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Govt. of 1887 Madras.
EDUCATIONAL.

No. 2800 Waf Oct. 20. 1887

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G.O., 22nd September 1887, No. 521.

No. 2800 Waf Oct. 20. 1887

SEPTEMBER.

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*C.A. to Govt.
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Madras College of Engineering.

Passing orders on the report of the working of
the — during 1886-87.

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W. Thacker*

GOVERNMENT OF MADRAS.

EDUCATIONAL DEPARTMENT.

READ—the following paper :—

From D. DUNCAN, Esq., M.A., D.Sc., Acting Director of Public Instruction, to the Chief Secretary to Government, dated Madras, 30th August 1886, No. 5937.

I have the honor to submit three copies of the report on the working of the College of Engineering, Madras, for 1885-86, with my review thereon.

ENCLOSURE.

PROCEEDINGS OF THE DIRECTOR OF PUBLIC INSTRUCTION, dated 20th August 1886. No. 5779.

Madras College of Engineering.

Read the following letter from the Principal, Civil Engineering College, to the Director of Public Instruction, dated Madras, 31st May 1886, No. 162-C.

I HAVE the honor to submit the following report on the working of the College of Engineering during the past year, and on the results of examinations for certificates which have been held during that period.

2. *Numbers.*—The average numbers on the rolls have been :—

Engineer classes	...	...	...	...	...	...	18
Engineer Subordinates' classes	...	...	...	...	...	...	62
Draftsmen's classes	...	...	...	...	...	...	55
Surveyors' classes	...	...	...	...	...	...	40
Total	...	...	...	...	...	...	175

The numbers arranged by classes of the community are :—

Europeans and Eurasians	...	...	...	...	...	...	29
Brahmans	...	...	...	...	...	...	68
Hindus other than Brahmans	...	...	...	...	...	...	60
Native Christians	...	...	...	...	...	...	14
Mussalmans	...	...	...	...	...	...	3
Others	...	...	...	...	...	...	1
Total	...	...	...	...	...	...	175

3. *Changes in Establishment.*—Mr. H. Narasinga Rau, B.A., was appointed on 17th August 1885 to fill the vacancy caused by the retirement of the Telugu Munshi, Mr. Lakshminarasayya Pantulu, which was alluded to in last year's report. With this exception, the staff has remained unchanged throughout the session. From the present date, however, Mr. M. Kenny, B.A., First Assistant Master, is transferred to Berhampore College, and Mr. Rajagopala Mudaliyar, the Tamil Munshi, after a period of twenty-seven years' uninterrupted duty, retires from the service. Under Mr. Kenny, who joined the college in August 1880, the senior classes have always made good progress in mathematics. Mr. Rajagopala Mudaliyar entered the college in 1859, and attained the age of 55 in 1877; but extensions of service have

from time to time been sanctioned, which have enabled him to remain at his post until the close of the present session. I cannot permit him to leave without expressing appreciation of the excellent work which, during a long series of years, he has done at this college.

4. *Reorganization of the College.*—The year is memorable as heralding a reorganization of the institution which has been under consideration since 1880. In that year, Colonel Macdonald, the Director of Public Instruction, suggested the desirableness of introducing changes based on the scheme which had then lately been approved by the Honorable the Lieutenant-Governor of Bengal for the establishment of an Engineering College at Calcutta. The Madras Government referred the matter to a committee consisting of Engineers of the Public Works Department, the Railways, and Harbour Works, and of Educational officers, presided over by Colonel Shaw-Stewart, R.E. The committee recognised the principle that the college should train men not for the Public Works Department only, but for the country generally; and they submitted reports in 1881 and 1882, advising an increase in the theoretical courses of instruction to admit of Mechanical as well as Civil Engineering subjects being introduced, and the establishment of practical courses to fit all passed students for immediate employment on works, including those who might not be appointed to the Government service. After considerable discussion and criticism by the heads of the Public Works and Educational Departments, the detailed recommendations of the committee were adopted with slight modifications, and the reorganization scheme as finally approved was sanctioned in July 1885, and ordered to be introduced from 1st January of the current year. The classes to be formed are for—

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|----------------------------|--|
| (1) Civil Engineers. | (5) Surveyors. |
| (2) Mechanical Engineers. | (6) Sub-Overseers, Maistries and Artizans. |
| (3) Engineer Subordinates. | |
| (4) Draftsmen. | |

The designation of the institution has been changed from *Civil Engineering College* to *College of Engineering*, so as to embrace the mechanical branches of the profession. The theoretical courses will extend over three years for Engineers, for two and a half years for Engineer Subordinates, and for two years for Draftsmen and Surveyors; and the times of admission will be so adjusted that the final examinations of all classes will take place simultaneously in December. The practical courses will comprise a period of workshop training and a period on Engineering works in progress, and will be undergone by the Engineer and Engineer Subordinates' classes. The details of the practical courses are, however, not yet settled.

Admission to the Engineer and Engineer Subordinates' classes is regulated by competitive examination, open, under restrictions as to age, health, &c., to persons who have passed the First Arts and Matriculation Examinations respectively of an Indian University; the classes for Draftsmen and Surveyors are open to persons who have passed the Middle School Examination; while that for Sub-Overseers and Maistries is reserved for the sons of artizans and for youths who have had practical training in the building trades. Non-commissioned officers and soldiers of British Regiments are eligible, as heretofore, for admission to the Engineer Subordinates' class, but they will undergo their probationary year of instruction at the college instead of at Bangalore.

The theoretical courses for the different classes will comprise some or all of the following branches:—Mathematics, Physical Science, Civil and Mechanical Engineering, Surveying, Drawing, and Vernacular Language. Examinations of students will take place as a rule annually, and the marks gained will count towards the final total. All the examinations will be conducted by a Board of Examiners appointed by Government. The rates of fee payment for the theoretical courses have been raised; but no fees will be demanded for the practical courses, and, during a portion of the latter, subsistence allowances will be paid to the students. Seven scholarships, ranging from Rs. 30 to Rs. 8 per mensem, are open to students for competition.

One appointment annually as Assistant Engineer in the Public Works Department, as well as a certain number of Supervisorships, will be conferred annually on passed students of the Engineer class. Overseerships in the department are open to those of the Engineer Subordinates' class, appointments as Draftsmen to those of the Draftsmen's class, while passed Surveyors are eligible for the Public Works and Madras Survey Departments.

5. *Requirements.*—From this brief sketch of the new scheme, it will be perceived that a great stride in the progress of the technical education afforded by this institution is about to be made. Additional classes, longer courses, and new subjects cannot, however, be introduced without the provision of a larger staff and more extended accommodation. Suitable lecture-rooms and a laboratory are needed; a museum, a drawing office, and examination hall must be provided; and a reinforcement of the staff is urgently required. Full proposals have been submitted in connexion with these wants, but I am not yet in a position to report on the steps which are to be taken to supply them. In January, classes of (1) Engineers, (2) Draftsmen, and (3) Surveyors were formed under the new rules, and in August a class of Engineer Subordinates will be established. At the present moment, therefore, the old and new courses of study progress side by side, though with unequal steps. Up to the present date it has been found possible to meet most of the earlier needs of the newly formed classes; but I assert in the most positive terms that, without the immediate provision of some additional staff and accommodation, the requirements of the new scheme cannot continue to be carried out.

6. *Examining Agency.*—Before proceeding to report on the work executed by the various classes during the year under review, I have to refer to the remarks made in last year's report on the College Examining Agency. In response to the arguments offered, Government appointed a Board of Examiners to conduct the final examinations of the two senior departments. Their duties commenced in December last with the examination of the Engineer class, and they continued during the current month with that of the Engineer Subordinates' class. The final examinations of the Draftsmen's and Surveyors' classes are still conducted by the College staff, though the new rules contemplate their ultimate transfer to the Board.

7. *Engineer Classes.*—In December 1885, the senior class of eight students was examined by the Board, with the result that all the candidates obtained diplomas as Assistant Engineer. The first man, R. A. Srinivasa Aiyangar, B.A., passed with honors, gaining 84.3 per cent. of the total marks. His position secured for him the guaranteed appointment to the Engineer establishment of the Public Works Department, and he was posted to the Godavari Eastern Division on 1st April last. My knowledge of his character and abilities leads me to expect that he will prove a good servant to the Government.

The next three candidates, V. Aiyaswami Aiyar, B.A., R. V. Subrahmanya Aiyar, and G. V. Subrahmanya Aiyar, passed with credit, with percentages ranging from 71 to 67. The remaining four students, M. A. Ananthawar, B.A., D. V. Jagannathachari, C. Madhava Rau, and T. Ramaswami Aiyangar, obtained an ordinary pass with percentages ranging from 64 to 51.

One independent candidate, who was formerly a student of the college, also presented himself, but was absent during the greater part of the examination.

In January, the eight students above referred to appeared for the University examination for the degree of Bachelor of Civil Engineering. The following three were successful:—

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|--------------------------------|--------------------------|
| R. A. Srinivasa Aiyangar, B.A. | R. V. Subrahmanya Aiyar. |
| V. Aiyaswami Aiyar, B.A. | |

8. The present senior division consists of ten students and the junior of eight. The latter were admitted by a competitive examination in December last under the new rules, the candidate at the head of the list, R. Srinivasa Aiyangar, B.A., winning the scholarship of Rs. 30 per mensem. This will be re-competed for by

the entered students in December of the current year. Both divisions have just undergone a sessional examination, at which satisfactory progress has been indicated. In the first division, R. Gopala Aiyar, B.A., stands easily first, winning the prizes for Mathematics and Engineering—an aneroid barometer and planimeter respectively. The prize for Drawing and Surveying—an ellipsograph—is secured by A. V. Panchapakasa Aiyar, B.A.

In the second division, R. Srinivasa Aiyangar, B.A., heads the list, and wins the prize for general proficiency, consisting of an Abney's level.

9. *Engineer Subordinates' Class*.—The senior division of this class contains twenty-four students who have just undergone examination at the hands of the Board of Examiners for certificates of qualification as Supervisor and Overseer. The remarks of the Board, which form an appendix to this report, are to the effect that the results are very satisfactory, the average total marks being 60 per cent. of the maximum, and that the five military students who occupy the first, third, fifth, sixth and eighth places on the list have done work which is especially creditable to them. Of the twenty-four students examined, ten obtain certificates as Supervisor, having gained not less than 35 per cent. of the marks in each subject and 60 per cent. of the total; thirteen take certificates as Overseer, the qualification for which is 25 per cent. in each subject and 40 per cent. of the total; and one fails.

10. Corporal W. L. Emery, Royal Scots Fusiliers, stands at the head of the list with 81 per cent. of the total marks. He obtains a Supervisor's certificate and carries off the following prizes:—For distinguished proficiency, the Royal Engineer Officer's prize; for mathematics, a case of drawing instruments; for surveying, a case of spring bows.

The second place is taken by M. V. Krishnaswami Aiyar with 76 per cent. of the total marks. He secures a Supervisor's certificate.

Lance-Corporal B. Reynolds, 12th Royal Lancers, occupies the third place with 75 per cent, taking a Supervisor's certificate and gaining the following prizes:—For Engineering, a lever watch; for drawing, a parallel rule.

The following students also gain certificates as Supervisor:—

A. Krishna Menon.	Gunner J. Knox, Royal Horse Artillery.
Lance-Corporal P. King, Hampshire Regiment.	G. Padmanabha Aiyar.
E. C. M. Mascarenhas.	A. Narayanaswami Nayudu.
	M. Gnanaprakasa Pillai.

Thirteen others obtain certificates as Overseer, one of them, V. Ramakrishnayya, winning the prize for Vernacular Language.

11. On comparing the results of the examination with the average marks of the last five years, it will be found that there has been—

A rise of 3 per cent. in Mathematics.
" 6 " " Engineering.
" 3 " " Surveying.
" 12 " " Drawing.
An unchanged percentage in Language.
A rise of 6 per cent. in the total.

I attribute this decided improvement mainly to the circumstance of having better material to work on; but I consider that the substantial increases under Engineering and Drawing are due also to the conscientious and painstaking manner in which the 2nd, 3rd and 4th Assistant Masters, Sub-Conductor Cames, and Messrs. Hyde and Hamilton have carried out the duties entrusted to them.

12. The junior division of the Engineer Subordinates' class contains thirty-eight students, who have just undergone a satisfactory sessional examination. Mahomed Sikandar occupies the first place with 81 per cent. of the total marks, and gains the prize for general proficiency—a pedometer.

The next four students in order of merit are—

F. A. Pope	A. P. Doll
A. V. Krishnaswami Pillai	W. Clay

and to these are awarded scholarships of Rs. 15 each per mensem tenable during the ensuing year.

13. A new division of this class will be formed in August. The entrance examination was held by the Board of Examiners on 3rd May, when thirty-eight Matriculates presented themselves. The results have not yet been published.

14. *Draftsmen's Class*.—The senior division of nineteen students has just undergone examination for certificates as Draftsman and Estimator. Four secure certificates of the first class, five of the second class, and nine of the third class, while one fails. A. Thambu Chetti stands at the head of the division with 90 per cent. of the total marks, and gains the prize for drawing, a case of proportional compasses. The remaining winners of first-class certificates are—

E. A. Sivakrishnaswami Aiyar.	A. V. Ramachandra Aiyar.
M. Angamuttu Mudaliyar.	

The second division contains twenty-six students, who have undergone a satisfactory sessional examination. Scholarships of Rs. 8 per mensem are awarded to the following students of this division:—

J. C. A. Ellis.	P. Ramaswami Nayaker.
M. Sankaranarayana Pillai.	R. Srinivasa Aiyar.
J. D. Francis.	

The third division formed in January last under the new rules contains twenty students.

I consider that the results of the examinations in the Draftsmen's class are very creditable to the instructor, Mr. Pope.

15. *Surveyors' Class*.—The senior division consists of twelve students, eleven of whom secure certificates as Surveyor, viz., two of the first class, Saiyid Raza Husain and J. M. Berlie, five of the second class and four of the third class. The remaining member of the class, M. T. V. Ramanujayya, one of its best students, appeared as an independent candidate for the Overseer's Certificate examination, and was successful. The prize for surveying is won by Saiyid Raza Husain, who stands first with 85 per cent. of the total marks. The average percentage of marks for this division is 69.

The second division contains twenty-three students, who have undergone a satisfactory sessional examination. Scholarships of Rs. 8 per mensem are awarded to the following students:—

M. S. Swaminatha Aiyar.	E. Stuart.
C. C. Somasundara Mudaliyar.	V. Lakshmana Rau.
A. Pereira.	

The third division, formed in January last under the new rules, contains ten students.

Two of the students of the junior divisions, H. R. White and G. Haller, volunteered for the final examination as independent candidates, and were successful, both gaining second-class certificates.

The results obtained by the Surveyors' class are above the average, and reflect credit on Mr. Campbell's instruction.

16. *Independent Candidates*.—Candidates, not belonging to the senior divisions of the different college classes, presented themselves, to the number of one hundred and twenty-seven, for examination for certificates, viz., two as Overseer, ninety-seven as Draftsmen, and twenty-eight as Surveyor. The majority of these are employed in the Public Works Department and Local Fund Boards, and appear for the examination with the view of obtaining a higher class of certificate than they already possess. The results of the examination are not yet published.

17. *Sub-Overseers' and Maistries' Class*.—This class, for admission to which several applications have been received, should have been formed in January last. It cannot, however, be established until additional staff and accommodation have been provided.

18. *Proposed Survey Probationers' Class.*—The Superintendent, Madras Survey, is desirous that the probationers for the superior establishment of his department should undergo a course of training in mathematics at this college. It is proposed that a special master be entertained, and that all charges connected with the instruction and examination of the class be defrayed by the fees of the candidates. The class is not likely to consist of more than four students, and the course of study will last from six months to a year.

19. *Military Students.*—Five men are now passing out of the college, three are in the present junior division of the Engineer Subordinates' class, one is at Bangalore prepared to join the college after passing an examination in vernacular language, and four candidates will present themselves for the entrance examination in July.

20. *Photographic Class.*—This class consists of twelve students selected from the Engineer and Engineer Subordinates' classes. Good progress has been made under Mr. Hyde's instruction, and some of the students' work is exhibited on the tables to-day.

21. *Library.*—During the year 216 volumes have been added to the library, which now contains 2,302 volumes. The issues of books to masters and students were 2,603, having increased just ninefold during the last six years.

22. *Apparatus, &c.*—A fresh supply of surveying instruments has been received from England, and a model of a Stoney's sifter has been made locally. I take this opportunity of offering my grateful acknowledgments to Mr. Carter and Mr. West, the Chief and Deputy Chief Engineers of the Madras Railway, for the great trouble they have taken in obtaining for the college thirty specimens of Indian timber used in building construction. Many of the specimens have been obtained from the West Coast, others from Ceylon, from Simla and Lahore. Each specimen is supplied in two sizes—one large for preservation in the College Museum, and one small for use in class instruction. Mr. West has also kindly procured for me twelve specimens of building stones used on the Madras Railway. These form the commencement of what will one day, I hope, prove a fine collection of Indian building stones.

23. *Employment of Passed Students.*—Of the students who passed out in May last, intimation has been received of the employment of ten overseers, seven draftsmen, and three surveyors. Recommendations have also been made of one supervisor, two overseers, six draftsmen, and six surveyors at the request of various officers requiring their services, and I conclude that a considerable proportion of the nominees has been appointed. Of the students of the Engineer class which passed out in December 1885, one, as already mentioned, has been posted to the Public Works Department as an Assistant Engineer, while the remaining seven have been appointed temporary overseers by the department to enable them to gain an insight into the details of practical work and thus to qualify themselves for higher positions.

It is well understood among passed students that the college assists them in obtaining employment; and the fact that but few applications have been received from them by the Principal is an indication that little difficulty is experienced in obtaining employment. The numerous advertisements gathered from the Government Gazette and from the local newspapers and posted on the college notice-board, afford confirmation of this view.

24. It is satisfactory to me to be able to report that the Madras Survey Department proposes to open its ranks to college students. It is in contemplation to entertain annually three or four passed men, Europeans or Eurasians being preferred, as Probationary Deputy Surveyors on Rs. 50 per mensem. If a soldier student is employed, he will join as a Probationary Head Surveyor on Rs. 100, drawing an outfit allowance as in the Public Works Department, and having his promotion to warrant rank governed by the rules affecting departments which own no fixed warrant establishment. Both classes will be eligible to rise to the grade of Sub-Assistant Superintendent on Rs. 250. Under these rules, Corporal

Moore of the batch of 1885, for whom employment could not be found in the Public Works Department, has already been appointed to the Survey, and two military students of the present batch will probably be nominated next month. They are destined to form, I trust, the nucleus of a semi-military class of upper subordinates which will doubtless prove as serviceable in the Survey as the corresponding class has done for a long series of years in the Public Works Department.

25. *General Remarks.*—This college has hitherto been singularly deficient in the cultivation of games and physical exercises, the chief reason being that the hours are exceptionally long and the course of study arduous. Under the new scheme, which provides for longer courses, the hours may be somewhat reduced, and leisure be thus found for gymnastics, cricket, and lawn-tennis. Application has been made to Government for the reservation of the land lying between the College and the Beach road as a cricket and recreation ground, and for a plot on the west side as a gymnasium.

26. I have only to add in conclusion that the conduct of the students has been excellent, that their attendance has been regular, and that the staff generally have heartily co-operated with me in laboring for the welfare of the institution. I trust that masters and students alike will enjoy and profit by their well-earned vacation, which commences to-morrow.

From Major W. H. COAKER, R.E., President, Board of Examiners, College of Engineering, to the Principal, College of Engineering, Madras, dated Ootacamund, 26th May 1886.

I HAVE the honor to forward herewith statement of results of the examination of the first class, second department, held in the beginning of this month.

2. The results appear to me to be very satisfactory, the total marks obtained being 60 per cent. of the maximum as compared with 55 per cent. last year. The percentages obtained in the different subjects compare as follows:—

	1885. per cent.	1886. per cent.
Mathematics	55	60
Civil Engineering	49	53
Surveying and Levelling	62	65
Drawing and Estimating	56	65
Language	47	46
Total	55	60

It will be observed that in both years the marks in Surveying and Levelling, and in Drawing and Estimating, exceed the average percentage; that those in Mathematics correspond with the average; while those in Civil Engineering and Language are considerably below it.

3. Of the twenty-four students examined all gained the required number of marks for a pass, but one student having failed in Language, only twenty-three obtain certificates. Eleven students gained sufficient marks for certificates as Supervisor, but owing to one of these having failed to obtain the qualifying marks (35 per cent.) for this grade in language, only ten obtain the higher certificate. Thirteen students obtain certificates as Overseer. The average percentage of marks obtained corresponds to that required for the grade of Supervisor.

4. It is gratifying to note the good position taken by the five military students. Sergeant W. L. Emery heads the list with a percentage of 81.4, being first in Mathematics and in Surveying and Levelling; Corporal B. Reynolds stands third with 75 per cent. and takes the prizes for Civil Engineering and for Drawing and Estimating; Corporal P. King is fifth; Corporal J. W. Jones sixth; and Gunner J. Knox eighth.

The satisfactory examination passed by these men cannot fail to be regarded as highly creditable to them.

Of the other students, M. V. Kristnaswami Aiyar stands second with 76.5 per cent.; A. V. Kristna Menon is fourth with 74 per cent., and E. C. M. Mascarenhas is seventh.

The prize for Language is taken by V. Ramakrishna.

The average numbers on the rolls in the several classes for the last two years were as under:—

	1884-85.	1885-86.
Engineering classes ...	19	18
Engineer Subordinate classes ...	51	62
Draftsmen's classes ...	55	55
Surveyors' classes ...	40	40
Total ...	125	175

Though there was a fall of one student in the Engineer classes, the increase in the other classes, notably in the Draftmen's and Surveyors' classes, is very satisfactory.

2. The numbers for the same two years arranged according to the classes of the community are—

	1884-85.	1885-86.
Europeans and Eurasians ...	29	29
Brahmans ...	49	68
Hindus other than Brahmans ...	33	60
Native Christians ...	11	14
Muhammadans ...	1	3
Others ...	2	1
Total ...	125	175

It is to be regretted that the number of Europeans and Eurasians shows no advance. The increase in the number of Muhammadans is encouraging.

3. The only change in the establishment during the year was the appointment of Mr. H. Narasinga Rau, B.A., to the post of Telugu Munshi, rendered vacant by the retirement of the former Munshi on the last day of the preceding year. The transfer of Mr. Kenny, First Assistant Master, and the retirement of the Tamil Pandit, belong to the transactions of the current official year, and should therefore find place in the next report. The Acting Director is, however, glad to note the favorable mention made by the Principal of the above two officers.

4. In paragraph 19 of Proceedings No. 4932 of the 18th July 1885 it was pointed out that the year 1884-85 marked "an important era in the history of the institution, the higher ranks of the Public Works Department having been systematically opened for the first time to its students in accordance with the orders of the Supreme Government guaranteeing one such appointment annually to the college."

* Government Order (Educational), No. 443, dated 16th July 1885.
Government Order (Educational), No. 7, dated 7th January 1886.
Government Order (Educational), No. 328, dated 27th May 1886.

But much more worthy of special notice is the year now under review, which has witnessed the reorganization* of the college, a brief account of which is given by the Principal. The designation of the institution has been changed to that of "College of Engineering." The courses of study and rules for admission, as well as the appointments thrown open to the successful candidates under the new scheme, are also briefly summarized by the Principal. Partial effect has been given during the year under report to the new scheme, which will probably be introduced in its entirety during the current year. The Principal strongly advocates that in consideration of the "great stride in the progress of the technical education afforded by the institution," an addition to the staff and the accommodation should be provided immediately. The Acting Director observes that in Government Order (Educational), No. 328, dated 27th May 1886, Government admitted the necessity for the reorganization of the staff of the college and stated that the Secretary of State would be addressed. The question of increased accommodation was disposed of in Government Order (Educational), No. 329, dated 27th May 1886. It is hoped that the additional buildings will soon be put in hand and completed, and that the sanction of the Secretary of State may

be obtained at an early date, so that the new scheme may be carried out to its full extent.

5. During the year under report Government were pleased to sanction the appointment of a Board of Examiners to conduct the final examinations of the two senior departments. The Board examined the Engineer class in December 1885 and the Engineer Subordinate class in May 1886. The final examinations of the Draftsmen's and Surveyors' classes were conducted by the College staff, but they also are to be transferred ultimately to the Board.

6. The results of the examination of the senior division of the Engineer class were satisfactory. Of the eight students who were examined by the Board, all were successful and obtained diplomas as Assistant Engineers. Mr. R. A. Srinivasa Aiyangar, B.A., took the first place with honors and thus secured the guaranteed appointment to the Engineer establishment of the Public Works Department. He is to be congratulated on having won the prize offered by Government. He will doubtless prove himself worthy of the honor conferred on him. The percentages of marks obtained by the successful candidates ranged from 84.3 to 51. An independent candidate, who was formerly a student of the college, appeared for the examination, but was absent during the greater part of it. All the above ten students appeared for the B.C.E. Examination, but only three were successful, one in the second and two in the third class, their order being the same as in the examination by the Board.

7. The strength of the present senior division is stated to be ten, and of the junior eight. It is satisfactory to note that the senior division maintained its numbers and that the progress of the students as tested by the sessional examination is favorable.

8. The senior division of the Engineer Subordinates' class contained twenty-four students. All of them were examined by the Board, and the Acting Director notes with much pleasure that the results are characterized as very satisfactory. With the exception of one, who failed in language, all were successful. Thirteen students obtained certificates as supervisors, while the remaining ten took certificates as overseers. The favorable mention made of the good position taken by the five military students is gratifying.

9. On a comparison of the results of the examination of the year under report with the average marks of the last five years, it is observed that there has been a decided improvement in every subject, notably in Engineering and Drawing. Mathematics, which showed a fall of 2 per cent. in the preceding year, now shows a rise of 3 per cent. These very satisfactory results bear testimony, as Captain Love says, to the good work done by the teaching staff and the better material which the teachers had to work upon.

10. The strength of the junior division of the Engineer Subordinates' class was thirty-eight against twenty-four. The sessional examination is reported to have been satisfactory. The Acting Director is glad to observe that the first place was occupied by a Muhammadan. The formation of a new division of this class belongs to the transactions of the current year and will be dealt with in the next report.

11. The senior division of the Draftsmen's class was nineteen strong against nine in 1884-85. All the students were examined with satisfactory results. Four secured certificates of the first class, five of the second, and nine of the third class. Only one failed. The marks gained by the student who headed the list of successful candidates were 90 per cent. of the total marks. The second division consisted of twenty-six students against twenty-one in the preceding year. The results of the sessional examination were satisfactory. The strength of the third division formed in January last under the new rules was twenty. The Acting Director notes with pleasure the Principal's remarks that the results of the examination in the Draftmen's class were very creditable to Mr. Pope, the instructor.

12. The senior division of the Surveyors' class consisted of twelve students against seven. Eleven of these secured certificates as surveyors, two of the first class, five of the second, and four of the third class. It is satisfactory to observe that one of the two students who obtained first-class certificates was a Muhammadan. The remaining student is reported to have appeared for the Overseer's Certificate Examination as an independent candidate and to have succeeded in passing. The strength of the second division was twenty-three against fifteen. The results of the sessional examination were satisfactory. The third division formed in January last under the new rules contained ten students.

Two students of the junior division are reported to have volunteered for the final examination as independent candidates and to have succeeded in passing, both gaining second-class certificates.

The results, as a whole, of the Surveyors' class are stated to be above the average and are creditable to the instructor, Mr. Campbell.

13. The number of independent candidates who appeared for examination for certificates was 127 against 69 in the preceding year. This increase is evidence of the value set upon the certificates given by the college. Of the above candidates, two sought the Overseers' certificate, ninety-seven that of Draftsmen, and twenty-eight that of Surveyor.

14. The Acting Director regrets to observe that though several applications had been received for admission into the Sub-Overseers' and Maistries' class, the Principal was unable to arrange for the formation of the class owing to the want of teachers and accommodation.

15. The proposals regarding the training of Probationary Assistant Superintendents of Revenue Survey were sanctioned in Government Order, Revenue, No. 115, dated 12th February 1886.

16. Five military students were passing out. Three were in the college, one was to join from Bangalore after passing the vernacular examination, and four were to present themselves for the entrance examination.

17. It is satisfactory to observe that good progress has been made by the students of the photographic class.

18. The condition of the library is satisfactory; 216 volumes were added during the year and 2,603 were taken out.

19. The Acting Director is glad that the Principal is taking steps for collecting materials for the College Museum, and he is indebted to Messrs. Carter and West of the Madras Railway for their kindness in obtaining specimens of Indian timbers and of buildings stones.

20. It is encouraging to observe that the passed students of the college seem to experience little difficulty in procuring employment.

21. A new field of employment has also been opened in the Madras Survey Department by the appointment, as an experimental measure, of the best qualified of the passed students of the Survey class as Probationary Deputy Surveyors.

One of the military students who passed in 1885 has been appointed to the Survey and two will probably be nominated in the current year. Measures have been taken for providing the college with a gymnasium and a cricket and recreation ground. The proposal made by the Principal for the reservation of a cricket and recreation ground and of an additional tennis ground for the students have been referred by Government to the Public Works Department (Government Order, Educational, No. 329, dated 27th May 1886).

22. The Acting Director is glad to note the excellent conduct of the students as brought to notice by Captain Love, and the hearty co-operation he has received from the teaching staff generally.

23. As requested in para. 5 of the Principal's letter, No. 163-C, of the 31st May 1886, the whole of the marks obtained by the students in the several examinations will be printed as an appendix to this review.

(True Copies and Extract.)

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

To the Principal, College of Engineering.
Copy to the Principals of Government First-grade Colleges.
" Principal, Teachers' College.

ORDER—dated 29th September 1886, No. 619, Educational.

Ordered that the report be forwarded to the India Office.

(True Extract.)

E. F. WEBSTER,
Chief Secretary.

To the Director of Public Instruction.
" Public Works Department.

Ed. T. O'Connor.

Gobt. of {1886} Madras.

EDUCATIONAL.

No. 2734 W.d/16th Oct. 1886.

Recorded.

(sd) J. O. M.

Issued

Recd.

Encl.

G.O., 29th Sept. 1886, No. 619.

No. 2734 W.d/16th Oct. 1886.

SEPTEMBER.

College of Engineering.

Forwarding to the Secretary of State report on the working of the — for the year 1885-86.

With order

22ND SEPTEMBER 1887, No. 521, EDUCATIONAL.

GOVERNMENT OF MADRAS.

EDUCATIONAL DEPARTMENT.

READ—the following paper:—

From H. B. GRIGG, Esq., M.A., Director of Public Instruction, to the Chief Secretary to Government, dated Madras, 5th September 1887, No. 6146.

I have the honor to submit three copies of the report on the working of the College of Engineering, Madras, for 1886-87, with my review thereon.

ENCLOSURE.

No. 5998.

PROCEEDINGS OF THE DIRECTOR OF PUBLIC INSTRUCTION, dated 31st August 1887.
College of Engineering, Madras.

Read the following letter from the Acting Principal, College of Engineering, to the Director of Public Instruction, dated Madras, 31st May 1887, No. 131-C.

I HAVE the honor to submit the following report on the working of the College of Engineering during the past year and on the results of examinations for certificates which have been held during that period.

2. Numbers.—The average numbers on the rolls have been—

Engineer classes	...	...	...	...	...	...	...	16
Engineer Subordinates' classes	...	...	...	...	...	...	...	63
Draftsmen's classes	...	...	...	...	...	...	...	50
Surveyors' classes	...	...	...	...	...	...	...	37
Total	...	...	...	...	...	...	...	166

The average of the previous year was 175; there was a slight falling off in each division except in the Engineer Subordinates' classes; this may be attributed to the enhanced fees, to the increased lengths of the courses, and perhaps to the difficulty in obtaining employment on leaving the college.

The numbers arranged by classes of the community were on 31st March 1887 as follows:—

Europeans and Eurasians	...	24	Native Christians	...	...	12
Brahmans	...	79	Mussulmans	...	...	2
Hindus other than Brahmans	...	63	Others	...	...	1

3. Changes in Establishment.—Towards the close of the year, the Principal, Captain H. D. Love, R.E., proceeded on furlough; he handed over charge of the College to me on 24th March 1887. Mr. T. R. Scott, B.A., was appointed sub. pro tem. First Assistant Master, vice Mr. M. Kenny, B.A., transferred; he joined the College on 8th June 1886. Private W. H. Goddard, the most distinguished student of the second department in 1885, was appointed Sixth Assistant Master in July 1886, vice Mr. J. C. Campbell who reverted to the Public Works Department. Mr. C. R. Krishna Aiyar, B.A., joined as Tamil Munshi in August 1886 in place of Mr. Rajagopala Mudaliyar pensioned. On the transfer of the Military Probationers' class from Bangalore to the College in August 1886, Mr. A. Krishnamachari, the Munshi in charge of the class, joined the College. Mr. T. N. Rajagopala Aiyar, B.A., was appointed in September 1886 Special Mathematical Assistant Master for the

Officers' class. Mr. Pearson was appointed Librarian and Storekeeper in July 1886; these duties had previously been undertaken by one of the Assistant Masters, and as they are heavy and responsible, the change has been a great improvement.

4. *Re-organization of the College.*—The re-organization of the College was continued; some of the classes having been admitted under the old rules had to work under those rules, but at the close of the year these classes were finally examined, and next term all the students in the College will be under the new rules.

The new scheme provides for the following classes:—

- | | |
|----------------------------|--|
| (1) Civil Engineers. | (4) Draftsmen. |
| (2) Mechanical Engineers. | (5) Surveyors. |
| (3) Engineer Subordinates. | (6) Sub-Overseers, Maistries and Artisans. |

So far the classes for (2) Mechanical Engineers and (6) Sub-Overseers, &c., have not been formed for want of teachers and space; the extra accommodation required is being rapidly provided by the Public Works Department, the extension of the College promising to be both useful and ornamental; the increase to the staff will, it is hoped, be obtained as soon as the new buildings are ready for occupation.

5. *Examining Agency.*—The examination of the two senior divisions was conducted by the Board in December 1886 and again at the close of this term. The examinations of Draftsmen and Surveyors have been conducted by officers independent of the College, and not as usual by the College staff. I have to express my thanks to J. W. Brassington, Esq., Acting Consulting Architect, who has allotted the marks for the Draftsmen, and H. Gompertz, Esq., of the Revenue Survey Department, who has done the same for the Surveyors. In future these examinations will probably be all conducted by the Board of Examiners.

6. *Officers' Mathematical Class.*—A class for probationers in the Revenue Survey Department was formed in September 1886; and of the six probationers who joined it, Mr. Greene passed a qualifying examination in December; Messrs. Mullins and Hatchell passed in February 1887; and at the examination held this month Messrs. McHutchin and Dene were successful.

7. *Engineer Classes.*—In December 1886, the senior class of ten students was examined by the Board for certificates as Assistant Engineer; one independent candidate went up for examination at the same time. Seven of the students passed, three of them with credit and were given certificates as Assistant Engineers; three students and the independent candidate failed to pass the higher test, but they qualified for Overseers' certificates. The first student, R. Gopala Aiyar, B.A., obtained the appointment as Assistant Engineer in the Public Works Department which is annually given to the senior student from this college. In January 1887 nine students of the Engineer class appeared for the B.C.E. examination of the Madras University and six were successful, three passing in the second class and three in the third class.

The Engineer classes now in the college are the senior division, consisting of eight students, who joined in January 1886, and who will pass out in December 1888, and the junior division of nine students, who joined in January 1887, and who will pass out in December 1889.

8. *Engineer Subordinates' Class.*—The senior division of this class, consisting of thirty-five students, has just been examined by the Board for certificates as Supervisor and Overseer. One student was found during the examination to be attempting to cheat and he was expelled. The remarks of the Board, which form an appendix to this report, show that the results are not satisfactory; there has been a distinct falling off in all subjects. Four students—

- | | |
|--------------------|----------------------------|
| Muhammad Sikandar. | A. V. Krishnaswami Pillai. |
| Sergeant Cornwell. | S. Venkataratnam. |

have secured certificates as Supervisors and twenty-two have qualified as Overseers; there are eight failures.

9. Muhammad Sikandar, the senior student, carries off the prize for distinguished proficiency given by the Royal Engineer Officers; also the prize for mathematics, a planimeter, and the prize for surveying, a prismatic compass. F. A. Pope

gains the prize for drawing, a pillar compass in case. W. P. Clay, the prize for Engineering, a silver watch. Sergeant Cornwell, the prize for languages, a color box.

Eight independent candidates presented themselves for this examination, of these two have qualified for Overseers' certificates and six have failed.

10. *Draftsmen's Class.*—The senior division of twenty-three students has recently undergone a final examination for certificates as Draftsmen and Estimators; one student gains a second-class certificate, fourteen secure third-class certificates and there are seven failures; one student appeared for the Overseers' examination. These results are hardly satisfactory. I ascribe the apparent falling off to the fact that the examination was not conducted by the College staff.

From my experience of Draftsmen in the Public Works Department, I think that the standard needs raising and that certificates should not be gained too easily. M. Sankaranarayana Pillai stands at the head of his class; he gains a second-class certificate and the prize for drawing, a beam compass.

The Draftsmen's classes remaining in the college are two, each consisting of eighteen students. For remarks of the Examiner please see extracts from Mr. Brassington's report attached.

11. *Surveyors' Class.*—The senior division, which has recently been finally examined, contains twenty-one students, of whom one, C. C. Somasundara Mudaliyar, secures a first-class certificate and carries off the prize, an aneroid barometer.

A. Pereira and E. Stuart gain second-class certificates, twelve students get third-class certificates, and three have failed to qualify. Three appeared for Overseers' examination, of whom two have passed. The standard for a second-class certificate is not high, and the results of the examination are rather disappointing; the students work in parties over ground which has been surveyed hundreds of times before, so there is no necessity for a student to solve difficulties unaided; my attention will be especially devoted to these points in future. For remarks of the Examiner, please see extracts from Mr. Gompertz's report attached.

12. *Independent Candidates.*—For the Draftsmen's examination, 184 candidates presented themselves in Madras and at various out-stations; the results are not yet known. For the Surveyors' examination thirty-two names were registered; the marks have not yet been awarded. These examinations have occupied much of my time, though the marks are allotted by independent examiners and not by the College staff as hitherto.

13. *Military Students.*—Three military students joined as probationers in August 1886; they have recently been examined in Mathematics and the Vernacular, and they will join the Engineer Subordinates' class next term. Two men have been up for the final examination in the Engineer Subordinates' class, one of them, Sergeant Cornwell, has passed second and has gained a Supervisor's certificate; the other, Gunner Freemantle, has failed; he must be remanded to his regiment.

14. *Photographic Class.*—Six students of the Engineer class were instructed in Photography on alternate Wednesdays from August to December, and six students of the Engineer Subordinates' class were taught from January to May. They have been taught manipulation by the wet process and printing from negatives taken in previous years. The amount expended on materials during the year was Rs. 135 and the instructor receives an allowance of Rs. 20 a month. The dark room is inconvenient and unsuitable, and there is no proper studio. I think that the results are hardly worth the cost incurred, but I must see more of the working before I can give a definite opinion.

15. *Library.*—During the year 110 volumes were added to the library, which now contains 2,412 books; the number of issues of books to masters and students in the year was 2,700.

16. *Apparatus, Models, &c.*—A set of Willis' apparatus for lectures and experiments in Natural Philosophy and a number of Kinematic models were obtained from England, but for want of space not much use has as yet been made of them. Some of the models which have been long in the College are of obsolete designs and I hope to replace them with better ones.

17. *General Remarks*.—Captain Love, R.E., the Principal, has during the years he has been in charge of the College introduced many improvements, and the present state of efficiency must be ascribed in a great measure to that talented and able officer. I have been so short a time in charge that it would be out of place for me to offer many remarks on the working of the college; I may, however, state that the students are well-behaved and obedient and that I have received very material help from Mr. T. R. Scott, B.A., the First Assistant Master. Next term I hope to have the College gymnasium in working order; the only recreation now available to the students is Lawn Tennis, and there is but one court.

The recent extensive reductions in the temporary establishment of the Public Works Department have thrown a number of ex-students out of employment. I trust they will gradually be absorbed by the Local Fund Boards and in other ways.

Rajah Sir T. Madhava Rau, K.C.S.I., has generously given a sum of Rs. 200, the interest of which will be devoted annually to the purchase of a prize.

An ex-student, G. Haller, has presented Rs. 8-3-0 to the College Prize Fund, and another ex-student, V. K. Narayana Unythan, has signified his intention of presenting as a prize every year a copy of Molesworth's pocket book.

From Captain W. L. C. BADDELEY, R.E., Acting Member, Board of Examiners, College of Engineering, to the Acting Principal, College of Engineering, dated Madras, 31st May 1887.

In the absence of Major Coaker, R.E., the President of the Board, I have the honor to forward, herewith, statement of the results of the examination of the first class, second department, held in the beginning of this month.

The results appear to the Board to be unsatisfactory, the total marks obtained being only 49 per cent. of the maximum as compared with 60 per cent. in 1886 and 55 per cent. in 1885. The percentages obtained in the different subjects compare as follows:—

	1886	1887
Mathematics	60	46
Civil Engineering	53	47
Surveying and Levelling	65	49
Drawing and Estimating	65	56
Language	46	46

The class consisted of thirty-five students, of whom one was disqualified for unfair practices during the examination; and of the remainder, four have obtained certificates as Supervisor, twenty-two as Overseers and eight failed in one or more subjects. In 1886, out of twenty-four college students examined, twenty-three obtained certificates—ten as Supervisor and thirteen as Overseer.

Out of eight independent candidates who were examined at the same time as the college students, two only have obtained certificates as Overseer.

Draftsmen's Class.—Mr. Brassington, the Examiner, remarks as follows:—

"*Drawing from Specification*.—The students generally have adhered to instructions when understood; cast-iron columns being unusual in such a building, their ideas varied from 1½ feet to 6 inches for the diameter, and all were evidently unused to iron-work; a tendency to improve on instructions was shown in some cases.

"*Estimating*.—The units were not always those adopted in the Public Works Code; this should be adhered to in future.

"*Copying and Coloring*.—The subject did not favor a good draftsman, being too simple; the coloring was fair, but evidently ink erasers, sponges and bread were allowed in the examination room."

(True Extract.)

CHEPAK,
31st May 1887.

(Signed) C. B. HENDERSON, Capt., R.E.,
Acting Principal, College of Engineering.

Surveyors' Class.—Mr. Gompertz remarks on the Surveyors as follows:—

"It is rather difficult from paper work to make out how much the candidates really know; they have a great power of mere assimilation and reproduction in the very words of the text book and a few *vivâ voce* questions or five minutes with the different instruments in their

hands would be invaluable. * * * In two cases the text book is wrong, yet in nearly every case its very words including the errors are given. I was struck by the independent thought shown by C. C. Somasundara Mudaliyar in answering one question; this independence is decidedly rare among natives * * *. On the whole I think that the students have not done badly."

(True Extract.)

CHEPAK,
31st May 1887.

(Signed) C. B. HENDERSON, Capt., R.E.,
Acting Principal, College of Engineering.

THE College and School departments contained 181 students on the 31st March 1887 against 185 students at the close of 1885-86. The average numbers on the rolls of the several classes for the last two years are compared below:—

	1885-86.	1886-87.
Engineer classes	18	16
Engineer Subordinates' classes	62	63
Draftsmen's classes	55	50
Surveyors' do.	40	37
Total	175	166

For want of accommodation and teaching agency, no classes have yet been formed for Mechanical Engineers, for Sub-Overseers, or for Maistries and Artisans under the new organization scheme. The Engineer Subordinates' class excepted, there was a slight fall in the average strength of the other three classes now existing, and the Acting Principal suggests three causes for the decline. The difficulty in obtaining employment may have told on the attendance, but the Director is inclined to doubt whether either the increased length of the courses or the enhanced rate of fees has at all outweighed the enhanced benefits as regards entrance to the Government service in the superior and inferior grades which the new code of rules has unquestionably conferred on the successful students of this institution. The slight decrease represents probably merely ordinary fluctuations. The number of applications for admission to the several departments in the year under review has not been contrasted with the figures of the preceding year. These figures would be a better gauge of the popularity of the institution than the strength of the classes.

2. Contrasting the classes of the community represented, there were—

	1886.	1887.
Europeans and Eurasians	32	24
Native Christians	15	12
Muhammadans	3	2
Brahmans	72	79
Non-Brahman Hindus	62	63
Others	1	1
Total	185	181

Under "Europeans and Eurasians" the numbers show serious decrease. Native Christians also show a fall of 20 per cent. No cause has been assigned, but it is presumably due to poor success in the entrance examination.

3. The social condition of the pupils has not been adverted to by the Acting Principal. In the annual returns pupils are classified thus—

	Of the Richer Classes.	Of the Middle Classes.	Of the Poorer Classes.
College	1	16	...
School	3	122	39
Total	4	138	39

All the students of the College department belonged to the richer and the middle classes, and even in the School department only 22 per cent. of the pupils belonged to the poorer classes.

4. Captain Love proceeded on furlough about the close of the year; Mr. Kenny, the First Assistant, was succeeded by Mr. Scott in June 1886. On Mr. Campbell reverting to the Department of Public Works, Private W. H. Goddard was appointed Sixth Assistant. A special class was tentatively formed for the instruction of probationary Surveyors, and S. Rajagopala Aiyar, B.A., was appointed temporarily Mathematical Assistant.

5. The re-organization of the College sanctioned early in 1886 was continued. At the close of the year the classes admitted under the old rules were finally examined. All the pupils now on the rolls have been admitted under the new rules.

In order to give full effect however to the new scheme, the additional staff provided for in the scheme, which has been approved by the Madras Government, is necessary. The money has been provided by the Government of India, but final orders are still awaited.

The additions to the College buildings are also in rapid progress, and it is hoped that the College will have the long-felt want of adequate accommodation supplied before the close of this official year.

6. The Engineers' and the Engineer Subordinates' classes were examined by the Board of Examiners appointed under the new scheme, while Mr. J. W. Brassington, Acting Consulting Architect, and Mr. Gompertz, of the Revenue Survey Department, respectively, valued the papers of the Draftsmen's and Surveyors' classes. These classes were examined for the first time by external Examiners, to whom the thanks of the Director are due. The Principal is requested to credit to Government any balance of the sum of fees remaining in his hands after remunerating the Examiners at the rates approved by the Director.

7. Ten students of the Engineer classes and an independent candidate were examined by the Board in December 1886 for certificates as Assistant Engineers, but only seven students passed, three with credit, while the remaining three pupils and the independent candidate were passed for Overseers' certificates. These results do not compare favorably with those of the preceding year. R. Gopala Aiyar, B.A., who headed the list, obtained appointment as Assistant Engineer. Nine students appeared for the B.C.E. Degree examination, of whom six passed, three being placed in the second class. All these are students who have passed for the Assistant Engineers' certificates. The College department had seventeen pupils on the rolls at the close of the year, eight in the senior and nine in the junior division.

8. The senior division of the Engineer Subordinates' class, containing thirty-five pupils, did not pass a satisfactory examination before the Board. Only four students secured certificates as Supervisors against thirteen out of twenty-four examinees in the previous year; and twenty-two students passed for Overseers' certificates. One pupil was expelled for malpractices. The number of failures was as high as eight. The independent candidates fared worse, only two having passed out of eight entrances. The Acting Principal has not explained the cause of this heavy failure. Captain Baddeley's report shows that the percentage of marks obtained fell in every subject, language excepted, the decline being most marked in the important branches—Mathematics and Surveying and Levelling. As the Director believes that the pupils in the matter of general attainments were not below the average, the poor outturn must be attributed to insufficient instruction or to a rise in the standard of the examination. One satisfactory feature in the examination is that a Muhammadan pupil, Muhammad Sikandar, headed the list of passed candidates with 1,810 out of 2,600 marks. One of the two military students presented for the examination secured a Supervisor's certificate, while the other failed.

9. Twenty-two students of the senior division of the Draftsmen's class appeared for the final examination and fifteen passed, one for the second and fourteen for the third-class certificates. One student appeared for the Overseers' examination, but

he seems to have failed. The Acting Principal attributes the poor results to the examination being conducted by other Examiners than the College staff and this change was probably the chief reason, but the fact noted by Mr. Brassington that the pupils had been unused to iron-work, had probably something to do with the partial failure. The method of instruction in this class seems capable of considerable improvement.

10. From the senior division of the Surveyors' class, eighteen pupils were examined for certificates and fifteen secured them—one a first-class certificate and two second class and twelve third-class certificates. Mr. Gompertz remarks that on the whole "the students have not done badly." But the Director considers with the Principal that the results are disappointing. He notes particularly Captain Henderson's remark that "the students work in parties over ground which has been surveyed hundreds of times before, so there is no necessity for a student to solve difficulties unaided." The Principal promises to give special attention to these points. Three pupils of the division appeared for the Overseers' test and two passed.

11. Six officers joined the special class opened for probationers in the Revenue Survey Department, of whom five passed out of the college. The Mathematical Instructor temporarily employed for this class is paid out of fees collected from the probationers.

12. For the Draftsmen's and Surveyors' certificates, 184 and 32 independent candidates were respectively examined in Madras and at out-stations. The results were not known on the date of this report.

13. The Director is not favorably impressed with the working of the Photographic class. In the preceding year "good progress" was reported to have been made under Mr. Hyde's instruction. The cause for the deterioration is not evident. The Director trusts that instead of abolishing this class, it may be possible to extend its influence by admitting outsiders to instruction on payment of suitable fees in the same manner as in the evening special classes now being organized in connection with the other colleges. The Principal is requested to submit his views on the subject.

14. Three Military students joined the College as probationers in August 1886 and were examined in Mathematics and the Vernacular. They are about to join the Engineer Subordinates' class.

15. The library received an addition of 110 volumes during the year and was well used by masters and students.

16. On the completion of the improvements to the College buildings, ample accommodation will be found for a museum to be attached to the college in which the apparatus and new models can be conveniently arranged.

17. The thanks of the Director are due to Rajah Sir T. Madhava Rau, K.C.S.I., for founding a prize in connection with this institution. He also notices with pleasure the interest which the old students take in the college by offering prizes.

18. The conduct of the students continued to be satisfactory.

(True Copies and Extract.)

(Signed) H. B. GRIGG,
Director of Public Instruction.

To the Principal, College of Engineering, Madras.
" Principals of the other Government Colleges.
" Superintendent, School of Arts.

ORDER—dated 22nd September 1887, No. 521, Educational.

Ordered that the report be forwarded to the India Office.

2. The Government regret that the results of the examinations were not more satisfactory. The necessity for having these examinations conducted by examiners unconnected with the College staff is evident, and the Government consider that a *vind*

voce test should be attached to every subject, except Mathematics. The Director will submit the further report called for from the Principal regarding the Photographic class to Government.

(True Extract.)

W. L. L. L.

Ag. Chief Secretary.

To the Director of Public Instruction.
,, Public Works Department.

Exd. A. Raitt.

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