

Public Works (189⁹⁶³⁹₆) Department.

G.O., No. 3236 *W*

DATED 12th November 1896.

[Despatch Abstract.]

Practical Training in England: Reminder from the Govt. of India requesting that the reply to their reference ~~on~~ ⁱⁿ ~~the~~ regarding certain proposals relative to the — of Coopers Hill Engineers may be expedited, recorded with reference to ~~the~~ ^{the} No 3036 W of 26. 10. 96.

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

Note
The letter to India was
despatched on the 7th Instant

requesting opinions respecting
certain proposals relative to the
practical training in England
of Coopers Hill Engineers and to
assistance in acquiring professional
knowledge being afforded to Public
Works Department officers while
on furlough,

G. C. Press Simla.—No. 1910 P. W. D.—21-3, 6.—300.

GENERAL.
ESTABLISHMENT.

Government { 1896 } of Madras.
PUBLIC WORKS.

Recd.

Enclosures

1896.

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G.O., No. 3035 W., 26th October 1896.

OCTOBER.

Practical Course

Stating that His Excellency the Governor in Council sees no reason to differ from the conclusions arrived at by the Chief Engineer in regard to the proposal to abolish the year's — in England of successful Coopers Hill students, and directing that the Government of India be informed accordingly.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

General.
Establishment.

READ—the following paper :—

From Colonel M. W. BISSET, R.E., Secretary to the Government of India, Public Works Department (General), to the Secretary to the Government of Madras, Public Works Department, dated Simla, the 5th August 1896, No. 1963 G.

I am directed to inform you that the Government of India have before them a suggestion that the practice of detaining passed students of the Coopers Hill College for a year's practical course in England, after they have completed their college course, should now be abandoned.

2. It is stated that the knowledge of engineering methods gained by these students during their practical course is not only incommensurate with the time spent thereon and with the attendant expense to the State, but also that such experience can as readily be acquired by the young engineer on works in India without any preliminary practical course in England.

3. It is not suggested that a practical course in India should take the place of a practical course in England, but simply that the latter should be abolished and that Coopers Hill Engineers should proceed to India and begin, on works there, to learn the practical side of their profession so soon as they have completed their College course at Coopers Hill.

4. A suggestion has also been made that selected passed students might be permitted to undergo a course of workshop practice in England, but that only those who may have exhibited a special aptitude for mechanical pursuits should be so selected and trained.

5. It is admitted that, after a certain experience of Indian Engineering has been acquired, it is desirable that officers of the Public Works Department should acquaint themselves with English practice, as they will then, with their Indian experience, be in a position to adapt such practice to Indian requirements.

The Government of India therefore hold that every facility and encouragement should be given to officers on furlough to study those works on which they would gain experience likely to be of use to them in the particular branch of engineering they may have adopted in India or for which they may have exhibited a natural aptitude.

6. Before coming to any decision regarding the proposal to abolish the practical course the Government of India desire to consult Local Governments and Administrations as to the results of their experience, and I am accordingly to request that with the permission of His Excellency the Governor in Council they may be favoured with the opinion of the Local Government and of any selected officers whom the Local Government may consult on the proposal.

From A. A. G. MALET, Esq., Executive Engineer, Coimbatore Division, to the Chief Engineer and Joint Secretary to Government, Public Works Department (through the Superintending Engineer, IV Circle), dated Pykara, 16th September 1896, No. 3060.

In reply to your No. 1183 D., dated 28th August 1896, I have the honour to report as follows.

2. I am of opinion that the knowledge of engineering methods gained by passed students of Coopers Hill College during their practical course in England is not commensurate with the time spent thereon and with the attendant expense to the State, but I do not think, as stated in paragraph 2 of the Simla Memorandum, that the experience gained in England can be acquired as readily by the young engineer on works in India.

3. I am also of opinion that it would not be advisable to substitute a practical course in India if the practical course in England is abolished.

4. I entirely concur with the remarks in paragraph 5 of the Simla Memorandum, and consider that special facilities and inducements should be offered to officers on furlough to study works in England, on the continent or elsewhere.

5. It is difficult to lay down a hard and fast opinion to cover the widely varying exigencies of the different branches of the service in this country, but I feel sure that in all branches, even including Sanitary Engineering, an officer could gain a great deal more knowledge in a given time if he studied works at home after some years' practical work in this country, than as a student.

6. A young engineer is not called on to design or be responsible for the carrying out of works when he first joins, and the time when this responsibility falls on him is approximately coincident with his first furlough, if he can afford to take it.

7. An officer should know how to handle ordinary tools when he comes out, and this knowledge can be gained at Coopers Hill College.

8. The proportional cost of land, labour, materials and supervision is so different at home to what it is out here, that entirely different methods have to be adopted for ordinary work in the two countries. The student is unable to discriminate between what will be and what will not be useful to him out here and it follows that the greater part of his time, during his practical course at home, is wasted.

It also follows that the methods employed in England cannot (except on special works) be acquired out here, but as these methods are not, as a rule, suitable for this country, this is immaterial.

9. My remarks do not of course apply to very special branches such as electrical engineering, mining, &c., these must be studied at home.

10. Whether the practical course at home is abolished or not, I am sure it would be in the interest of Government, if special encouragement was offered to induce officers to study works whilst on furlough.

The present practice of paying actual expenses, if notes are sent in, is not sufficient. Notes must of course be insisted on, but, in addition to actual expenses, a small honorarium should be offered if the notes are passed and a larger honorarium, up to a certain limit, if the notes are considered decidedly useful and show that considerable time and pains have been devoted to collecting the knowledge embodied in them.

The notes could be examined and the honorarium recommended by any senior officer on furlough, who applied for and was considered fit for the work, in the same way as a senior officer is now appointed to supervise the students of Coopers Hill College during their practical course.

11. I venture to make the remarks contained in the last paragraph from my personal experience. When on furlough in 1890, I received permission and assistance from the India Office to visit several works.

I took rough notes, but the prospect of bare actual expenses was not sufficient to make me spare the time and take the trouble of putting them into suitable form for submission to the India Office.

No. 465 W.

Forwarded.

23rd September 1896.

(Signed) J. HANNAN,
Suptg. Engineer, IV Circle.

From H. H. O'CONNELL, Esq., Executive Engineer, Salem Division, to the
Superintending Engineer, IV Circle, dated 10th September 1896, No.
331-S.E.

With reference to Chief Engineer's Memo. No. 1183-D., dated 28th August 1896, I am of opinion that the so-called practical course now gone through by Coopers Hill students is as, a rule, of very little use in fitting them for the work they have to do out here. It may be of use to those employed in the Railway Department, but of little or no use to those employed in the Irrigation Department. The sooner men destined for the Irrigation Department come out, the sooner will they become useful members of the Irrigation Department of the Public Works Department. I therefore am of opinion that, as far as concerns the Irrigation Department, the practical course at home should be abandoned.

No. 453 W.

Forwarded to the Chief Engineer, Public Works Department, with reference to his No. 1183-D., dated 28th August 1896.

15th September 1896.

(Signed) J. HANNAN,
Suptg. Engineer, IV Circle.

From W. C. DeMORGAN, Esq., Executive Engineer, Ganjam Division, to the
Superintending Engineer, I Circle, dated 8th September 1896, No. 2948.

With reference to your No. 413 G.L., dated 3rd September 1896, on Chief Engineer's No. 1183, dated 28th August 1896, I have the honour to inform you that, as far as my personal experience is concerned, the so-called, "practical course" before leaving Coopers Hill served no useful purpose.

2. As far as I can recollect the future career in India of the passed student received no consideration, and a man who was ultimately posted to the Bengal irrigation system was very probably sent to Crewe workshops, while another who in India subsequently connected himself with railway enterprise might have received his practical training on a system of municipal water-works. I recollect that my practical course was on a newly opened line of railway. I have never had anything to do with railways subsequently in or out of India.

3. I do not deny that the mental and professional capabilities of a student may be materially improved by a course of practical training in any branch of engineering science, and doubtless if during his course he really takes every advantage of his opportunities, he will feel the benefit in after life. Of course, the curriculum at Coopers Hill has greatly changed since I was there; but in my time, as far as I can recollect, it was only very exceptional students, who were in a frame of mind to reap much benefit from any practical course, so long as they secured their appointments.

4. In my opinion it would be far better to despatch your neophyte directly he has passed out of Coopers Hill straight to India, and put him on a practical course extending to a year or even more in the particular branch of the department in which he is to serve. If he is to belong to the Irrigation branch, he should see as many of the best types of work construction and work maintenance in the North and South of India. If he is to be attached to railways he should have the opportunity of obtaining some insight into survey, construction and management of open lines of railway.

5. But after his branch has been decided on, his practical course should be rigidly limited to that branch. Ordinary engineering and mechanical details are the same for all branches, and a man will measure up earthwork as well for a canal as a railway embankment.

6. After a student has had five or six years work in India he will have shown what stuff there is in him; and it is then, as I take it time enough to give him a chance of gaining extended practical experience. He will now have gained, if he has used his opportunities, some idea of how engineering projects are worked, and will probably fondly imagine that India possesses all the engineering knowledge in the world—particularly as regards "Irrigation." Now is the time to enlarge his mind and introduce new ideas. His furlough approaches; so let every facility be afforded for inspecting the irrigation systems of Western countries, the river systems of Italy, the reservoirs of France, and the huge water-supply arrangements in Great Britain. If he belongs to the railway, in any of the three branches (survey, construction or open line), I would suggest to give him every facility for making himself acquainted with American Engineers, their advanced ideas and rapid methods of construction; and I most cordially agree with paragraph 5 of the G.O., No. 1963 G., dated 5th August 1896, in which it is suggested that every facility should be given to officers on furlough to study works on which they may gain experience in their particular branch of engineering in England and in foreign countries.

7. And I further think that very particular concessions should be made, and ample facilities offered to enable such officers to make the best use of their opportunity, but at the same time, I would point out that such concessions and opportunities should not be granted to every Coopers Hill student who has completed a particular time of service, but only to such as have proved themselves good servants to Government. It is unfortunate to be obliged to remark that the suggestions I have offered might lead to grave abuse of Government interests; but like many other similar cases, rules can do no good, and the principle of competent selection is all important. It is hardly necessary for me to suggest a recent instance in connection with coast lighting, which, as far as I can judge, will bear most valuable fruit.

8. As regards paragraph 4 I have no experience in workshop practice; generally ordinary purposes are served by a very low standard of skill—in fact the ordinary smith maistry, combined with some place where screws may be turned, will do all that is wanted. Moreover, there are so many well appointed firms in Madras, Bombay and Calcutta that special mechanical aptitude for purely Government workshops appears to me unnecessary.

No. 444 G.L.

Forwarded in original to the Chief Engineer, Public Works Department, with reference to his No. 1183-D., dated 28th August 1896.

12th September 1896.

(Signed) J. C. LARMINIE,
Superintending Engineer, I Circle.

From A. T. MACKENZIE, Esq., Executive Engineer, Chingleput Division, to the
Chief Engineer, Public Works Department (through the Superintending
Engineer, V Circle), dated Chingleput, 7th September 1896, No. 1784.

In reply to your Memo. No. 1183-D. of 28th August 1896, I have the honour to enclose a short note embodying some of the views which have been impressed on me in India concerning the practical course prescribed for students after leaving Coopers Hill.

ENCLOSURE.

Note on course of Instruction at Coopers Hill.

As a general statement it may be said that students at Cooper's Hill are divided into two classes, those with a pronounced mechanical bent and those with more aptitude for Civil Engineering. The scope for the former in India is extremely limited and it is obvious that in the interests of India a few only should receive extraordinary education in that direction. For this purpose India cannot be said to be the best or even a good school. Knowledge is gained by trial and error, a costly process, and the ultimate acquirement is often of a desultory nature, incomplete and unscientific, unaided by the traditions of English practice and by the competition which forms them. Such students should undoubtedly receive a practical training in England, and for this purpose one year is not long enough. It should be two years and it should be extensively varied. Such men again are wasted on the ordinary work of an Engineer in India. They should be kept if possible entirely for the duties to which they are best suited. Even if these duties were sometimes below their capacity the Government would be well repaid in economy and good management.

For the other class a practical course in England is in my opinion unnecessary. Work in India, taken as a whole, is very different from that in England in the manner of execution. Where an Engineer in England would use machinery one in India would use coolies, where one would use Portland cement the other would have to be content to mix surki with his lime, where one can trust his clerk of works the other can trust no one, where one relies on a contractor the other must be his own contractor often and always his contractor's Engineer, and so on. Instances might be indefinitely multiplied, but the fact is too well-known to need illustration. On this ground then it is evidently better that a young Engineer should gain his initial experience among the materials he will have to work with, and not among conditions very dissimilar; and if he is placed under reasonable supervision in a position of some responsibility he will acquire details more quickly and more thoroughly and not be disheartened by the difference between English and Native labour and, still more, English and Native subordinates. I do not wish to deny that in methods of execution there is much to be learnt at home. Methods in India now are very like those in vogue in England in the fifties, or forties, or earlier, but with the improvement of communications the possibilities of mechanical aid become vastly easier, and it is most necessary that officers should be acquainted with all improvements of value. But even in this the benefit is likely to be far greater when the officer is in a position to discriminate between what is and what is not likely to be useful. The value of English works, however, to an Indian Engineer lies more in design than in execution, and such matters a young man fresh from college is hardly in a position to comprehend, having no idea of the real nature of the works he will some day be called upon to plan. On the other hand, it is highly advisable that Indian Engineers of greater maturity should see far more of European practice (and particularly continental and American practice) than is now the case. Many of them do not belong to the institution of Civil Engineers or to any corporation which issues professional papers, most cannot afford even to take in English Engineering periodicals, and are therefore seriously hindered from advancing with the times. None certainly have money to spend in travelling to inspect important operations at home even, much less abroad.

A certain amount of mechanical knowledge and familiarity with field work and construction is essential to a student if he is to thoroughly comprehend the theory of his profession and to obtain a firm grasp of principles, and especially if he is to be of real use directly he leaves college. In this particular the course of study at Coopers Hill leaves, or used to leave, much to be desired. It seems to be forgotten that on entrance a general education, not a technical or a scientific education, is assumed and assumed rightly. It is the fact, but one which is not justly estimated by some of the instructors, that many students enter the college with a fair public school education but ignorant of the difference between a boiler and a cylinder, ignorant of natural science, often merely grounded in mathematics but no more. Nor are these likely to be by any means the worst Engineers for Indian purposes. It is, however, perfectly obvious that a youth's education should continue from the point at which he has arrived, and it is most injurious to leave out intervening steps and begin again on a higher rung of the ladder. Many Coopers Hill men are seriously crippled by this process, perhaps for life, certainly till practical experience, often too late and never completely, enables them to supply the gaps for themselves. Students in their first year should undoubtedly be divided into classes according to their previous knowledge of each subject and the instructors should subdue their spirit to the clay they work on. It is indeed a matter worth consideration whether some students should not complete the course in two years and others in four. It is, however, needless to enlarge on this subject. It hardly admits of controversy in point of principle, though differences of opinion would doubtless arise in discussing means to meet the difficulty.

An almost equally obvious proposition is that practice should advance *pari passu* with theory, even if it should not precede it; and this is the other defect in the Coopers Hill curriculum. It has a considerable bearing on the immediate utility of Engineers on their arrival in India, so I do not apologise for alluding to it. In surveying alone does practice advance hand-in-hand

with theory at Coopers Hill. Omitting such subjects as pure mathematics (which however is only useful to an Engineer so far as it can be utilised) there is, or was, an almost absolute lack of practice to illustrate and impress the theoretical instruction. Students were supposed to learn the theory of steam without ever seeing the inside of a boiler or a cylinder, they drew and designed bridges but never saw a bridge being built, they studied the mathematics of pulleys and blocks without a pulley within miles of them. It is hopeless to instruct an ignorant boy in the theory of heat or steam or mechanical movements or design of parts until he has seen engines pulled to pieces or in operation. The workshop has been, I believe, much improved of late and this is a step in the right direction. In my time it was not even obligatory to attend either the workshop or the chemical laboratory! But the college should have at least a respectable museum and a well-furnished model room; and they should be used. Every machine and every method of construction which is discussed in the earlier stages of the course should be shown in operation. The result would probably be to limit the subjects of discussion but this would be far from entirely detrimental. Such a mode of education is undeniably sound for any country and particularly for India. The Public Works Department is organised for the average man, and it is far more important that the average man should be competent from the start than that there should be a few brilliant officers, a good many who supply the defects in their education at the expense of their employer and a few who remain hopelessly befogged. Genius may be suffered to look after itself, and the training should be confined to the capacity of the majority of those for whom it is intended.

I have not touched upon the expense to India in the practical course at home, nor the expense to parents and consequent contraction in the number of recruits, nor on the inadvisability of leaving young men practically without direction or supervision. These are matters within every one's power to judge.

MOUNT,
5th September 1896.

(Signed) A. T. MACKENZIE,
Ex. Engr., Chingleput Division.

No. 112 W./C.

Forwarded.

10th September 1896.

(Signed) C. C. RAWSON, Lt.-Col., R.E.,
Suptg. Engineer, V Circle.

From F. J. WILSON, Esq., Executive Engineer, to the Chief Engineer, Public Works Department (through the Chief Engineer for Irrigation), dated Madras, 3rd September 1896.

With reference to your Memorandum, No. 1183 D., dated 28th August 1896, forwarding a copy of Government of India letter No. 1963 G., dated 5th August 1896, for opinion, I have the honour to say that I am strongly of opinion that the College course should be immediately followed by practical experience on works of some importance and magnitude and where all the latest methods are employed.

It is not always possible to post young Engineers from Coopers Hill to works of this class in India directly and I should be sorry to see the home practical course abolished altogether.

I would deprecate any step which would render it possible that a young Engineer from Coopers field should at a time when his enthusiasm and capability for learning are greatest, be sent without any experience whatever to routine work in an out-of-the-way place.

It is admitted in paragraph 5 of the letter from the Government of India that it is desirable that officers of the Public Works Department should acquaint themselves with English practice after a certain Indian experience, as they would then be in a position to adapt such practice to Indian requirements. But if this experience is to be put off till an officer goes home on furlough, this means waiting for eight years at least. I quite agree with the proposal to give every facility to officers on furlough studying works in England, but I think this can be considered quite apart from the question of a practical course immediately following the College course.

I believe that if a passed student from Coopers Hill makes a proper use of his time on a large work in England, that he will gain much useful knowledge which he can adapt to Indian requirements after he reaches India.

I would not lay down any hard-and-fast rule on the subject. On the whole, I am in favour of a practical course in England, but if there are suitable works going on in the province to which he is posted, the young Engineer might be sent out direct.

No. 38 W.

Forwarded.

(Signed) R. R. E. DRAKE-BROCKMAN, Col., R.E.,
Chief Engineer for Irrigation.

8th Sept. 1896.

From W. B. DEWINTON, Esq., Superintending Engineer, III Circle, Bellary,
to the Chief Engineer, Public Works Department, dated 14th September
1896, No. 1740 W.

In reply to your Memorandum No. 1183 D., dated 28th August 1896, I have the honour to say that the practice of detaining passed students of Coopers Hill College for a year's practical course in England, after they have completed their College course, may, in my opinion, be certainly abandoned with advantage, for the men would be far better employed out here.

2. I would not even permit specially-selected students to undergo a course of workshop practice in England, after completion of their College course, not because I do not think such knowledge necessary, for I believe it to be of the very first importance, but because I would make it part and parcel of the College course.

3. What Coopers Hill wants is a set of thoroughly equipped workshops for masons and bricklayers, carpenters, smiths and foundry men, through which in turn every Coopers Hill student should be compelled to pass, and learn with his own hands the rudiments of each craft. I would make this course of supreme importance, to the exclusion of other subjects which now find a place in the syllabus and are of little practical value. A Coopers Hill student now arrives in the country with a good general education, a smattering of surveying and levelling, and a complete ignorance of everything else connected with his future work. He has consequently to sit at the feet of a native maistry to learn the practical methods of laying out and building the simplest structures. Whereas, if the instruction above described was given to him at Coopers Hill in a thorough manner, he would be in the position of instructor instead of pupil, and could teach the vastly superior class of work prevalent in England to our artificers out here, and thus be a gain to the department from the very commencement of his service.

4. If this course is not practicable, I would give every passed student a year's practical training in England in workshop practice, whether he has a special aptitude that way or not, because his value to the department is thereby doubled, but this course would be more expensive to the State and not nearly so fruitful of good results as the proposal made in paragraph 3.

5. I quite agree with the proposal made in paragraph 5 of letter No. 1963 G. from the Government of India.

PRÉCIS.

Opinions of selected officers as to the necessity of a practical course in England for Coopers Hill Engineers.

1. Mr. Malet.—(a) Knowledge gained during practical course not commensurate with time spent, and cost to the State.

(b) If practical course in England be abolished, practical course in India should not be substituted.

(c) Special facilities should be afforded to officers on furlough to study works in England and elsewhere.

(d) Paying an officer bare expenses while inspecting is not sufficient; an honorarium should be given for the notes written about the works inspected, and these notes should be examined and passed by a senior officer on furlough.

2. Mr. O'Connell.—(a) The practical course in England should be abandoned, at any rate in the case of students intended to be employed in the Irrigation department.

3. Mr. DeMorgan.—(a) The practical course in England serves no useful purpose.

(b) Practical course in India for a year, or even more, may be substituted.

(c) Special concessions should be made and ample facilities offered to enable selected officers on furlough to study works in England and elsewhere.

(d) A course of workshop practice in England is unnecessary.

4. Mr. Mackenzie.—(a) Students with a pronounced mechanical bent may be permitted to undergo a course of workshop practice in England, and that for two years, one year being not long enough.

(b) As regards other students, practical course in England is unnecessary.

(c) It is desirable that Indian Engineers of some experience should see far more of European practice, particularly of continental and American practice, than is now the case.

5. Mr. F. J. Wilson.—(a) The home practical course should not be abolished, unless there are suitable works in India, to which to post a young Engineer on arrival from England.

(b) Every facility should be given to officers on furlough to study works in England.

6. Mr. deWinton.—(a) Practical course in England may be abandoned with advantage.

(b) Every passed student may have a year's practical training in England in workshop practice, unless a course of workshop practice can be made part and parcel of the College course to the exclusion of subjects which now find a place in the syllabus, and are of little practical value.

(c) Every facility should be given to officers on furlough to enable them to acquaint themselves with English practice.

Note by the Chief Engineer, Public Works Department.

The opinions of six selected Engineers have been taken with reference to Government of India No. 1963 G., dated 5th August 1896, and a précis of these opinions is herewith forwarded; and it will be noticed that five out of the six officers are in favour of the practical course being abolished. All agree that every facility should be given to officers on furlough to inspect works. One is of opinion that students with a pronounced mechanical bent may be permitted to go through a course of workshop practice for two years, another is of opinion that every student should have a year's practical training in England in workshops.

2. I agree with the majority in thinking that the knowledge gained by the practical course is not commensurate with the time spent thereon and the attendant expense to the State, but at the same time I am inclined to think that students with a natural bent for the following subjects should be permitted to go through a course in England, as they cannot gain proper experience in this country:—

Mechanical Engineering.
Electrical Engineering.

Architecture.

It would probably be sufficient if one student in each batch was selected for instruction in each of these subjects; this would mean that three students would go through a practical course each year and that would not be much expense to the State.

3. I consider it would be useless to substitute a practical course in India for the one in England, at the same time I think that officers should be allowed many more opportunities for inspecting works in India than at present. It is seldom that, at any time, there are not several works of considerable magnitude in progress in different parts of India and I consider that, whenever possible, selected officers should be allowed to visit these works and report on them, all their expenses being paid by the State. There have been many large works carried out in India during the last twenty years, but I know of no case of an officer being allowed to improve his engineering knowledge by inspecting works outside his own province at the expense of the State.

4. I agree with the general opinion of the officers consulted that every facility should be given to officers on furlough to study engineering works at Home and to induce officers to do so I think the terms should be more liberal than at present, and I agree with Mr. Malet that paying an officer his bare expenses is not sufficient and that an honorarium should be given for the inspection notes according to their value. I have never yet known an officer who had inspected works at Home, who did not say that he had been much out of pocket by doing so. What I propose is therefore that—

First.—The present practical course be abolished.

Second.—That certain selected students go through a practical course of two years in—

Mechanical Engineering.
Electrical Engineering.

Architectural Engineering.

Third.—That every facility should be allowed to officers in this country to inspect large works in progress in all parts of India, their expenses being paid by the State.

Fourth.—That every facility should be allowed to officers to inspect works in England, America and on the continent while on furlough and that they should be granted an honorarium on their inspection notes according to their value.

5. I am not aware how much the present practical course costs the State, but I think it probable that if it be abolished, the saving effected would cover the cost of the above proposals.

(Signed) D. McNEIL CAMPBELL, Colonel, R.E.,
Chief Engineer.

21st Oct. 1896.

ORDER—No. 3035 W., dated 26th October 1896.

His Excellency the Governor in Council sees no reason to differ from the conclusions arrived at by the Chief Engineer, and the Government of India will be informed accordingly.

[Here enter No. 3036 W., dated 26th October 1896.]

(True Extract.)

(Signed) D. McNEIL CAMPBELL, Colonel, R.E.,
Secretary to Government.

To the Chief Engineer for Irrigation.
„ the Consulting Engineer for Railways.
„ Superintending Engineers.
„ the Consulting Architect to Government.
„ the Examiner, Public Works Accounts.

Exd. Md. Pahilvan.

PUBLIC WORKS DEPARTMENT.

General.
Establishment.

LETTER—from

THE HON'BLE COLONEL D. McNEIL CAMPBELL, R.E.,
Secretary to the Government of Madras,
Public Works Department,

To

THE SECRETARY TO THE GOVERNMENT OF INDIA,
PUBLIC WORKS DEPARTMENT.

SIR,

With reference to your letter No. 1963 G., dated 6th August 1896, I am directed to forward a copy of the Proceedings of this Government, No. 3035 W., dated 26th October 1896, embodying the opinions of six selected officers of the Madras Public Works Department on the proposal to abolish the year's practical course in England of successful students of the Coopers Hill College; also a précis of those opinions and a note on the subject by the Chief Engineer, and to state that His Excellency the Governor in Council sees no reason to differ from the conclusions arrived at by the Chief Engineer.

I have the honour to be,

Sir,

Your most obedient servant,

(Signed) D. McNEIL CAMPBELL, Colonel, R.E.,
Secretary to Government.

FORT ST. GEORGE,
26th October 1896.

Exd. Md. Pahilvan.

GENERAL.
ESTABLISHMENT.

Government { 1896 } of Madras.
PUBLIC WORKS.

Recd.

} 1896.

Enclosures

Regd.

Spare copies

Letter, No. 3036 W., 26th October 1896.

OCTOBER.

Practical Course

Stating that His Excellency the Governor in Council sees no reason to differ from the conclusions arrived at by the Chief Engineer in regard to the proposal to abolish the year's— in England of successful Cooper's Hill students.