class. It should be noted that, while Engineering is a main head, building drawing is only a sub-head of the main head Drawing, the percentage in which was 53.

5. The percentages for the second division of the Engineer class are those of the results of two term examinations, those of 1895 and 1896. A similar remark applies to the percentages given under the second division of the Engineer Subordinate class.

6. The President considers that the existence of a recognised text-book in a subject leaves no excuse for failure in that subject. I fear that something more than text-books is needed to enable students to pass examinations.

7. The want of success in estimating in the Draftsman class is commented on in my Annual report, paragraph 4 (*c*), and certain facts are adduced which tend to show that the paper set offered unusual difficulties to the candidates. The President admits that the failures are not attributable to want of attention to the subject in the college.

8. Throughout his report the President compares the results of 1896 with those of the preceding *five* years. In my Annual report, I take, as usual, the preceding *four* years.

* * * * *

Proceedings No. 5145 of 1897.

The Principal's report deals with the working of the college during the past calendar year. But for facility of preparation of the quinquennial report ordered by the Government of India, statistics for the past five years have been incorporated in this review. In his future reports the Principal should adopt the designations given to the several classes in the Madras Educational Rules.

2. *Staff.*—The only change of importance was the appointment of Mr. H. T. Keeling as Acting Professor of Engineering during the absence on furlough of Mr. A. Chatterton, the permanent incumbent. Several minor changes also took place in the subordinate staff and in the clerical establishment. The Director is not quite convinced as to the necessity for a fourth clerk for the college. Indeed in no institution is the clerical establishment so strong as in this college. It appears to the Director that the work of the clerks needs re-distribution, the head clerk being entrusted with all cash transactions and the storekeeper and librarian with the charge of books and stores and instruments. The difficulty might be got over by placing the clerical establishment under the immediate supervision of some senior instructor of the college as has been the practice in the Medical College, where, it is believed, the correspondence work is as heavy as, if not heavier than, in the College of Engineering. This arrangement would relieve the Principal from much routine work and enable him to devote more time than at present, viz., $4\frac{1}{2}$ hours a week, to instruction in connection with the Engineer classes, which did not, in certain important subjects, do as well as might have been expected, at the last final examination conducted by the Board of Examiners.

3. *Accommodation.*—The necessity for additional accommodation has been admitted by Government, which has approved the extension at present of the ground floor of the college and accordingly called for revised plans and estimates.

4. *Library and reading-room.*—A more satisfactory use was made of the library during the year. No reference has been made in the report to the working of the reading-room maintained by the college recreation club.

5. *Workshops.*—The workshop fittings have now been completed, and the usefulness of the workshops has been enhanced by the provision of the 100-ton Testing Machine. The students have of late been receiving ample practice in the workshop, and they are therefore sent to works divisions only during their practical course, excepting students who desire to become mechanical engineers. The scheme for the training in the workshops of apprentices already possessing some technical qualification has met with the general approval of Government, and the Director trusts that schools in the mofussil teaching mechanical engineering subjects will, in the course of a few years, be supplied with trained teachers from the college.

6. *Strength and attendance.*—In the following statement the strength of each class of the college for the past five years is compared:—

Class.	Strength on the 31st December					Remarks.
	1892.	1893.	1894.	1895.	1896.	
Engineer	10	14	17	19	19	This statement excludes the number of students undergoing the practical course.
Engineer Subordinate	77	81	76	63	63	
Do. Military probationers	5	2	3	2	5	
Draftsman	51	67	73	64	55	
Sub-Overseer and Surveyor	37	50	57	48	46	
Artisan class	34	38	39	35	37	
Special students	3	..	..	..	..	
Total ..	217	252	265	231	225	

It is observed that the strength on the 31st December 1896 was the lowest in the quinquennium, the year 1892 excepted, though it very nearly approached that of 1895. The fall is due chiefly to the causes explained by the Principal and also partly to the strictness with which the entrance tests are conducted. The gradual increase, however, in the strength of the Engineer class is encouraging, and a further increase is expected. From paragraph 6 of the Principal's report it is noted that there were four military students receiving theoretical instruction, whereas Appendix B gives the corresponding figure as five. This discrepancy needs to be explained. The average number on the rolls and the average daily attendance were fairly satisfactory, namely, 220·0 and 205·2, respectively. All the districts with the exception of Kurnool, Cuddapah and Anantapur were represented, and Tanjore and Madras changed places during the year, the former district being far ahead of the latter as regards the number of students supplied. The richer and middle classes contributed 92 per cent., and Brahmans and non-Brahman caste Hindus 65 and 28 per cent., respectively, of the total strength. What is even more noteworthy is that 18 out of 19 Engineers and 57 out of 68 Engineer Subordinates were Brahmans. Muhammadans numbered four only, and they were found in the Surveyor and Artisan classes; nor was the Native Christian element suitably represented. The concession of half fees granted in favour of Muhammadans and the reservation of a few scholarships awarded in the college for this class preferentially in the new rules now before Government will, the Director trusts, induce a larger number of Muhammadan youths to seek instruction in Engineering. Turning to the occupation of parents it is observed that the majority of the students were the sons of officials and landholders and that the artisan element was very poorly represented, the number in the whole college being two while that in the Artisan class was only one. This is very disappointing indeed.

7. *Examinations*—(i) *University examinations.*—The last quinquennium was remarkable for the institution of separate engineering degrees in the civil and mechanical branches and for the bifurcation of the examination for the engineering degree into the first examination in Engineering and the Bachelor of Engineering degree (or the final) examination. This bifurcation was given effect to in January 1895. The results of the University examinations for five years are recorded in the margin. Since January 1892, 20 students of the college had appeared for the degree examination in Engineering and 16 of them had met with success. These results are satisfactory. Twenty-one independent candidates also presented themselves for the above examination and seven were successful. The college acquitted itself fairly satisfactorily both in the First and in the Degree examinations of January 1896.

Year.	B.C.E. or B.E. degree.		First examination in Engineering.	
	Examined.	Passed.	Examined.	Passed.
1892	5	4	..	..
1893	4	3	..	..
1894	3	3	..	..
1895	2	2	9	7
1896	6	4	8	6
Total ..	20	16	17	13

(ii) *College Board examinations.*—The following summary furnishes the results of the final examinations conducted by the college board during the past five years :—

Class.	Number presented.					Number passed.				
	1892.	1893.	1894.	1895.	1896.	1892.	1893.	1894.	1895.	1896.
Engineer	4	2	2	7	6	4	2	2	6	6
Engineer Subordinate	18	26	31	21	18	13	24	19	15	14
Surveyor	18	18	25	22	20	16	12	20	16	17
Draftsman	24	26	34	28	24	18	21	10	20	11

The results of 1896 compared favourably with those of the year previous except in the case of the Draftsman class in which there was a large number of failures. On the manner in which each class acquitted itself at the examinations conducted by the Board in December 1896 the Director would remark :

Engineer class.—This class was much below the average, the percentages of marks obtained in several important subjects not approximating the average of the previous four years. All the three divisions exhibited weakness in drawing, and the first and second divisions in engineering and in building construction, respectively.

The Principal points out that the term "failures" used by the Board of Examiners in connection with the first division of the Engineer class is misleading as all the six students presented for the final examination were declared to have passed. Presumably the Board's remark refers to the results of the examination conducted by the Board irrespective of the college or session marks. The President is requested to be good enough to state whether this presumption is correct.

Engineer Subordinate class.—The class was up to the average in all the subjects except drawing, which should consequently receive greater attention. The poor results in drawing obtained by the Engineer and Engineer Subordinate classes justify the inclusion in the revised rules before Government of the subject in the entrance tests for admission to the above classes.

Draftsman class.—This class fared badly at the final examination, the chief failures being in estimating. The Principal is of opinion that the unsatisfactory results were due to the unusual difficulty which the paper on estimating presented to the candidates and not to any want of attention to the subject. Building-drawing, however, does not appear to have received sufficient attention. As suggested by the Board of Examiners, the Principal is requested to arrange to procure for the college a few recent designs and estimates for bridges and irrigation works.

Sub-overseer and Surveyor class.—The Senior division of this class acquitted itself creditably at the final examination and the Junior division also did well at the term examination. The attention of the instructors should be drawn to the Board's suggestion that the students should be taught to devote their attention to the practical parts of the text book on building materials and construction.

The remarks of the examiner in the vernaculars should be commended to the vernacular assistants. A large number of students, especially of the Engineer and Engineer Subordinate classes, are stated not to have numbered their answer papers. The omission should be guarded againts.

(iii) *Government technical examinations.*—From the particulars furnished in Appendix D to the report, it is observed that 44 single subject candidates appeared voluntarily for the Government technical examinations and that 22, or 50 per cent. passed. The results in building materials and construction (Elementary), building-drawing and estimating (Elementary), mensuration (Elementary) and machine construction (Intermediate) were decidedly poor. Information should be given in future reports as to the classes to which candidates for the Government technical examinations severally belonged.

8. *Independent candidates.*—The results obtained by the independent candidates at the final examinations held in December were poor excepting as regards surveyor candidates, as may be seen from the figures in the margin. It is hoped that the draftsman candidates will fare better in future as their success is to be determined purely by the marks gained at the examination conducted by the Board.

Description.	Number examined.	Number passed.
Engineer candidates	1	..
Do. Subordinate candidates	5	1
Draftsman candidates	18	7
Surveyor do.	15	8

9. *Military students.*—Including the students in their practical course the total number of soldier students on the rolls on the 31st December last were six as against eleven in the year previous, the decrease being due to the non-admission of any probationers during the year. The success obtained by the soldier students at the examinations held by the Board of Examiners and at the Government technical examinations has again not been noted. The Government of India has decided that five military candidates may annually be admitted into the college. It has also been ruled that the probationary course for these students should be reduced from twelve to six months until 1898 and that it be entirely abolished thereafter, the same entrance examination being prescribed for civil and soldier candidates.

10. *Practical courses.*—The reduction in the length of the practical course from two years to one in the case of Engineer and Engineer Subordinates was carried out during the year under report. As the students will in future be chiefly engaged on works during their practical course the Madras University has made the necessary modification in its by-laws relating to the B.E. degree Examination. The conduct of the students during their practical course was uniformly satisfactory.

11. *Physical education.*—Judged from the results shown in drill, &c., at the college examinations, the physical training of the students seems to have received increased attention.

12. *Employment of former students.*—The Director is glad to note that as usual the students of the last set found little difficulty in securing employment. During the past five years various concessions have been granted to the students of the college, and their prospects have in consequence been improved. The disability under which the Engineer students had long suffered of being shut out from appointments on the upper subordinate ranks of the Public Works Department has been removed. From and after 1st January 1897 training in this college, or such approved service as the Governor in Council may consider equivalent thereto, has been made a qualification for Public Works appointments under district boards and municipalities carrying salaries of Rs. 100 and upwards, whilst preference should generally be given to men so trained. The Bengal Government has declared that under certain circumstances graduates in Engineering from the Madras College are eligible for appointments to the Public Works Upper Subordinate establishment in Bengal. Draftsmen holding lower class certificates have been allowed to be promoted to the higher grades for approved service and exceptional merit. It has been decided to make the award of the guaranteed apprentice Engineership at the termination of the theoretical course instead of after the completion of the practical course as originally contemplated. The selection of an apprentice Engineer in alternate years from the upper subordinates of the Public Works Department is an additional inducement to the Engineer subordinates of the college. Lastly, the Government of India has recently accepted the recommendation of the local Government that recruits of Military Upper Subordinates for the Public Works Department in Burma be made in future from the College of Engineering, Madras, instead of from the Thomason Civil Engineering College, Roorkee, *vide* G.O., No. 828-W., dated 22nd March 1897, communicated in G.O., No. 203-E., dated 7th April 1897.

13. *Finance.*—The financial position of the college during the past four years can be glanced at from the subjoined summary. The figures relating to 1892 are not available :—

Year.	Fees and other receipts.	Total charges of the college, including scholarships but exclusive of outlay on workshop fittings, and on buildings.	Net cost of educating each student.
	Rs.	Rs.	Rs.
1893	15,957	67,070	209
1894	13,817	67,407	223
1895	14,190	72,083	273
1896	14,590	66,290	252

The net cost of educating each student during the year was smaller than in 1895. The slight fall under fees proper was more than compensated for by the increase under fines and miscellaneous receipts. The decrease in charges is due chiefly to diminished expenditure on Europe stores and under exchange compensation allowance.

14. *Revision of syllabuses and rules.*—The most important event of the year was the revision of the college syllabus by a committee of experts, which, with certain modifications, received the sanction of Government in G.O., No. 444, Educational, dated 22nd July 1896. Major Love's report touches on the salient features of the revision, and the effect of the changes will be watched with interest. The rules of the college have also been thoroughly recast, the several alterations sanctioned by Government from time to time, chiefly as regards the institution of admission tests for the Draftsman and Surveyor classes, the reduction of the practical course, the institution of the equitation course, the development of the Surveyor into the Sub-overseer and Surveyor class, the altered conditions of the guaranteed appointment and the establishment of stipendiaryships in connection with the workshop being incorporated in the rules. It is hoped that the early sanction of Government will be accorded to the revised rules as the present rules have become obsolete in several respects.

15. *General.*—The administration of the college was on the whole fairly satisfactory and its working was creditable to the Principal, the Professors and the staff.

(A true Extract.)

(Signed) D. DUNCAN,
Director of Public Instruction.

To the Principal, College of Engineering.
" the Principals of other Government Colleges.
" the Inspectors of Schools.
" the Superintendent, School of Arts.
Copy to the President, Board of Examiners, College of Engineering.
" " Chief Engineer, Public Works Department, for information.
Copies to the Editors, *Indian Journal of Education*, and the *Educational Review*.
Copy to Government with covering letter.

Order—No. 541, Educational, dated 22nd September 1897.

The report on the working of the College of Engineering in 1896 and the review of it by the Director of Public Instruction call for the following remarks:—

(1) The fall in the strength of the students, which was considered to be merely temporary in the report of the previous year, continued during the year under review and is due chiefly to the decrease in the strength of the Draftsman class. The Principal attributes the fall to the non-admission of military probationers, but it is observed that the Director of Public Instruction in paragraph 6 of his review shows five as the number of such probationers on the 31st December 1896 as against two in the year

1895. The increase in the strength of the Engineer class from ten to nineteen during the last quinquennium is satisfactory. In the Engineer Subordinate class, there has been a gradual diminution in strength, which is to be regretted. There was no Muhammadan student in the Engineer, Engineer Subordinate and Draftsman classes, and there were only four in the other departments. In the whole college there were only two students belonging to the artizan class. The Government has recently allowed Muhammadan students in professional colleges to pay fees at half the prescribed rates and a few of the scholarships awarded in the College of Engineering have been reserved for Muhammadans. These concessions will, it is hoped, induce a larger number of Muhammadan students to take to the study of engineering.

(2) The results of the several University examinations, and of the examinations conducted by the College Board of Examiners are fairly satisfactory, except in the case of draftsman students. The Government notes with dissatisfaction that there should have been so large a number of failures in the subject of estimating among the students of the Draftsman class. The attention of the college authorities was drawn to this defect in the review of the report for 1894. It is not satisfactory to learn that the Board of Examiners found the whole Engineer class much below the average. The Principal will take steps to improve the instruction given in drawing. The teaching of the engineering subjects of the first division and of building construction should also be improved.

(3) The Government is glad to note that the double batches of Engineer and Engineer Subordinate students who completed their course during the year experienced no difficulty in finding employment. During the past five years, a considerable improvement has taken place in the prospects of the passed students of the college, which, the Government trusts, will increase the popularity of the institution greatly.

(4) Orders on the revised rules of the college will be passed in separate proceedings.

(5) In consequence of the decrease in the strength of the college, the receipts from fees declined, and notwithstanding this decline, the net cost of maintaining the college fell by Rs. 6,120. The net cost of educating each student fell from Rs. 273 in 1895 to Rs. 252 in the year under review, but it is still high. In 1893 the cost was only Rs. 209. The receipts from "fines and other receipts" rose from Rs. 242 to Rs. 852; to which particular item this large increase is due should be explained.

[Here enter letter, No. 542, Educational, dated 22nd September 1897.]

(True Extract.)

Secretary to Government.

To the Director of Public Instruction.
" Public Works Department.
" Local and Municipal Department.
" Deputy Adjutant-General, Madras Command.
Editors' Table.

Exd. A. F. Eccleston.

Government {1897} of Madras.

EDUCATIONAL.

Recd. } 1897. *Enclosures*

Regd. *Spare copies*

Letter, No. 542, 22nd September 1897.

SEPTEMBER.

College of Engineering.

Forwarding copy of Proceedings reviewing the report on the working of the —, Madras, during 1896.

EDUCATIONAL DEPARTMENT.

Letter—to

The UNDER SECRETARY of STATE for INDIA.

Sir,

With advertence to Lord Hartington's Despatch No. 9 (Public Works), dated 18th May 1882, I am directed to forward a copy of the Proceedings of this Government of this date, reviewing the report on the working of the College of Engineering during the year 1896.

I have the honour to be,
Sir,
Your most obedient servant,

Ootacamund,
22nd *September* 1897.

G. S. FORBES,
Secretary to Government.

Exd. A. F. Eccleston.

Educational (189) Department.

CURRENT No.

416/96.
447/96.
555/96.
438/96 & 6.
446/96.
491/96.
607/96.
628/96
668/96
705/96
759/96
186/96.
224/96.
256/96.
223/96.
378/96.
216/96.
564/95.
521/95 &c.
443/94 &c.
385/93 &c.
449/92 &c.
203/97
104/97
10/97
42/97
29/97
R2/97
R23/97
R36/97
R50/97

From The Dir of Pub. Instruction, Madras.

Order.

No. 5299

Dated 14th May 1897.

Received 17 MAY. 1897

Registered 17-5-97.

Enclosures One (with 1 s.c)

Spare copies ——

SUBJECT.

Subg a copy of Go reviewing the report on the working of the College of Engineering during 1896.

DESPATCHED
15 MAY. 97

BACK PAPERS.

G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.

ORDER—No. 541, Educational, dated 22nd September 1897.

The report on the working of the College of Engineering in 1896 and the review of it by the Director of Public Instruction call for the following remarks :—

(1) The fall in the strength of the students, which was considered to be only temporary in the last review, continued during the year and is due chiefly to the decrease in the strength of the Draftsman class. The Principal's statement that the fall is due to the non-admission of military probationers does not appear to be correct, the number of such probationers in 1896 being five as against two and three in the years 1895 and 1894, respectively. The increase in the strength of the Engineer class from ten to nineteen during the last quinquennium is satisfactory. In the Engineer Subordinate class, there has been a gradual diminution in strength and to this the particular attention of the Principal and the Director of Public Instruction will be drawn. There was no Muhammadan student in the Engineer, Engineer Subordinate and Draftsman classes, and the number of students belonging to the Artizan class was only two. The Government has recently allowed Muhammadan students in professional colleges to pay fees at half the prescribed rates and a few of the scholarships awarded in the College of Engineering have been reserved for Muhammadans. These concessions will, it is hoped, induce a larger number of Muhammadan students to take to the study of Engineering.

(2) The results of the several University examinations and of the examinations conducted by the College Board of Examiners are fairly satisfactory, except in the case of draftsman students. The Government notes with dissatisfaction that there should have been such a large number of failures in the subject of estimating among the students of the Draftsman class. In the face of the fact that the attention of the College authorities was drawn to this defect in the review of the report for 1894, the attention of the President of the Board of Examiners of the College will be drawn to the remarks of Major Love contained in paragraph 7 of his letter to the Director of Public Instruction, No. 1697-C, dated 15th February 1897.

(3) The reasons for compelling or encouraging students of the college to appear for the Government Technical examinations are not apparent and should be explained. Assuming that the students appear at the Government Technical examinations in the subjects they are taught in the college, it seems quite unnecessary to require them to pass duplicate examinations in the same subjects. If, on the other hand, they appear at the Technical examinations in subjects not included in their prescribed course, their efforts, it would appear, are being directed to the acquisition of proficiency in extraneous subjects to the detriment of their legitimate work.

(4) The Government is glad to note that the double batches of Engineer and Engineer Subordinate students who completed their course during the year, in consequence of the reduction in the length of the practical course sanctioned in G.O., No. 807, Educational, dated 7th October 1895, experienced no difficulty in finding suitable employment. During the past five years, a considerable improvement has taken place in the prospects of the passed students of the college, which, the Government trusts, will increase the popularity of the institution greatly.

(5) Orders on the revised rules of the college will be passed in separate proceedings.

(6) In consequence of the decrease in the strength of the college, the receipts from fees declined, and notwithstanding this decline, the net cost of maintaining the college fell by Rs. 6,120. The net cost of educating each student fell from Rs. 273 to Rs. 252. The receipts from fines, &c., rose from Rs. 242 to Rs. 852; to which particular item this large increase is due should be explained.

(True Extract.)

Secretary to Government.

To the Director of Public Instruction.
" Public Works Department.
" Local and Municipal Department.
" Deputy Adjutant-General, Madras Command.
Editors' Table.

Report on the College of Engineering.

Recd 14/10/97

No. 542-9-22-9-97

Letter to—

The Under Secy of S. for India.

Sir,

With adverteuce to Lord Hartington's despatch no. 9 (Public Works) of 18th may 1882, I am directed to forward a copy of the Pro. of this Govt of this date, reviewing the report on the working of the College of Eng. during the year 1896.

SB 10/9/97

MR 8/9/97

First copy sent to Press.

Returned for signature.

Despatched in print.

NUMBER OF COPIES REQUIRED. { Order complete. / Letter only. / Order complete with Letter.

READ AGAIN G.O., No. 189 DATED

I

CURRENT No.

ENCLOSURES TO C. No.

ORDER OF GOVERNMENT

LETTER OF GOVERNMENT

STATEMENT WITH DITTO.

PAPERS NOT FILED UP, BEING MEANT FOR DESPATCH IN ORIGINAL.

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