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MADRAS RECORD OFFICE.

Government of Madras.

Public Works **DEPARTMENT.**

G.O. No. 370, 373	2281-82	Press / Mis.
Dated	26. 9.	1872.

Not to be folded or roughly handled

2281-82

Proceedings of the Madras Government, Public Works Department, 26th September 1872.

Read the following papers:—

No. 370. From Colonel G. W. WALKER, R. E., Superintending Engineer, 7th Division, to the Secretary to Government, Public Works Department, dated Coimbatore, 15th February 1870, No. 184.

1 Comparative Statement.
Lieutenant-Colonel Farewell's letter No. 132 of 20th September 1869.
1 Extract of do., No. 182 of 4th December 1869.

I HAVE the honour to reply, for the information of Government, on the subject of their Orders No. 3,679 of 18th November and No. 136 of 11th January.

2. I am unable to reconcile the apparent surprise shown by the former order at any excess over estimate, with the fact that in Mr. Chisholm's letter No. 226 of 5th October 1868, submitting such estimate for sanction, it appears that he distinctly informed Government that its rates would probably be found insufficient; and with the following extract of paragraph 186 from the Administration Report of the Madras Presidency for the year 1868-69, namely, "The estimate for the portion of the building intended for males has, however, been found to be very insufficient, and a far larger outlay than was anticipated will be required to complete it."

3. I must also most respectfully repudiate responsibility for estimates which are sanctioned without the slightest previous reference to me, and of which copies have never passed through my office. Nor has my opinion ever been asked of the plans from which they are drawn up. I am fully prepared to accept all responsibility that can legitimately be fixed on me; but would, with all respect and humility, point out that Government cannot justly expect me to abdicate some of the functions of my office with respect to a particular work, and retain others. Paragraph 2 of G. O. No. 1,760 of 5th June 1866 (disposing of a letter wherein I made a final effort to maintain my position as Superintending Engineer with reference to these buildings) was never acted on, and Mr. Chisholm's communications were made direct to Government, or to the Neilgherry Executive Officers, to whom he repudiated the idea of my having any control over his papers. I continued to visit the buildings whenever in Ootacamund, with reference to occasional orders of Government and as the medium of communication between the executives and Government; but I interfered in no way with the progress of any building, but the hospital which was built on the original plan. It was indeed with the utmost surprise and dissatisfaction that I observed the hand to mouth way in which the Executive Officers consented to work on Mr. Chisholm's fragments of plans without estimate; feelings which I have often expressed to them on the spot. The state of affairs and my position with reference to them are shown in paragraphs 1 and 2 of a letter from Lieutenant-Colonel Farewell, printed with G. O. No. 868 of 17th March 1868, and my own letter printed with G. O. No. 1,647 of 23rd May 1868—see also paragraph 3 of G. O. No. 2,038 of 26th June 1868, G. O. No. 2,114 of 3rd July 1868, and paragraph 3 of G. O. No. 2,652 of 19th August 1868, all of which show the circumstances under which work was proceeding without complete plans or any estimate whatever. Such papers were finally supplied to Government and sent up for sanction of the Government of India in October 1868, and Lieute-

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nant-Colonel Farewell received duplicate copies of them direct from Mr. Chisholm. But by the 31st of December of the same year the works had so far progressed that accommodation for 150 boys was available, as desired by G. O. No. 2,157 of 7th July 1868. I was not made acquainted with the contents of Mr. Chisholm's letter to Government, No. 226 of 5th October 1868, or with those of his letter to Lieutenant-Colonel Farewell, No. 229 of 12th October, and was not therefore officially aware, except from the Neilgherry Range Progress Reports of 1869, that the estimate was being exceeded, a source of knowledge equally available to Government from the extracts forwarded monthly from my office.

4. In conformity with my peculiar position relatively to the Lawrence Asylum works, the remarks with which I handed up Lieutenant-Colonel Farewell's letter and comparative statement of excess over estimate were very cursory in their nature; and I have been greatly astonished to find how much they appear to have displeased Government, for they were chiefly meant to exculpate both Mr. Chisholm and the Executive Officers who so cordially worked with him from blame, in consideration of the novelty and beauty of the work. I never meant to criticize Mr. Chisholm's "random" style of architecture, as I am in the habit of reserving my opinions till called for. I reckoned on Lieutenant-Colonel Farewell's explanations being taken as to the detailed items of excess, and am quite ready to own that they show a third cause in addition to the two adverted to by me, namely, the substitution of teakwood for stone flooring in some places at greater expense in order to complete the west wing for early occupation, and the use of iron sheeting instead of flat tiles also at increased cost and in conformity with my general statement of its necessity in letter printed with G. O. No. 2,552 of 21st August 1867; but I never meant any one to gather from what I said that the work was not fully worth its cost, and I trust that Government have not arrived at any such conclusion. I simply stated the fact that whatever be the cause Mr. Chisholm is sanguine in his estimates, whether for Taluq Cutcherries which were to have cost Rupees 14,000 to Rupees 16,000 (see G. O. No. 3,552 of 18th November 1867,) but actually average Rupees 25,000, or for the Coimbatore Church, of which his estimate of Rupees 11,300 has been revised to Rupees 13,500, exclusive of furniture (see my letter No. 129 of 10th October 1868), but no offence was intended to be given by such statement, and I regret that any has been taken.

5. I cannot better give the explanation called for in paragraphs 1 and 2 of G. O. No. 136 of 11th January, than by re-submitting Lieutenant-Colonel Farewell's comparative statement and letter No. 132 of 20th September, and extract of another letter No. 182 of 4th December. Captain Hankin, now at Madras, could verbally satisfy Government on any details regarding which they may wish for further information; but I am sanguine that, on a final review of all the circumstances, Government will be pleased to exculpate myself and the Executive Officers from blame with reference to the excess which has necessarily been incurred, and the irregularity in noticing which is only of a piece with that which has pervaded all proceedings connected with the work, which from first to last cannot be justified but must be confessed to the Supreme Government.

Proceedings of the Madras Government, Public Works Department, 26th September 1872.

No. 371. From Lieutenant-Colonel W. FAREWELL, Acting Superintending Engineer, 7th Division, to the Secretary to Government, Public Works Department, dated Camp at Tellicherry, 28th November 1871, No. 190.

With reference to His Excellency the Governor-General's orders published with G. O., No. 7, dated 4th January 1871, and the despatch of the Right Honourable the Secretary of State for India communicated with G. O. No. 2,233 of 1st September 1871, I beg very respectfully to bring the following to the notice of Government with the hope that, for the reasons given, they will be so good as to urge the Government of India to re-consider the severe censure passed upon me and reported to the Right Honourable the Secretary of State for India. I beg first to draw the attention of Government to my letter, No. 182, dated 4th December 1869, to the Superintending Engineer of the 7th Division, and that Officer's letter No. 184 of 13th February 1870 to Government, both of which appear from recent correspondence with you calling for copies to have been mislaid, and were therefore probably lost sight of by Government when bringing the whole question before the Government of India. In my letters Nos. 132 and 182, I explained to the Superintending Engineer the cause of the necessity of submitting revised estimates and of my being utterly unable to do so before I did; of my having used iron sheeting under the pan tiles in lieu of flat tiles; as also the reason of substituting teak for stone flooring in the passages. I omitted, however, to note a very important fact, namely, that the duplicate and even then unsanctioned estimate for the building only reached me in October 1868, when fully two-thirds of the work had been built and one-third of it roofed in—*vide* paragraph 3 of the Superintending Engineer's letter, No. 184, dated 13th February 1870, and Neilgherry Range Progress Report for October 1868.* It can therefore hardly be said to be correct that I departed from and used more expensive materials than contemplated in an estimate I had never seen; though I did use the sheet iron instead of flat tiles as recommended by me and by the Superintending Engineer to Government in his letter printed with G. O. No. 2,552 of 21st August 1867, the necessity of which has been fully proved by Government having sanctioned at great expense its substitution for flat tiles found to be utterly useless in Government buildings at Ootacamund, namely, the Civil Dispensary and Hospital, Zillah and Debtors' Jail, Subsidiary Jail and Police Station, Pykarah bungalow, and the whole of the Commissioner's Offices; in doing so I did not depart from a sanctioned estimate, but with the experience gained in the construction of many buildings on the hills substituted a more suitable material than contemplated in some totally different estimates for the Lawrence Asylum framed by me some years previously, taking which as data the Government Architect, as I have before pointed out, framed his estimates. I feel sure had I not acted as I did I should, on the other hand, have been most justly blamed for so glaring an error as using flat tiles on one new Government building, while I actually at the same time had submitted estimates for removing them from others in the same station as condemned and useless, substituting iron sheeting instead. The immediate cause of my using teak instead of stone for flooring was that Government pressed the early completion of a portion of the building to allow of its immediate occupation by 150 boys with their Masters, etc., etc. Finding it quite out of my power to get sufficient stone ready,,

* See Extract annexed.

I used teak knowing the difference of excess above what I anticipated the estimate would amount to would be far below 5 per cent., which excess is sanctionable by the Superintending Engineer on proper explanation, and I felt satisfied, under the circumstances, mine would be accepted. Had I waited for stone, I beg to bring to notice that up to the present date, though the building has been long in occupation, the stone work would not have been completed, the reduced stone flooring of the building having only just, after the greatest difficulty, been finished. In my letter No. 182, I did not sufficiently notice that the rates in the range had, after the submission of my former estimate for the Lawrence Asylum buildings as designed by me, greatly increased, especially those for wood-work. The wastage on timber of late years has been very considerably in advance of that of former years, owing to the very inferior quality of the timber only obtainable from the Forest Department, and the increase also of the cost of carriage and in labour and wages of carpenters especially. Lastly, I would beg very respectfully in regard to the high total of the estimates, remarked on by the Government of India and the Right Honourable the Secretary of State for India, to draw attention to the memorandum of the Inspector-General of Military buildings, Colonel Crommelin, printed with G. O. No. 1,924 of 27th June 1867, in which that Officer noticed that in Bengal (presumedly in the plains) the average rate at which soldiers could be lodged in Barracks was 2,000 Rupees a head; but he appears to have overlooked the fact of the Lawrence Asylum being 7,500 feet above the level of the sea, and that an Institution like the Lawrence Asylum requires, for the boys alone, fully one-third more accommodation than necessary in Barracks, and yet notwithstanding, including *every excess reported to date*, besides affording accommodation for the Principal and his family, Masters and Matrons, etc., the total cost of the building only amounts to 1,281 Rupees per boy, while the Barracks at Wellington within 8 miles of the site at a much lower elevation cost 1,800 Rupees per soldier housed.

2. Under the circumstances now reported, I trust Government will so explain the whole question to the Government of India that they will entirely exculpate me from the blame that has been attributed to me.

No. 372. From R. F. CHISHOLM, Esq., Consulting Architect to Government, to the Chief Engineer and Secretary to Government, dated Madras, 5th October 1871, No. 227.

I HAVE the honour to acknowledge the receipt of G. O., No. 2,233, dated 1st September 1871, conveying the very severe censure of His Grace the Secretary of State for India on account of the supposed fallaciousness of my estimate for the male branch of the Lawrence Asylum at Ootacamund. With the utmost respect I beg to submit the following explanations, in the hope that they will fully exonerate me from all blame.

2. When I forwarded the estimate of the Boys' branch to your predecessor, Colonel Charles Orr, R.E., I pointed out that the estimate was fallacious, as I knew the data to be in some cases incorrect—(see letter, No. 226, dated the 5th October 1868, Appendix A).

3. I further forwarded a copy of the above-mentioned estimate to Colonel Farewell, and suggested to him the advisability of revising the rates so that the estimate might truly represent the probable expenditure—(see letter, No. 229, dated the 12th October 1868, Appendix B).

4. Finding that these communications passed unnoticed, I submitted only detailed quantities for the Girls' branch of the Asylum, and in doing so I again called attention to the insufficiency of the rates—(see letter, No. 356, dated the 24th September 1869, Appendix C). The estimate was then sent to the Superintending Engineer, and the rates were revised.

5. I beg also to submit for perusal extracts from a letter which explains at length the various causes of excess, and respectfully to point out to Government the importance of the 4th paragraph of the same—(see Appendix D).

6. It has been represented that the excess cost is due to "architectural elaboration;" were this the case, I would beg to point out that the enhanced rates would be great on all items of work capable of such elaboration, and not on simple items, such as "flooring;" yet on this item there is an advance of 28 per cent., about 2 per cent. above the total percentage of excess; perhaps, however, a clearer refutation of this statement lies in the fact that Captain Morant's estimate for a simple brick-in-mud structure (Rupees 3,22,410) added to the Hospital (Rupees 80,000) for the Girls' branch amounts to Rupees 13,000 more than the corrected estimate for the Girls' branch (Rupees 3,89,000) on my plans.

7. In my letter, No. 162, dated the 23rd March 1867 (see Appendix E), I explained exactly both the nature and cost of what seemed to me legitimate ornament, and the photographs (Appendices F, G, H, I, and K) will show clearly that I have not exceeded this very slight accentuation.

APPENDIX A.

From the Consulting Architect to Government, to the Secretary to Government, Public Works Department, dated Madras, 5th October 1868, No. 226.

I HAVE the honour to submit the revised estimate and detail drawings of the male branch of the Lawrence Asylum, Ootacamund.

1 Roll Tracing.
Original Drawings
Do. do.
Detailed Drawings.
1 Estimate.

2. The rates in the estimate are the same as those entered in the original estimate submitted on the 11th of March 1867, which gives a total of Rupees 3,94,137-3-2. I don't think, however, that this estimate of cost is to be depended on, as I know the data to be in some cases incorrect. I have forwarded a duplicate set of plans and blank estimate to Major Farewell at Ootacamund, and I think it would be advisable to await and see what alterations he will make.

APPENDIX B.

From the Consulting Architect to Government, to the Executive Engineer, Ootacamund, dated Madras, 12th October 1868, No. 229.

I HAVE the honour to forward you a duplicate set of plans and estimate of the male branch of the Lawrence Asylum, the originals of which I have this day forwarded to Government.

2. I would suggest that the rates be revised, so that the estimate may represent truly the amount to be expended. The extra labour on face and exterior decorations will not cost more than I have allowed.

APPENDIX C.

Proceedings of the Madras Government in the Public Works Department, dated 3rd November 1869, No. 3,509.

From the Consulting Architect, to the Secretary to Government, Public Works Department, dated Madras, 24th September 1869, No. 356.

I HAVE the honour to forward the revised estimate and detailed drawings of the female branch of the Lawrence Asylum at Ootacamund.

2. In my No. 226 of the 5th October 1868, when forwarding similar documents connected with the male branch, I pointed out that the rates, although based on Major Farewell's estimated rates, were I thought insufficient for the work, as I knew the data to be in some cases incorrect. As the estimate was sanctioned without any revision by the local officers, I have thought it advisable, in the present instance, to submit a blank estimate of quantities only. If the Government desire it, I can return it filled in, but it would seem to me better if the Executive Engineer at Ootacamund would complete the abstract and enter extras not contemplated by me, such as continuous iron roofing under the tiles.

3. If you approve of this course, I shall feel greatly obliged if you will forward me a copy of the completed abstract.

MILITARY WORKS, No. 3.

Resolved that the estimate submitted with this letter for the female branch of the Lawrence Asylum at Ootacamund be forwarded to the Superintending Engineer of the 7th Division with a view to its being duly completed and returned to Government with as little delay as possible, as, under recent orders of the Government of India, no work can find a place in the Budget until the estimate for it has been sanctioned by competent authority.

(True Extract.)
(Signed) CHARLES A. ORR, Colonel, R.E.,
Secretary to Government.

Appendix D.

Extracts from letter of Explanation.

2. The question which arises from this correspondence is one of vital importance and I trust before any orders are passed by Government more detailed information may be called for; both Colonel Walker and Colonel Farewell represent that the excess of upwards of a lakh of Rupees is caused by the superior style of architecture introduced by me. I do not pretend to say that the work required by my designs is at a given quantity cheaper than ordinary work; possibly the masonry will be a little more expensive, but very slightly so; what I would respectfully contend for is that *the random style adopted in this building provides a given extent of accommodation at a cheaper rate than the symmetrical building designed by Major Farewell.*

* * * * * *

Fortunately, the question resolves itself into a very simple one, the relative cost of "labour" and "materials." With the exception of a few thousands of dog-tooth bricks, the whole of the materials were the materials ordinarily used in such structures; indeed, all the burnt material was made and deposited in "situ" before my designs were completed and approved of. If the total cost is separated into these two items "labour" and "materials," and the results compared with the estimate similarly divided according to the data forming the rates, the excess due to architectural elaboration will be rendered at once apparent, provided, of course, that such data can be shown by experience on other work to be accurate.

* * * * * *

3. Passing on to a closer examination of the statement, I find that a good deal of extra work not contemplated in the estimate is made no mention of by Major Farewell in his explanatory letter. Without pretending to great accuracy, the value of the extra work so executed I estimate at Rupees 25,000, as detailed below:—

	Rs.
Night privies added by order of the Municipal Commissioners ...	4,900
Additional accommodation on third storey of Principal's house executed by my order in consultation with Captain Hankin	1,705
Spiral staircase at angle of tower found to be absolutely necessary ...	1,200
Pulling down and re-constructing screen wall which was incorrectly built	2,200
Continuous iron sheeting under tiles not provided for in estimate, about	15,000

(I am unable to get the exact sum for this item, and I have arrived at it by calculation.)

The difference over this sum, amounting to Rupees 77,333, represents the true excess on rates.

4. The cause of so wide a difference between the estimated cost and the actual cost is, in my opinion, due in a great measure to the way in which items have been lumped together into *average rates*, and I trust I may not be thought over-zealous if I venture to point this out to Government. Flooring, for instance, is taken at per square of flooring complete in place of forming two items, namely, timber in scantling at per cubic foot, and boarding at per square. Roofing again is taken simply at per square completed in place of forming four items, as follows:—

1 Timber at per cubic foot.
2 Iron work at per lb.
3 Reepers at per square.
4 Tiling at per square.

Sir Digby Wyatt, in his despatch dated the 26th February 1869, pointed out the necessity of an executive officer possessing the most perfect knowledge of the cost of minute sub-divisions of labour and materials. In England, although a door is generally paid for by the superficial foot, the cost is arrived at by calculating the lengths of the various scantlings used, the labour of framing, and the cost of every moulding required by its size and shape.

* * * * *

The windows designed by Major Farewell have moulded sashes; in mine the sashes are splayed. His doors have moulded styles and rails mitred at angles and grooved raised and beaded panels, front and back, tongued into frames; my doors have plain styles and rails splayed and plain screwed panel splayed at edges, altogether a *cheaper* and *less* elaborate form of door.

With regard to the cost of roofing and flooring, I have no means of separating the various items, but the comparative statement shows a discrepancy somewhere. Flooring estimated at 102 costs 130, and roofing estimated at 105 costs 136-8-0. This latter rate, however, includes 15,000, the assumed cost of the continuous iron sheeting; deducting this sum therefore the cost of the roofing comes *within* the estimate. Now, as the flooring consists wholly of teakwood of ordinary plain description, it is evident that the cost of the wood itself has been miscalculated, and, on the other hand, as the item wood-work forms a very large proportion to the cost of the whole in roofing, it is out of the question to suppose that there would be no equivalent excess on roofing.

5. If, as Colonel Walker states, the excess is due to architectural elaboration, then the cost of all plain work would be well within the estimate, selecting, for example, the item of flooring which consists simply of beams, joists, and boarding. The excess rate is as follows:—

Estimated	102	Advanced rate.
		28 per cent.
Executed	130	

Comparing this with the excess on the whole estimate we have the percentage—

Estimated	3,94,000	Advanced rate.
		26 per cent. nearly.
Executed	4,96,000	

That is to say the percentage of excess on the plainest description of work is greater than the percentage of excess on the whole work. The instance Colonel Walker mentions in support of his views on architectural elaboration, namely, the excess cost of the Ootacamund Library, the Coimbatore Church, and Taluq Cutcherries in the 7th District rather tend to confirm the opinion I have expressed regarding the inaccuracy of the rates of this range, as all the works were estimated for at rates supplied me by local officers. The excess on the Church at Ootacamund is quite as large in proportion, if not larger, than the excess on the works he mentions, and this is a building with which I had nothing to do.

6. The excess on the Ootacamund Library carried out by amateur builders who laboured under all kinds of disadvantages was as follows:—

Estimated	25,000	About 25 per cent.
Executed	30,000	

In conclusion, I would beg leave to state that the items said to be omitted from my estimate are no more omitted from my estimate than they were from Colonel Farewell's estimate. I included all items which I found in the latter, and the cost of such items, as water-pipes, lightning conductors, I imagined to be provided for under the head of Contingencies.

* * * *

(True Extracts.)

(Signed) R. F. CHISHOLM.

APPENDIX E.

Proceedings of the Madras Government in the Public Works Department, dated 27th June 1867, No. 1,924.

From R. F. CHISHOLM, Esq., C. E., Executive Engineer, Presidency, to the Secretary to Government, Public Works Department, dated Madras, 23rd March 1867, No. 162.

I HAVE the honour to acknowledge the receipt of your memorandum No. 64 of yesterday's date, inquiring what the probable cost of the Boys' branch of the Lawrence Asylum buildings would be, if all decorative or architectural accessories were dispensed with.

2. On referring to the detailed estimate I find that the estimated cost of purely architectural and decorative accessories amounts to 15,784 Rupees, or less than 4 per cent. on the estimated outlay.

3. I trust it may not be considered out of place if I venture to offer a few remarks on the subject of the decorations of this building. I do so with greater confidence, as I am in a position to point out how deductions can be made in the cost of the Boys' branch of the Asylum, without materially affecting either the general appearance or the extent of accommodation.

4. In the first place it is most difficult, in structures of this kind, to define what legitimately comes under the head of ornament. Suppose, for instance, an arch is turned in three concentric rings. If shorn of all pretensions to ornament, it would appear as in sketch I., see the margin; if we make the edge of the first brick bead moulded, project every second brick in the second ring, and give a splay moulded and projected brick for the third ring, the result will be ornament of the very highest architectural merit (see figure 2). The splay moulded bricks cost no more than common bricks, and with regard to the labour, I never yet met a workman who would not prefer to build No. 2 in preference to No. 1; still I admit that the cost would be a little greater. I cannot exactly explain why, except perhaps that the workmen take a real interest in their work and turn out a better article at a very slight increased cost. Now, with the exception of the glazed tiles, all the ornament in the proposed building both internal and external is formed as in figure 2, and I scarcely think the most parsimonious would, on comparing the two, wish it to be omitted.



Fig. 1.

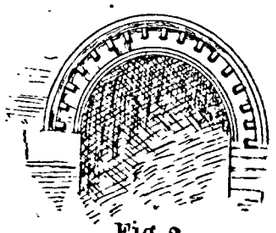


Fig. 2.

5. The tower above the Principal's studio also forms a portion of the 15,780 stated above In this particular style a feature of this kind becomes almost a necessity, without it the buildings would appear a scattered mass having little or no relation to each other. A crowning member

to such a composition bears the same relation to the whole, as a capital does to its column, and if no tower is to be erected, I would strongly recommend that a symmetrical plan be reverted to, at the same time pointing out that the cost of "filling out" a symmetrical plan will more than quadruple the cost of this feature. I have not the means of ascertaining the amount of Major Farewell's original estimate for a symmetrical plan, but *the revised and reduced* estimate including the Masters' houses and

Principal's quarters amounted to	Rupees	4,31,000
My own estimate amounts to	,,	4,04,000
Difference ...	Rupees	27,000

and this result was only arrived at, in the symmetrical plan, by adopting an objectionable arrangement and an extremely ugly facade. Stated simply, a symmetrical building without ornament of any kind will cost about as much as a random building with a few decent pretensions to style and unity, from which it may be argued that the cheapest of all buildings is a random plan without any pretensions at all; this is perfectly true, but the result would be similar to the prospect offered by the *backs* of London houses.

6. The glazed tiles are of course purely ornamental, they take the place of polished marble in the original specimens of the style. They do not cost much, and apart from ornamenting the structure, I trust the amount expended in the manufacture may be the means of introducing the art of *encaustic* tile-making into Madras. The sum I have allowed for this work is large, and I have no doubt a considerable saving may be effected; as I am responsible for this item of the estimate, I have taken the precaution to allow a wide margin.

7. I now beg leave to point out how reductions can be made in the amount of the estimate without altering or curtailing the ornate portions.

	RS.
1*st*.—I would reduce the corridors throughout the building from 8 feet to 6 feet broad, this would effect a saving of	3,500
2*nd*.—A portion of the Hospital might be devoted to the residences of four Masters, which would effect a saving of ...	19,300
3*rd*.—I would make the roof of corrugated iron throughout, which would reduce the estimate further by	7,250
4*th*.—I would adopt a permanent floor in place of a boarded floor, by which a further saving could be effected of	11,100
Say in all ...	41,150

8. I make the fourth suggestion with some hesitation, as Major Farewell considers terrace floors damp and uncomfortable in that particular climate, still, as the amount is large, I think the matter worthy of further consideration.

9. I believe further reductions, amounting to about 20,000 Rupees, could be effected, but it would be necessary, before entering into the particulars of these deductions, that I should meet with and consult the Sanitary Commissioner.

Appendix B.

1. I beg leave to add a few remarks after perusing the Government of India Order.

2. The removal of the Girls' branch of the Lawrence Asylum from Lovedale leaves the site available for the Boys' branch. There is ample room on this site to spread the building out into a single line of dormitories with corridors running along the back. The cost would be probably increased, and the plans would have to be entirely re-modelled, but to prevent delay the working drawings might be commenced and the work proceeded with after a sketch elevation had been submitted for approval.

(Signed) R. F. CHISHOLM.

4th June 1867.

Memorandum by Mr. Chisholm on the Lawrence Asylum Plans, Ootacamund.

1. I have perused very carefully Colonel Crommelin's memorandum on the plans for the proposed Lawrence Asylum.

2. The general sanitary principles and arrangements which Colonel Crommelin has touched on are so admirable, and have been so clearly and unmistakably laid down in the reports of the various Sanitary Commissions appointed by Government, that there can be no doubt as to the "pavilion" system being the only arrangement in building which obtains a maximum of light and air, and that the detailed rules to be generally adopted are those laid down in the Commissioner's blue books. As I have held these opinions since first perusing the Commissioner's report, I was only too eager to adopt the pavilion system when the preparation of the designs was entrusted to me, so far as the limited area of the building space would permit. I forward the ground plans of the Boys' Asylum, in order that it may be seen how closely I adhered to these principles. Since these plans were drawn out, I have had an opportunity of seeing the site and conversing with professional residents, and I am of opinion that were such plans carried into execution half the children would die of cold, or the building would be so closed by the inmates as to make it injurious from a collection of foul air.*

Aspect.

3. Unfortunately the northern aspect presents the principal elevation, but even were this not the case, the building area is too limited to admit of leaving the northern face open. It will be observed, on reference to the plans, that I have put as few dormitories on this face as possible, and that the chief part of the northern wing of the structure is on open arches, and, if necessary, the whole of the under part can be left open. It will be observed also that *I have turned the axis of the building* 11° *east*, and broken it up into as many angles as possible, with the view of obtaining a fair distribution of sunshine.

Back-to-back arrangement of Dormitories.

4. I adopted this arrangement after the most careful consideration of the question, and, after I had made numerous sketches of other arrangements; the back-to-back arrangement although objectionable in principle is, in my opinion, under the peculiar circumstances of the case, the arrangement which embodies the minimum number of faults.

Floor space in Dormitories and School-rooms.

5. I have adopted the scale of accommodation allowed in England in Institutions of the kind. In the Royal Masonic Institute, one of the latest examples (erected 1865), each boy is allowed 40 superficial and 500 cubic feet in the dormitories. I have allowed 50 superficial feet, and a minimum cubical area of 600 feet. The school-room space might be slightly increased with advantage, but I would strongly recommend that the method of dividing the school space into one large room, and three or four small class-rooms be retained. I know of no English example (and I have plans of six different designs erected within the last ten years) where any other arrangement has been tried, and it would seem to me that on such a question we can have no better guide than that of experience.

Heihgt of Dormitories.

6. The figures on the plans sent to Calcutta must be incorrect. The lower dormitories are 13 feet from floor to floor and the upper average 15 feet in height, and are so figured on the copies in my office.

Verandahs.

7. I very respectfully beg to differ from Colonel Crommelin on this point. I am of opinion that verandahs would add materially to the discomfort of the inmates. A verandah, if sufficiently open, could be no protection against stormy weather, and would completely rob the walls of sunshine. The object in a cold and damp climate is to obtain warmth and dryness. The

* In Wellington a much warmer and more sheltered spot, the Soldiers, I have heard, cannot be prevented from stopping up the air shafts with their clothes.

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experience obtained at Wellington, where verandahs are provided, should be sufficiently conclusive on this point.

8. In conclusion, I beg to state that architectural considerations have in no way caused me to deviate from the principles laid down by sanitary authorities, and that I make the above remarks with no desire to retain the external elevations.

9. I append a letter on the cost of the ornament which seems to have been considered a little lavish.

(Signed) R. F. CHISHOLM,
Architect.

From the Secretary to the Government of India, Public Works Department, (Military Works,) to the Secretary to the Government of Madras in the Public Works Department, dated Simla, 29th May 1867, No. 523-M.

No. 455, dated 16th February 1867.
„ 787, „ 15th March „

	Rs.
Male Asylum	4,03,979
Female do.	2,74,377
Church	95,005
Hospital	79,700
Works already executed	1,30,173
Total...	9,83,234

I AM directed to acknowledge the receipt of your letters marginally noted, submitting for sanction designs with estimates aggregating Rupees 9,83,234 in amount, for the proposed Lawrence Asylum buildings at Ootacamund, as specified on the margin and in reply to communicate the following observations and orders thereon.

2. While fully recognizing the merits of the designs submitted, His Excellency the Governor General in Council observes that the expenditure to be incurred in carrying them into effect exceeds the amount which His Excellency would consider himself justified in allowing for the object in view.

3. In consideration, however, of the expense that has been already incurred on the work, and of the fact of the working establishment having been formed on the site, His Excellency in Council is pleased to sanction the design and estimate, amounting to Rupees 4,03,979, for the Male Asylum, as also the expenditure on works already executed, namely, Rupees 1,30,173, (making a total of Rupees 5,34,152,) leaving it to the Government of Madras to judge, first, whether some saving might not be effected by dispensing with a portion of the ornamentation, and adopting a more economical design for the stables and offices *of the Male Asylum*; and, secondly, whether the proposed buildings for the Female Asylum and Church should not be altogether dispensed with, the girls being provided for, by moderate though efficient additions, to the building which forms the *present* Male Asylum, and the Church by the appropriation of a room in each Asylum, in which the children might be conveniently assembled for prayers.

4. Annexed is a copy of a report by Colonel Crommelin, the Inspector-General of Military Works, upon the Asylum buildings as designed in a sanitary point of view, the suggestions in which His Excellency in Council desires may be taken into careful consideration and disposed of by the Government of Madras in communication with its sanitary officers. There is one point touched upon therein which His Excellency has desired me to bring to prominent notice, namely, the evils of mixed ventilation. His Excellency in Council considers that a series of dormitories ventilating into a common passage is a most objectionable arrangement in any climate, as tending to facilitate the spread of disease. This defect could easily be remedied in the present case without any outward change of the building, and I am to request that some means may be adopted accordingly of isolating the exit of foul air from each dormitory.

5. As regards the Hospital, I am to state that orders on the estimate will be held over, pending the receipt of the proposed plan for the building.

6. The sanction now accorded has been registered in this office as No. 21 M. of 1867-68. The designs and estimates are returned.

Note by Lieutenant-Colonel W. A. Crommelin, R. E., C. B., Inspector-General of Military Works, dated 7th March 1867.

LAWRENCE ASYLUM, OOTACAMUND.

1. THE design for the above Institution is so admirable in its architectural features and in many of the details of general arrangement, and has had so much labour bestowed upon it, that it is quite an invidious task to be obliged to pass any disparaging criticisms upon it.

2. This design, however, has certain sanitary defects, which cannot well be passed over, and which may be briefly stated as follows :—

1*st*.—The component buildings of both Male and Female Asylum are so arranged that they almost entirely shut in the enclosed areas ; ventilation of the blocks would thus be much obstructed, but the difficulty could, in a great degree, be overcome by freely opening out the corners.

2*nd*.—The dormitories have north and south as well as east and west aspects. It is presumed that at Ootacamund, as well as at other stations, generally, there is one aspect more suitable than any other with reference to prevailing winds. It is generally considered that at hill stations a north aspect is to a certain extent objectionable, as being bleak and devoid of sunlight.

3*rd*.—The arrangement of back-to-back dormitories, having windows or doors on only one of the long sides, and with an intervening corridor, is generally considered by Sanitary authorities as being very objectionable. Whatever be the direction of the wind, one line of wards will generally interfere with the ventilation of the other ; foul air is, moreover, apt to collect in the corridors and become diffused throughout the wards, and the wards and corridors will ventilate into each other, which is considered unsatisfactory.

4*th*.—The positions of the wash-houses and night privies opposite one of the long sides of the dormitories are unsatisfactory, as affluvia is liable to pass from these out-offices into the wards. The out-offices should be at the end of the wards, but the general block arrangement that has been adopted prevents their being so placed.

5*th*.—The floor space per child allowed in the dormitories, namely, 54 superficial feet, seems hardly sufficient. The wards being 20 feet wide, and allowing 2¾ feet for the width of a bed, the distance between beds would be only 2¾ feet. Perhaps 6 running feet per child would be sufficient, this would give 60 superficial feet per child. For soldiers in the hills 77 superficial feet per man are allowed

6*th*.—The space per child in the school-rooms, 9·7 superficial feet also appears too little. For Barrack School-rooms we allow 15 superficial feet per pupil. Twelve superficial feet per pupil should, perhaps, be considered a minimum allowance.

7*th*.—One large general school-room, in addition to a few small class rooms, seems hardly sufficient for so many children, especially when the breadth* of the room (36) is so great in comparison with the length (72 feet). It would be exceedingly difficult to keep such an area, when filled with some 300 children, properly ventilated. It would be preferable to provide two or three large school-rooms, the breadth of which should not exceed 24 feet.

* In the case of the Boys' School-room.

8*th*.—The same remark applies, although in somewhat less degree, to the dining hall.

9*th*.—In the section on drawing 7-9 feet are given as the height of dormitories on the ground and upper floors, I would not give any dormitory a less height than 14 feet, particularly when the allowance of floor space is limited.

10*th*.—The total absence of verandahs seems to me to be a mistake. It has been decided that verandahs are absolutely necessary in hill stations for Barracks, as protection against wind and storms. Without such protection the dormitories will be at times cold, damp, and uncomfortable.

11*th*.—As a general remark it may be observed that, in a sanitary point of view, the only block arrangement of buildings for the accommodation of considerable bodies of people, whether

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they be soldiers, hospital patients, school children, etc., etc., that is likely to prove satisfactory, is that generally known as the pavilion system.

3. It may not be out of place for me to mention here that the estimate, roughly taken at 10 lakhs, for accommodation comprising Schools, Church, Masters' houses, Day-rooms, etc., etc., for 800 children, appears to me to be moderate, and I do not think that it need be expected that full accommodation of the nature provided in the designs can be built for less than 1,200 or 1,500 Rupees a pupil.

4. Our detailed estimate for complete accommodation of every kind for a Regiment of Infantry is 15 lakhs, this gives a rate of nearly 2,000 Rupees per man.

(Signed) W. A. CROMMELIN, Lieut.-Colonel, R.E.,
Inspector-General of Military Works.

REFERRED, with Mr. Chisholm's letter of the 23rd March last, to the Sanitary Commissioner for such observations as he may have to offer.

(Signed) CHARLES A. ORR, Colonel, R E.,
Secretary to Government.

19*th June* 1867.

From the Sanitary Commissioner, Madras, to the Secretary to Government, Public Works Department, dated Madras, 25th June 1867, No. 198.

21 Plans.
1 Letter from the Secretary to the Government of India, to the Secretary to Government, Public Works Department, Madras, dated 29th May 1867, No. 523 M.
1 Memorandum of Lieutenant-Colonel Crommelin, with enclosures, dated 7th March 1867.
1 Memorandum of Mr. Chisholm.
2 Estimates.

I HAVE the honour to acknowledge your docket dated 19th June 1867, upon a letter from the Secretary to the Government of India upon the subject of the Lawrence Asylum, and Mr. Chisholm's letter explaining certain details in the design and construction of the Asylum buildings.

2. Of the objections raised by Colonel Crommelin on sanitary grounds, that which has attracted prominent attention is the back-to-back arrangement of the dormitories with a corridor between each dormitory.

3. There can be no doubt that, under ordinary circumstances, this is not a desirable arrangement, and that, had abundant space been available for both Male and Female Asylums on the site selected, it would have been better to have avoided the placing a corridor between the dormitories.

4. At the same time, bearing in mind the moderate length of these corridors, the fact that they have ample means of ventilation at either end, that the dormitories themselves will be exceedingly well proportioned, well ventilated rooms, I can see no reason why, in such a climate as that of Ootacamund, there should be any accumulation of foul air, or any danger to the health of the occupants of the dormitories.

5. As regards the position of the lavatories and night privies, to which objection has been raised, the general block arrangement prevents their being placed at the end of the wards.

6. To the lavatories, I conclude, no serious objection can be made. The privies are to be Jenning's patent water-closets, and will be separated from the dormitories by a well ventilated gallery. If there are double self-closing doors to this gallery, I do not think that any evil will arise.

7. I entirely concur with Mr. Chisholm in thinking verandahs ill-suited for buildings on the Neilgherry Hills.

8. I think that Colonel Crommelin's remarks, paragraphs 5 and 6, as regards increased floor space, are just, and it will be an advantage to give additional surface space both in the dormitories and school-rooms.

9. With the alterations indicated above, I believe that the very handsome building designed by Mr. Chisholm will prove to be unobjectionable on sanitary grounds.

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MILITARY WORKS, No. 42.

THESE papers will be communicated to Mr. Chisholm, with a view to his remodelling his designs for the male branch of the Lawrence Asylum at Ootacamund to meet, as far as possible, the views of the Government of India and the Sanitary Commissioner, improving where necessary the ventilation and giving such increased floor space as the area of the site and the arrangements of his plan will admit. It occurs to Government that, perhaps, this may now be readily effected by appropriating for the accommodation of some of the Masters a portion of the Hospital, which is larger than is required under the present altered circumstances.

2. Mr. Chisholm will be at liberty to proceed to Ootacamund, if necessary, and will take the opportunity of preparing a design for adapting the buildings of "Stonehouse," now occupied by the boys of the Asylum, for the accommodation of 400 girls.

(True Extract.)

(Signed) CHARLES A. ORR, Colonel, R.E.,
Secretary to Government.

No. 373. ORDER THEREON, 26th September 1872, No. 2,281.

MILITARY WORKS, No. 13.

ORDERED that the following letter be sent:—

(Here enter No. 2,282, dated 26th September 1872.)

(True Extract.)

Colonel, R. E.,
Secretary to Government.

Exd. E. C. Shunker.

PUBLIC WORKS DEPARTMENT,
OOTACAMUND, *26th September* 1872.

No. 374.

No. 2,282.

To

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

MILITARY WORKS, No. 14.

SIR,—Adverting to your letter of the 12th November 1870, No. 1,205 B.M., and to the despatch from the Secretary of State under date the 24th May 1871, No. 36, referring to the expenditure on the Lawrence Asylum buildings at Ootacamund, I am directed to submit, for the consideration of His Excellency the Viceroy and Governor-General in Council, and for eventual transmission to the Secretary of State, the accompanying copies of letters from Colonel Walker, R. E., the Superintending Engineer, from Mr. R. F. Chisholm, the Consulting Architect, and from Lieutenant-Colonel Farewell, the Executive Engineer, whose proceedings in connection with the buildings in question have elicited the censure of the Government of India and of the Home Government, requesting that, for the reasons stated, the censure passed upon them may be withdrawn.

2. I am also directed to bring under the consideration of the Government of India and of the Secretary of State the position which Colonel Walker, who was included in the strictures passed upon the officers of the Public Works Department, held in connection with the buildings in question.

3. It appears on reference to the correspondence that the site on which the buildings have been erected was fixed on in the official year 1863-64, and in that year instructions were issued to the Superintending Engineer, Colonel Walker, to prepare plans and estimates. Previous to the completion of the plans which were submitted to Government in September 1864, the Governor in Council, with the view of relieving some of the Jails in the plains, which at that time were greatly overcrowded, directed that 500 convicts should be sent up to the Neilgherry Hills for the purpose of being employed on the Lawrence Asylum Works. Some expense was necessarily incurred in hutting the convicts and their guards, and in order that their labour might be utilized they were at once employed in levelling the sites for the projected buildings and in the manufacture of bricks. It was also deemed advisable at once to erect permanent workshops for use, not only while the buildings were under construction, but subsequently for the instruction of the boys in carpentry and other trades.

4. When the plans of the main buildings were laid before Government, Sir William Denison, who was then at the head of the Government, considered them to be defective in certain respects, and suggested various alterations which were approved of by his colleagues. Orders were accordingly issued for the preparation of revised plans which were received by Government in December 1865. In the meantime Mr. Chisholm had been appointed Civil Architect, and it was decided to transfer the plans to him with a view to the improvement of their general effect. Mr. Chisholm urged various objections to the arrangement of the building as set

out in the revised plans. Before the plans were settled Lord Napier succeeded to the Government, and at his instance Mr. Chisholm was asked to prepare a completely new design for the main buildings; but it was determined, in order to furnish employment to the convicts and to the work-people who had been collected in anticipation of the early commencement of the buildings, that the construction of the Hospital should be at once proceeded with on the plan originally prepared by the Superintending Engineer.

5. From this time the responsibility of the Superintending Engineer, so far as related to the preparation of the plans and estimates, was at an end. The revised plans and estimates were submitted direct to Government by Mr. Chisholm in February 1867, the estimates being framed with reference to the rates previously adopted by the Executive Engineer Major (now Lieutenant-Colonel) Farewell. It is to be regretted that Mr. Chisholm was not instructed to submit his plans and estimates through the Superintending Engineer in order that the sufficiency of the estimates might be duly scrutinized, but for this omission the Superintending Engineer, Colonel Walker, cannot be held responsible, and, in the opinion of the Governor in Council, he should be relieved from the censure which has been passed upon him.

6. His Excellency in Council is also of opinion that Mr. Chisholm is free from blame. It was not unreasonable that when first preparing his plans and estimates he should rely on the rates adopted by the Executive Engineer. It will be seen from his letter of the 26th October last, that Mr. Chisholm, when submitting a revised estimate for the Boys' Asylum in 1868, drew attention to the necessity of correcting the data, and subsequently when submitting the plan of the Girls' Asylum sent in a blank estimate with the quantities only, leaving the rates to be filled in by the local officers.

7. Lieutenant-Colonel Farewell, who was the Executive Engineer during the greater part of the time that the building was in progress, points out in his own vindication that, owing to the expressed desire of the Government that the building should be pressed forward as rapidly as possible, a great deal of the work was actually done before the sanctioned estimates reached him, and that this was the reason for his substituting teak for stone in the flooring. In regard to the substitution in the roof of iron sheeting under the pan tiles for flat tiles, he observes that the former description of roofing had been found necessary and had been adopted for several public buildings on the Hills.

8. Under all the circumstances of the case, the Governor in Council considers that Lieutenant-Colonel Farewell also should be exonerated from the censure which has been passed upon him, and that the errors which have occurred must be ascribed to departures from the established course of procedure which were permitted by the Government, and for which the responsibility must rest with the Government.

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

Colonel, R.E.,
Secretary to Government.

Ed. E. C. Shunker.

Madras Presidency for the year 1868/69 viz. "The Estimate for the portion of the building intended for Lunatics has, however been found to be very insufficient and a far larger outlay than was anticipated will be required to complete it.

3 I must also most respectfully repudiate responsibility for Estimates which are sanctioned without the slightest previous reference to me, and of which copies have never passed through my office. Nor has my opinion ever been asked of the Plans prior to which they are drawn up. I am fully prepared to accept all responsibility that can legitimately be fixed on me; but would, with all respect and humility, point out that Government cannot justly expect me to abdicate some of the functions of my office with respect to a particular work, and certain others. Para 2 of G. O. No. 1760 of 5th June 1866 disposing of a letter wherein I made a final

effort to ventilate my position as Superintending Engineer with reference to these buildings) was never acted on, and Mr. Chisholm's communications were made direct to Government or to the Neilgherry Executive officers, who thus repudiated the idea of my having any Control over his papers. I continued to visit the Buildings whenever in Ootacamund with reference to occasional orders of Government and as the medium of communication between the Executives and Government. But I interfered in no way with the progress of any building but the Hospital which was built on the original Plans. It was indeed with the utmost surprize & dissatisfaction that I observed the hand to mouth way in which the Executive officers consulted to work on Mr. Chisholm's fragments of Plans, without Estimates; feelings which

which I have often expressed a desire to throw on this spot. The state of affairs and my position with reference to them are shewn in paras 1 and 2 of a letter from Lieut. Col. Farewell printed with G.O. No. 868 of 17th March 1868, and my own letter printed with G.O. No. 1647 of 23rd May 1868. See also para 3 of G.O. No. 2038 of 26th June 1868, G.O. No. 2114 of 3rd July 1868, para 3 of G.O. No. 2652 of 19th August 1868; all of which shew the circumstances under which work was proceeding without complete plans or any estimate whatever. Such papers were finally supplied to Government and submitted for sanction of the Government of India in October 1868, and Lieut. Col. Farewell received duplicate copies of them direct from Mr. Chisholm. But by the 31st of December of the same year the work had so far progressed that accommodation for 150 boys was

was available as desired by G.O. No. 2157 of 7th July 1868. I was not made acquainted with the contents of Mr. Chisholm's letter to Government No. 226 of 5th October 1868, with those of his letter to Lieut. Col. Farewell No. 229 of 12th October and was not therefore officially aware except from the Mudgherry Report of 1869, that the estimate was being exceeded, a source of knowledge equally available to Government from the extracts forwarded monthly from my office.

4. In conformity with my peculiar position relatively to the Lawrence Asylum Work, the remarks with which I headed up Lieut. Col. Farewell's Letter and Comparative Statement of Specie over Estimate, were very cursory in their nature. And I have been greatly astonished to find how much they appear to have displeased Government.

for they were chiefly meant to Exculpate both Mr. Chisholm's and the Executive officers who so cordially worked with him, from blame, in consideration of the novelty and beauty of the work. I never meant to criticize Mr. Chisholm's "Saxon" style of architecture, as I am in the habit of preserving my opinions till called for. I referred on Lieut. Colls Farewell Explanations being taken as to the detailed items of excess, and am quite ready to own that they shew a third cause in addition to the two asserted to by me, viz the substitution of Teak wood for Stone Flooring in some places at greater Expence in order to complete the West Wing for early occupation and the use of Iron sheeting instead of Flat Tiles, also increased cost and in conformity with my

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General Statement of its Necessity in letter printed with G. O. No. 2582 of 21st August 1867. But I never meant any one together from what I said that the work was not fully worth its cost, and I trust that Government have not arrived at any such conclusion. I simply stated the fact that whatever be the cause Mr. Chisholm is sanguine in his Estimates, whether for Taking Cutcherries which were to have cost Rs 14,000 to 16,000, (See G. O. No. 3552 of 18th November 1867) but actually average Rs 25,000, or for the Coimbatore Church of which his Estimate of Rs. 11300 has been revised to Rs. 13,500, Rs. 5 clusive of Furniture (See my letter No. 129 of 10th October 1868); but no offence was intended to be given by such statement, and I regret that any has been taken.

I cannot better give the

the explanation called for in para 182
of G.O. No. 136 of 11th January, thus
by resubmitting Lieut.-Col. Farewell's
comparative statement and letter
No. 132 of 20th Sept. and extract
of another letter No. 182 of 4th Dec.
Captain Hankin, now at Madras,
could verbally satisfy Govern-
=ment on any details regarding
which they may wish for further
information. But I am sanguine
that, on a final review of all
the circumstances, Government
will be pleased to ratify my pro-
=ceedings and the Executive Officers from
blame with reference to the excess
which has necessarily been incurred,
and the irregularity in noticing
which is only of a piece with
that which has pervaded all the
proceedings connected with
the work, which from first to
last cannot be justified, but
must be confessed to the Supreme
Government.

I have

I have the honor to be
Sir
Your most obed.t & hum.e
Sd/ G. M. Walker Lt.
Sup.t Engr. 7th D.n

(True Copy)
W. Swinton Lt. R.E.
Actg Sup.t Engr 7th D.n

In a letter from the
Supg Engineer 7th Div
to the Secretary to Govt
D.P.W. dated 30th Sept 1871
No 132

P. W. 4849 A/71

From
The Supg Engineer
7th Division

To The Secretary to Govt
D.P.W. Madras

Copy of letter explain-
-ing about the excess
outlay on the Lascarine
Asylum Buildings
at Cotacamund

Office Engr Office 1st Division
Wellington 30th September 1871

Memorandum

Lt Colonel W. Harewell C.E.
Superintending Engr
1st Dist

The Secretary to Government
Public Works Department
Colombo

Enclosure 2.

In reply to your memorandum
dated 21st instant, I have the
honor to forward a copy of Colonel
Harris's letter and letter from
the Range Officer giving the
information called for.

I have the honor to be,
Sir
Your most obedient
Servant
[illegible]
Asst Engineer

In a letter from the
Acting Engineer 1st Div
to the Secretary to Govt
P.W.D. dated 30th Sept
No 132

P. W. 4649 A/71

From
The Eve. Engineer
Mr Herris

To The Acting Engineer
1st Division.

Report on the sub-
ject of expenditure
incurred on Mah.
Branch of the Law-
rence Asylum
Lunatic Lodge at Colombo

Public Works 1872 Department
Progress Report for October 1868
Rs. 4 b 4 pd.
Progress Report for Septr 72
From
The Supg Engineer
1st Division
To
The Secretary to Govt
D.P.W. Ootacamund
No 132
Dated 30th September
& 2nd October 1872
Enclosure 2
Nos 2281-2282-26th Septr 72
Forwarded Copy of
Lieut Walker's letter and
the Neilgherry Range
Officer's letter with
reference to Memo.
Examined dated
21st Septr 1872
Nos 2966-2967-23 Novr 72

No 370
Oct 448

Extract from the Progress Report of Works in Neilgherry Range for October 1868.

Constructing Lawrence Asylum at Ootacamund.

Remarks.

Work shop completed with exception of inside Verandah, Servants' Quarters with privies attached Completed. Tramway from Brick field to Male site and from Male to Female site Completed, Male and Female site Excavated. Brick work of Male Asylum building. Foundation of the North East, and West laid, basement of the above laid. West side Longitudinal and Cross Walls raised to full height. Brick work of this wing is quite completed and roofing is nearly finished. North side Longitudinal and Cross walls raised to 15 feet high, screen walls to 9½ feet high, Pillars, Arches, and Spandrils of the play ground filled in. Tower walls raised to 20 feet above the basement and on girders & joists filled up. 2 Dormitory's and Masters' Quarters on the East side South end raised to 12 feet high, and Principals' Quarters' end walls to 11 feet. Dining room walls and Cook rooms passage, raised to 11 feet high, inside walls of the four Dormitory's and 2 Masters Quarters on the west side with passage and Steps plastering work Completed and painting nearly Completed, Flooring to 3 Dormitory's, 3 Masters Quarters and to passage Completed. Cook room Completed with exception of Stone flooring. Roads of approach Completed. Additional to Hospital

Verandah completed - 7 Blocks of Police Lines Completed - Temporary Jail to accommodate 500 Convicts Completed - Apothecaries Quarters and out houses Completed - Great quantity of Lime Stone quarried and Carried to site, and other Materials prepared and Collected.

/True Extract/

W Marriott Lt Col R.E.

Offg Supt Engr 7th Div

No 190

Supt Engineer's Office 7th Div

Camp: Tellicherry 28th November 1871.

From,

Lt Col W. Farewell R.E.

Offg Supt Engr 7th Div

To,

The Secretary to Government

P.W.D. Madras

Sir,

With reference to His Excellency the Governor General's orders published with G.O. No 7 dated 4th January 1871, & the despatch of the Right Honorable the Secretary of State for India communicated with G.O. No 2233 of 1st September 1871, I beg very respectfully to bring the following to the notice of Government with the hope that for the reasons given they will be so good as to urge the Govt of India to reconsider the severe censure passed upon me and reported to the Right Honorable the Secretary of State for India. I beg first to draw the attention of Government to my letter No 182 dated 6th December 1869 to the Supt Engineer of the 7th Div and that Officer's letter No 184 of 13th February 1870 to Govt both of which appear from recent correspondence with you calling for copies to have been mislaid and were therefore probably lost sight of by Govt when bringing the whole question before the

In a letter from the Supt Engineer 7th Div to the Secretary to Govt P.W.D. dated 28th December 1870 No 2015 Records 7th Div.

P.R. 5/6/71.

Extract from the Report of the Work visited by Capt Fox for October 1868.-

Government of India - In my letter No 1328 / 182 -
I explained to the Supt Engineer the cause
of the necessity of submitting Revised Es-
timates and of my being utterly unable
to do so before I did, of my having used
Iron sheeting under the pan tiles in lieu
of flat tiles, as also the reason of substi-
tuting Teak for Stone flooring in the
passages - I omitted however to note a very
important fact viz: that the duplicate
and even then unsanctioned Estimate for
the building, only reached me in October 1868
when fully $\frac{2}{3}$ of the work had been built
and $\frac{1}{3}$ of it roofed in, vide para 3 of the
Supt Engineer's letter No 184 dated 13 February
1870 and Fortnightly Range Progress Report
for October 1868 - † It can therefore hardly
be said to be correct that I departed
from and used more expensive materials
than contemplated in an Estimate I had
never seen, though I did use the Sheet
Iron instead of Flat tiles as recommended
by me and by the Supt Engineer to Go-
vernment in his letter printed with G.O.
No 2532 of 21st August 1867 the necessity
of which has been fully proved by
Government having sanctioned at great
expense its substitution for Flat tiles
found to be utterly useless in Govern-
ment Buildings at Cuttack namely the
Civil Dispensary and Hospital

† See Extract annexed.

Lillah and Debtors' Jail, Subsidiary Jail
and Police Station, Pykarah Bungalow,
and the whole of the Commissioners Offices,
in doing so I did not depart from a
Sanctioned Estimate, but with the ex-
perience gained in the construction of
many buildings on the Hills substituted
a more suitable Material than con-
templated in some totally different Es-
timates for the Lawrence Asylum framed
by me some years previously, taking which
as Data, the Government Architect as I have
before pointed out framed his Estimates, I
feel sure had I not acted as I did I should
on the other hand have been most justly
blamed for so glaring an error as using
flat tiles on any New Government Build-
-ing, while I actually at the same time
had submitted Estimates for removing
them from others in the same Stations
as condemned and useless — substitut-
-ing Iron sheeting instead - The im-
mediate cause of my using teak in-
stead of stone for flooring was that Go-
vernment pressed the early completion of
a portion of the building to allow of its
immediate occupation by 150 boys with
their Masters &c &c, finding it quite
out of my power to get sufficient
stone ready, I used teak knowing
the difference of excess above what
I anticipated the Estimate would

amount to would be far below 5 per cent which Excess is sanctionable by the Supg. Engineer, on proper explanation, & I felt satisfied under the circumstances mine would be accepted, had I waited for stone, I beg to bring to notice that up to the present date, though the building has been long in occupation, the stone work would not have been completed, the reduced stone flooring of the building having only just after the greatest difficulty been finished. In my letter No 182, I did not sufficiently notice that the rates in the Range had after the submission of my former Estimate for the Lawrence Asylum buildings as designed by me greatly increased especially those for wood work. The wastage on timber of late years has been very considerably in advance of that of former years, owing to the very inferior quality of the timbers only obtainable from the Forest Department and the increase also of the Cost of Carriage and in Labor and wages of Carpenters especially. Lastly I would beg very respectfully in regard to the high total of the Estimates remarked on by the Government of India and the Right Honorable the Secretary of State for India to draw attention to the Memorandum of the Inspector

General of Military Buildings Colonel Cromelin, printed with G. O. No 1924 of 27 June 1867, in which that Officer noticed that in Bengal (presumedly in the plains) the average rate at which Soldiers could be lodged in Barracks was 2,000 Rs a head, but he appears to have overlooked the fact of the Lawrence Asylum being 7,500 feet above the level of the sea, and that an Institution like the Lawrence Asylum requires, for the Boys alone, fully one third more accommodation than necessary in Barracks; and yet notwithstanding including every Excess reported to date besides affording accommodation for the Principal and his family, Masters and Matrons &c. the total cost of the building only amounts to 1,281 Rupees per Boy, while the Barracks at Wellington within 8 Miles of the site at a much lower elevation Cost 1,800 Rs per Soldier Housed.

Under the circumstances now reported I trust Government will so explain the whole question to the Govt of India that they will entirely exculpate me from the blame that has been attributed to me.

I have the honor to be,
Sir,
Your most obt Servant,

Warwick Lt-Col. R.E.
Ag. Supg Engr 7th Dn

No 228

Something Overleaf
Madras 4th October 1866

From

R. F. Chisholm Esqr
Executive Engineer to Govt

To

Colonel Shurle R. Engrs
Secretary to Government P.W.D.

Sir

I have the honor to submit the
Revised Estimate and detail drawings of the
original Drainage Main Branch of the Lawrence Asylum Estate.
" " Cummd.

Detailed Drainage 2
1. Estimate.

The rates in the Estimate are
the same as those entered in the Original
Estimate submitted on the 11th of March 1864
which gives a total of Rupees 3,94,137.0.2 I dont
think however that this Estimate of cost
is to be depended on, as I know the data to be
in some cases incorrect. I have forwarded
a duplicate set of plans and Estimate
to the Superintending Engineer, & I think
it would be advisable to await his remarks as to what
alterations he will make.

I have the honor to be
Sir
Your most obedient Servant
Signed R. F. Chisholm
Executive Assistant to Govt

6 15 Nov/71 No 371
(2 enclosures) 2
Ack 15 Nov/71. R. 18th
6 12 Dec/71

P. W. 1871 Depart.
Proc. of Govt. for Septemter
No 5767.
The Superg Engineer
7th Div.

To The Secretary to Govt
P.W. Department
Madras

No 190
Dated 28th
Rec'd 5th Dec/71.
Nos 2281-2282-26th Sept/71
Enclosure 1/1

Explains the reasons
under which certain
Expenditure incurred on
the Lawrence Asylum
Buildings at Ootacamund
and requests that he may
be recalpated from the
blame now attributed to
him

P.W. 4786/71

Appendix. B.

No. 229

Consulty Architt Office
Madras 12th October 1868

From

R. F. Chisholm Esqr
Consulty Architt to Govt

To

Major Farewell
Executive Engineer Vizagapatam

Sir

I have the honor to forward
you a Duplicate set of plans & Estimate of
the Male Branch of the Lawrence Asylum the
originals of which I have this day forwarded
to Government.

2d I would suggest that the rates
be revised, so that the Estimate may represent
truly the amount to be expended. The extra
labor on face and exterior decorations, will
not Cost more than I have allowed.

I have the honor to be
Sir
Your most Obedient Servant

Signed R. F. Chisholm
Consulty Architt to Govt

P.W. 4986/71

Proceedings of the Madras Government, Public Works Department, 3rd November 1869.

No. 46. Read the following letter from R. F. CHISHOLM, Esq., Architect, Madras, to the Secretary to Government, Public Works Department, dated Madras, 24th September 1869, No. 356 :—

I HAVE the honour to forward the revised estimate and detailed drawings of the female branch of the Lawrence Asylum at Ootacamund.

2. In my No. 226, of the 5th October 1868, when forwarding similar documents connected with the male branch, I pointed out that the rates, although based on Major Farewell's estimated rates, were I thought insufficient for the work, as I knew the data to be in some cases incorrect. As the estimate was sanctioned without any revision by the local officers, I have thought it advisable, in the present instance, to submit a blank estimate of quantities only. If the Government desire it, I can return it filled in, but it would seem to me better if the Executive Engineer at Ootacamund would complete the abstract and enter extras not contemplated by me, such as continuous iron roofing under the tiles.

3. If you approve of this course, I shall feel greatly obliged if you will forward me a copy of the completed abstract.

No. 47. ORDER THEREON, 3rd November 1869, No. 3,509.

MILITARY WORKS, No. 3.

RESOLVED that the estimate submitted with this letter for the female branch of the Lawrence Asylum at Ootacamund be forwarded to the Superintending Engineer of the 7th Division with a view to its being duly completed and returned to Government with as little delay as possible, as, under recent orders of the Government of India, no work can find a place in the Budget until the estimate for it has been sanctioned by competent authority.

(True Extract.)

(Signed) CHARLES A. ORR, Colonel, R. E.,
Secretary to Government.

To the Superintending Engineer, 7th Division, with Plan and Estimate.
To R. F. Chisholm, Esq.

Exd. S. T. Augustin.

Structures

Extracts from letter of explanation

2 The question which arises from this correspondence is one of vital importance and I trust before any orders are passed by Government more detailed information may be called for. both Colonel Walker and Colonel Farewell represent that the excess of upwards of a lac of Rupees is caused by the superior style of architecture introduced by me. I do not pretend to say that the work required by my designs is at a given quantity cheaper than ordinary work. possibly the masonry will be a little more expensive, but very slightly so, what I would respectfully contend for is that the Random style adopted in this building provides a given extent of accommodation at a cheaper rate than the symmetrical building designed by Major Farewell.

* * * * * *

Fortunately the question resolves itself into a very simple one the relative Cost of labor and Materials. With the exception of a few thousands of dog tooth brick, the whole of the Materials were the Materials ordinarily used in such Structures

structures, indeed all the burnt material was made and deposited in "situ" before my designs were Completed and apprn. ved of. If the total Cost is seperated into these two items "labor" and "Materials" and the results Compared with the Estimate similarly divided according to the data forming the rates, the excess due to architectural elaboration will be rendered at once apparent provided of Course that such data Can be Shown by experience on other work to be accurate.

* * * * * *

3 Passing on to a closer examination of the statement I find that a good deal of extra work not contemplated in the Estimate is made no mention of by Major Farewell in his explanatory letter. Without pretending to great accuracy the value of the extra work so executed. I estimate at Rupees 25000/- as detailed below;—

Eight privies added by order of the Municipal Commissioners ——— 4,900. 0. 0

Additional accomodation on 3rd Story of Principals house executed by my order in Consultation with Captain Hankin ——— 1,705. 0. 0

Spiral Staircase at angle of Tower found to be absolutely necessary ——— 1200. 0. 0

Pulling down and reconstructing screen wall which was incorrectly built — 2200. 0. 0

Continuous iron sheeting under tiles not provided for in Estimate about ——— 10,000. 0. 0

(I am unable to get the exact sum for this item and I have arrived at it by Calculation)

The difference over this item, amounting to Rupees 77,333 represents the true excess on rates.

4 The Cause of so wide a difference between the Estimated Cost and the actual Cost is in my Opinion due in a great measure to the way in which items have been limped together into average rates and I trust I may not be thought over zealous if I venture to point this out to Government. Flooring for instance is taken at per Square of flooring Completed in place of forming two items viz "Timber in scantling at per Cubic foot and "Boarding at per Square. Roofing" again is taken simply at per Square Completed, in place of forming 4 items as follows;—

1. Timber at per Cft.
2. Iron work @ per lb.
3. Reepers at per Square
4. Tiling at per Square

Sir Digby Wyatt in his despatch dated the 26th February 1869 pointed out the necessity of an executive Officer possessing the most perfect Knowledge of the Cost of minute subdivisions of labor and Materials. In England although a door is generally paid for by the Sup.l ft., the cost

is arrived at by Calculating the lengths of the various scantlings used the labor of framing and the cost of every moulding required by its size and shape.

* * * * * * *

The windows designed by Major Farewell have moulded sashes, in mine the sashes are splayed, his doors have moulded styles and rails mitred at angles and grooved raised and beaded panels front and back, tongued into frames, my doors have plain styles and rails splayed and plain screwed panel splayed at edges altogether a Cheaper and less elaborate form of door.

With regards to the cost of Roofing and flooring I have no means of separating the various items but the Comparative Statement shows a discrepency some where Flooring estimated at 102 Costs 130 and Roofing Estimated at 106 Costs 136.5.0 This latter rate however includes 15.000.0.0 the assumed cost of the Continuous iron Sheeting, deducting this sum therefore the cost of the Roofing comes within the Estimate - now as the flooring Consists wholly of teakwood of ordinary plain discription it is evident that the Cost of the wood itself has been miscalculated and on the other hand as the item wood work forms a very large proportion to the Cost of the whole in Roofing it is out of the question to suppose that there would be no equivalent excess on Roofing.

If as Colonel Walker states

states the excess is due to architectural elaboration then the cost of all plain work would be well within the Estimate, Selection for example the item of flooring which consists simply of beams, Joists and boarding. The excess rate is as follows:-

Estimated 102 Advanced rate
28 Percent.
Executed 130

Comparing this with the excess on the whole Estimate we have the percentage.

Estimated 394.000 Advanced rate.
26 Percent nearly.
Executed 496.000

That is to say, the Percentage of excess on the plainest discription of work is greater than the percentage of excess on the whole work. The instance Colonel Walker mentions in support of his views an architectural elaboration viz the excess Cost of the Cotacammund Library, the Coimbatore Church and Calicut Lutherans in the 7 District rather tend to Confirm the opinion I have expressed regarding the inaccuracy of the rates of this Range as all the works were estimated for at rates supplied me by local Officers. The excess on the Church at Cotacammund is quite as large in proportion if not larger than the excess on the work he mentions, and this is a building with which I had nothing to do.

The excess on the Cotacammund Library

Library carried out by amateur Builder
who laboured under all kinds of disadvantages
as follows,—

Estimated 25,000
Executed 30,000 about 25 per cent.

In conclusion I wish to beg leave to
state that the items said to be omitted P.W. 4786/71
from my estimate are no more omitted from
my estimate than they were from Colonel
Farewell's estimate. I included all items
which I found in the latter and the cost
of such items as water pipes lightning
Conductors &c I imagined to be provided
for under the head of Contingencies.

End of Extracts

Appendix F

S 2 1

Proceedings of the Madras Government, Public Works Department,
27th June 1867.

Read the following papers :—

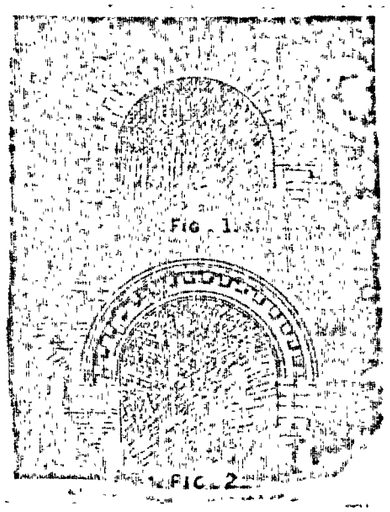
No. 592. From R. F. CHISHOLM, Esq., C. E., Executive Engineer, Presidency, to the Secretary to Government, Public Works Department, dated Madras, 23rd March 1867, No. 162.

1. I have the honour to acknowledge the receipt of your Memorandum, No. 64 of yesterday's date, inquiring what the probable cost of the Boys' branch of the Lawrence Asylum buildings would be, if all decorative or architectural accessories were dispensed with.

2. On referring to the detailed estimate, I find that the estimated cost of purely architectural and decorative accessories amounts to 15,784 Rupees, or less than four per cent. on the estimated outlay.

3. I trust it may ~~not~~ not be considered out of place if I venture to offer a few remarks on the subject of the decorations of this building. I do so with greater confidence, as I am in a position to point out how deductions can be made in the cost of the Boys' branch of the Asylum, without materially affecting either the general appearance, or the extent of accommodation.

4. In the first place, it is most difficult in structures of this kind to define what legitimately comes under the head of ornament. Suppose, for instance, an arch is turned in three concentric rings. If shorn of all pretensions to ornament it would appear as in sketch 1, see the margin; if we make the edge of the first brick bead moulded, project every second brick in the second ring, and give a splay moulded and projected brick for the third ring, the result will be ornament of the very highest architectural merit (see figure 2). The splay moulded bricks cost no more than common bricks, and, with regard to the labour, I never yet met a workman who would not prefer to build No. 2 in preference to No; 1, still I admit that the cost would be a little greater; I cannot exactly explain why, except, perhaps, that the workmen take a real interest in their work and turn out a better article at a very slight increased cost. Now, with the exception of the glazed tiles, all the ornament in the proposed building both internal and external is formed as in figure 2, and I scarcely think the most parsimonious would, on comparing the two, wish it to be omitted.



5. The tower above the Principal's studio also forms a portion of the 15,780 stated above. In this particular style a feature of this kind becomes almost a necessity, without it the buildings would appear a scattered mass, having little or no relation to each other. A crowning member to such a composition bears the same relation to the whole, as a capital does to its column, and if no tower is to

be erected, I would strongly recommend that a symmetrical plan be reverted to, at the same time pointing out that the cost of "filling out" a symmetrical plan will more than quadruple the cost of this feature. I have not the means of ascertaining the amount of Major Farewell's original estimate for a symmetrical plan, but *the revised and reduced* estimate including the Masters' houses and

Principal's quarters amounted to	Rupees	4,31,000
My own estimate amounts to	,,	4,04,000
Difference	,,	27,000

and this result was only arrived at, in the symmetrical plan, by adopting an objectionable arrangement, and an extremely ugly facade. Stated simply; a symmetrical building without ornament of any kind will cost about as much as a random building with a few decent pretensions to style and unity, from which it may be argued that the cheapest of all buildings is a random plan, without any pretensions at all; this is perfectly true; but the result would be similar to the prospect offered by the *backs* of London houses.

6. The glazed tiles are of course purely ornamental, they take the place of polished marble in the original specimens of the style. They do not cost much, and apart from ornamenting the structure, I trust the amount expended in the manufacture may be the means of introducing the art of *encaustic* tile-making into Madras. The sum I have allowed for this work is large, and I have no doubt a considerable saving may be effected: as I am responsible for this item of the estimate, I have taken the precaution to allow a wide margin.

7. I now beg leave to point out how reductions can be made in the amount of the estimate without altering or curtailing the ornate portions.

	Rs.
1st.—I would reduce the corridors throughout the building from eight feet to six feet broad, this would effect a saving of	3,500
2nd.—A portion of the Hospital might be devoted to the residences of four Masters, which would effect a saving of	19,300
3rd.—I would make the roof of corrugated iron throughout, which would reduce the estimate further by	7,250
4th.—I would adopt a permanent floor in place of a boarded floor, by which a further saving could be effected of	11,100
Say in all ...	41,150

8. I make the fourth suggestion with some hesitation, as Major Farewell considers terrace floors damp and uncomfortable in that particular climate, still as the amount is large, I think the matter worthy of further consideration.

9. I believe further reductions, amounting to about 20,000 Rupees, could be effected, but it would be necessary, before entering into the particulars of these deductions, that I should meet with and consult the Sanitary Commissioner.

Proceedings of the Madras Government, Public Works Department,
27th June 1867.

APPENDIX B.

1. I beg leave to add a few remarks after perusing the Government of India Order.

2. The removal of the Girls' branch of the Lawrence Asylum from Lovedale leaves the site available for the Boys' branch. There is ample room on this site to spread the building out into a single line of dormitories with corridors running along the back. The cost would be probably increased, and the plans would have to be entirely remodelled, but to prevent delay, the working drawings might be commenced, and the work proceeded with after a sketch elevation had been submitted for approval.

(Signed) R F. CHISHOLM.

4th June 1867.

Memorandum by Mr. Chisholm on the Lawrence Asylum Plans, Ootacamund.

1. I have perused very carefully Colonel Crommelin's Memorandum on the plans for the proposed Lawrence Asylum.

2. The general sanitary principles and arrangements which Colonel Crommelin has touched on, are so admirable, and have been so clearly and unmistakably laid down in the reports of the various Sanitary Commissions appointed by Government, that there can be no doubt as to the "pavilion" system being the only arrangement in building, which obtains a maximum of light and air, and that the detailed rules to be generally adopted are those laid down in the Commissioner's Blue Books. As I have held these opinions since first perusing the Commissioner's report, I was only too eager to adopt the pavilion system when the preparation of the designs was entrusted to me, so far as the limited area of the building space would permit. I forward the ground plans of the Boys' Asylum, in order that it may be seen how closely I adhered to these principles. Since these plans were drawn out, I have had an opportunity of seeing the site and conversing with professional residents, and I am of opinion that were such plans carried into execution, half the children would die of cold, or the building would be so closed by the inmates as to make it injurious from a collection of foul air.*

Aspect.

3. Unfortunately the northern aspect presents the principal elevation, but even were this not the case, the building area is too limited to admit of leaving the northern face open. It will be observed, on reference to the plans, that I have put as few dormitories on this face as possible, and that the chief part of the northern wing of the structure is on open arches, and if necessary, the whole of the under part can be left open. It will be observed also that *I have turned the axis of the building* 11° *east*, and broken it up into as many angles as possible, with the view of obtaining a fair distribution of sunshine.

Back-to-back arrangement of Dormitories.

4. I adopted this arrangement after the most careful consideration of the question, and after I had made numerous sketches of other arrangements; the back-to-back arrangement, although objectionable in principle is, in my opinion, under the peculiar circumstances of the case, the arrangement which embodies the minimum number of faults.

Floor space in Dormitories and School-rooms.

5. I have adopted the scale of accommodation allowed in England in Institutions of the kind. In the Royal Masonic Institute, one of the latest examples (erected 1865), each boy is allowed 40 superficial and 500 cubic feet in the dormitories. I have allowed 50 superficial feet, and a minimum cubical area of 600 feet. The School-room space might be slightly increased with advantage, but I would strongly recommend that the method of dividing the school space into one large room, and three or four small class-rooms be retained. I know of no English example (and I have plans of six different designs erected within the last ten years) where any other arrangement has been tried, and it would seem to me that on such a question we can have no better guide than that of experience.

* In Wellington, a much warmer and more sheltered spot, the Soldiers, I have heard, cannot be prevented from stopping up the air shafts with their clothes.

Height of Dormitories.

6. The figures on the plans sent to Calcutta must be incorrect. The lower dormitories are 13 feet from floor to floor and the upper average 13 feet in height, and are so figured on the copies in my office.

Verandahs.

7. I very respectfully beg to differ from Colonel Crommelin on this point. I am of opinion that verandahs would add materially to the discomfort of the inmates. A verandah, if sufficiently open, could be no protection against stormy weather, and would completely rob the walls of sunshine. The object in a cold and damp climate is to obtain warmth and dryness. The experience obtained at Wellington, where verandahs are provided, should be sufficently conclusive on this point.

8. In conclusion, I beg to state that architectural considerations have in no way caused me to deviate from the principles laid down by Sanitary authorities, and that I make the above remarks with no desire to retain the external elevations.

9. I append a letter on the cost of the ornament which seems to have been considered a little lavish.

(Signed) R. F. CHISHOLM,
Architect.

No. 593. From the Secretary to the Government of India, Public Works Department, (Military Works,) to the Secretary to Government of Madras, in the Public Works Department, dated Simla, 29th May 1867, No. 523 M.

No. 455, dated 16th February 1867.
" 787, " 15th March

	Rs.
Male Asylum	4,03,979
Female do.	2,74,377
Church	95,005
Hospital	79,700
Works already executed	1,30,173
Total ...	9,83,234

1. I am directed to acknowledge the receipt of your letters marginally noted, submitting for sanction designs with estimates aggregating Rupees 9,83,234 in amount, for the proposed Lawrence Asylum buildings at Ootacamund, as specified on the margin, and in reply to communicate the following observations and orders thereon:—

2. While fully recognizing the merits of the designs submitted, His Excellency the Governor General in Council observes, that the expenditure to be incurred in carrying them into effect exceeds the amount which His Excellency would consider himself justified in allowing for the object in view.

3. In consideration, however, of the expense that has been already incurred on the work, and of the fact of the working establishment having been formed on the site, His Excellency in Council is pleased to sanction the design and estimate amounting to Rupees 4,03,979 for the Male Asylum, as also the expenditure on works already executed, viz., Rupees 1,30,173, (making a total of Rupees 5,34,152,) leaving it to the Government of Madras to judge, first, whether some saving might not be effected by dispensing with a portion of the ornamentation, and adopting a more economical design for the stables and offices *of the Male Asylum*; and, secondly, whether the proposed buildings for the Female Asylum and Church should not be altogether dispensed with, the girls being provided for, by moderate though efficient additions, to the building which forms the *present* Male Asylum, and the Church by the appropriation of a room in each Asylum, in which the children might be conveniently assembled for prayers.

Five lakhs thirty-four thousand one hundred and fifty-two Rupees.

S 30

4. Annexed is a copy of a Report by Colonel Crommelin, the Inspector General of Military Works, upon the Asylum buildings as designed, in a sanitary point of view, the suggestions in which His Excellency in Council desires may be taken into careful consideration and disposed of by the Government of Madras in communication with its Sanitary officers. There is one point touched upon therein, which His Excellency has desired me to bring to prominent notice, viz., the evils of mixed ventilation. His Excellency in Council considers that a series of dormitories ventilating into a common passage, is a most objectionable arrangement in any climate, as tending to facilitate the spread of disease. This defect could easly be remedied in the present case without any outward change of the building, and I am to request that some means may be adopted accordingly of isolating the exit of foul air from each dormitory.

5. As regards the Hospital, I am to state that orders on the estimate will be held over, pending the receipt of the proposed plan for the building.

6. The sanction now accorded has been registered in this Office as No. 21 M of 1867-68. The designs and estimates are returned.

Note by Lieutenant-Colonel W. A. Crommelin, R. E., C. B., Inspector General of Military Works, dated 7th March 1867.

Lawrence Asylum, Ootacamund.

1. The design for the above Institution is so admirable in its architectural features and in many of the details of general arrangement, and has had so much labour bestowed upon it, that it is quite an invidious task to be obliged to pass any disparaging criticisms upon it.

2. This design, however, has certain sanitary defects, which cannot well be passed over, and which may be briefly stated as follows:—

1st.—The component buildings of both Male and Female Asylum are so arranged, that they almost entirely shut in the enclosed areas; ventilation of the blocks would thus be much obstructed, but the difficulty could, in a great degree, be overcome by freely opening out the corners.

2nd.—The dormitories have north and south as well as east and west aspects. It is presumed that at Ootacamund, as well as at other Stations, generally, there is one aspect more suitable than any other with reference to prevailing winds. It is generally considered that at Hill stations a north aspect is to a certain extent objectionable, as being bleak and devoid of sunlight.

3rd.—The arrangement of back-to-back dormitories, having windows or doors on only one of the long sides, and with an intervening corridor, is generally considered by Sanitary authorities as being very objectionable. Whatever be the direction of the wind, one line of wards will generally interfere with the ventilation of the other; foul air is, moreover, apt to collect in the corridors and become diffused throughout the wards, and the wards and corridors will ventilate into each other, which is considered unsatisfactory.

4th.—The positions of the wash houses and night privies, opposite one of the long sides of the dormitories are unsatisfactory, as affluvia is liable to pass from these out-offices into the wards. The out-offices should be at the end of the wards, but the general block arrangement that has been adopted prevents their being so placed.

5th.—The floor space per child allowed in the dormitories, viz., 54 superficial feet, seems hardly sufficient. The wards being 20 feet wide, and allowing 2¾ feet for the width of a bed, the distance between beds would be only 2¾ feet. Perhaps 6 running feet per child would be sufficient, this would give 60 superficial feet per child. For Soldiers in the Hills 77 superficial feet per man are allowed.

6th.—The space per child in the School-rooms, 9 7 superficial feet also appears too little. For Barrack School-rooms we allow 15 superficial feet per pupil. 12 superficial feet per pupil should, perhaps, be considered a minimum allowance.

7th.—One large general School-room, in addition to a few small class rooms, seems hardly sufficient for so many children, especially when the breadth* of the room (36) is so great in comparison with the length (72 feet). It would be exceedingly difficult to keep such an area, when filled with some 300 childern, properly ventilated. It would be preferable to provide two or three large School-rooms, the breadth of which should not exceed 24 feet.

* In the case of the Boys' School-room.

8th —The same remark applies, although in somewhat less degree, to the dining hall.

9th.—In the section on drawing 7-9 feet are given as the height of dormitories on the ground and upper floors, I would not give any dormitory a less height than 14 feet, particularly when the allowance of floor space is limited.

10th.—The total absence of verandahs seems to me to be a mistake. It has been decided that verandahs are absolutely necessary in Hill stations for Barracks, as protection against wind and storms. Without such protection the dormitories will be at times cold, damp, and uncomfortable.

11th.—As a general remark, it may be observed that, in a sanitary point of view, the only block arrangement of buildings for the accommodation of considerable bodies of people, whether they be soldiers, hospital patients, school children, &c., &c., that is likely to prove satisfactory, is that generally known as the pavilion system.

3. It may not be out of place for me to mention here, that the estimate, roughly taken at 10 lakhs, for accommodation. comprising Schools, Church, Masters' houses, day-rooms, &c.,&c., for 800 childern, appears to me to be moderate, and I do not think that it need be expected that full accommodation of the nature provided in the designs can be built for less than 12 or 15 hundred Rupees a pupil.

4. Our detailed estimate for complete accommodation of every kind for a Regiment of Infantry is 15 lakhs, this gives a rate of nearly 2,000 Rupees per man.

(Signed) W. A. CROMMELIN, Lieut.-Colonel, R. E.,
Inspector General of Military Works.

Referred, with Mr. Chisholm's letter of the 23rd March last, to the Sanitary Commissioner for such observations as he may have to offer.

(Signed) CHARLES A. ORR, Colonel, R. E.,
19*th June* 1867. *Secretary to Government.*

No. 594. From the Sanitary Commissioner, Madras, to the Secretary to Government, Public Works Department, dated Madras, 25th June 1867, No. 198.

21 Plans.
1 Letter from the Secretary to the Government of India, to the Secretary to Government, Public Works Department, Madras, dated 29th May 1867, No. 523 M.
1 Memorandum of Lieutenant-Colonel Crommelin, with enclosures, dated 7th March 1867.
1 Memorandum of Mr. Chisholm.
2 Esitmates.

1. I have the honour to acknowledge your docket dated 19th June 1867, upon a letter from the Secretary to the Government of India upon the subject of the Lawrence Asylum, and Mr. Chisholm's letter explaining certain details in the design and construction of the Asylum buildings.

2. Of the objections raised by Colonel Crommelin on sanitary grounds, that which has attracted prominent attention is the back-to-back arrangement of the dormitories with a corridor between each dormitory.

3. There can be no doubt that, under ordinary circumstances, this is not a desirable arrangement, and that, had abundant space been available for both Male and Female Asylums on the site selected, it would have been better to have avoided the placing a corridor between the dormitories.

4. At the same time, bearing in mind the moderate length of these corridors, the fact that they have ample means of ventilation at either end, that the dormitories themselves will be exceedingly well-proportioned, well-ventilated rooms, I can see no reason why, in such a climate as that of Ootacamund, there should be any accumulation of foul air, or any danger to the health of the occupants of the dormitories.

5. As regards the position of the lavatories and night privies, to which objection has been raised, the general block arrangement prevents their being placed at the end of the wards.

6. To the lavatories, I conclude, no serious objection can be made. The privies are to be Jenning's patent water closets, and will be separated from the dormitories by a well ventilated gallery. If there are double self-closing doors to this gallery, I do not think that any evil will arise.

7. I entirely concur with Mr. Chisholm in thinking verandahs ill-suited for buildings on the Neilgherry Hills.

8. I think that Colonel Crommelin's remarks, paragraphs 5 and 6, as regards increased floor space, are just, and it will be an advantage to give additional surface space both in the dormitories and school-rooms.

9. With the alterations indicated above, I believe that the very handsome building designed by Mr. Chisholm will prove to be unobjectonable on sanitary grounds.

No. 595. ORDER THEREON, 27th June 1867, No. 1,924.

MILITARY WORKS, No. 42.

1. These papers will be communicated to Mr. Chisholm, with a view to his remodelling his designs for the male branch of the Lawrence Asylum at Ootacamund to meet, as far as possible, the views of the Government of India and the Sanitary Commissioner, improving where necessary the ventilation and giving such increased floor space as the area of the site and the arrangements of his plan will admit. It occurs to Government that, perhaps, this may now be readily effected by appropriating for the accommodation of some of the Masters a portion of the Hospital, which is larger than is required under the present altered circumstances.

2. Mr. Chisholm will be at liberty to proceed to Ootacamund, if necessary, and will take the opportunity of preparing a design for adapting the buildings of "Stonehouse," now occupied by the boys of the Asylum, for the accommodation of 400 girls.

(True Extract.)

Colonel, R. E.,
Secretary to Government.

To R. F. Chisholm, Esq., Executive Engineer, with ~~twenty-one~~ sixteen Plans and three Estimates.
To the Superintending Engineer, 7th Division.
,, Sanitary Commissioner.
,, Educational Department.

Exd. S. T Augustin.

No 227.

From R. J. Chisholm. F. R. I. B. A.
Consulting Architect to Government of Madras

To

Col: J: Garstin R. E.
Chief Engineer & Secretary to Govt of Madras.

Madras 5th October 1871.

Sir

I have the honor to acknowledge the receipt of

G. O. No 2233 dated 18th Ist of September 1871

conveying the very severe censure of His Grace the

Secretary of State for India on account of the supposed

fallaciousness of my estimate for the Male Branch

of the Sanmeer Asylum at Vellacaumma. With

the utmost respect I beg to submit the following

explanations in the hope that they will fully

exonerate me from all blame; -

No 1125

Madras 24th Sept 1871

Status to accompany the
design for the Male
Branch of the L. A. Y.
and beg to proceed to
Vellacaumma for consent

I have the honor to forward herewith my report No 162 dated the 23rd March 1887 (see Appendix E) I explained verbally both the nature and cost of what seemed to me a legitimate ornament — and the photographs (Appendices F. G. H. I. K) will show clearly what I have, not exceeded the very slight accentuation

I have the honor to be

Your most obedient Servant —

C. Christopher.

P. W. 187 Defd
Pro: of Govt for September
No 4786.

From
The Govt: Architect
& Govt

Dated 5th
Recd 7th } Oct 11

No 227.

Enclosures 5
Plans 5.

Submitting an explanation in connection with the censure passed by the Secretary of State on his estimate for the Male Branch of the Lawrence Asylum at Potacammond.

No 2281-2282-26th Septr 87

Letter from the Comg Architect dated 5th October 1871 No. 227

—Do— the Supg Engineer 7th Do 28th Do 1871 No 190

For Orders.

In the accompany-
ing letters Mr Chisholme
and Colonel Farewell sub-
mit explanations with
reference to the Censures
passed by the Government
of India and the Secretary
of State on the proceedings
of those Officers in connec-
tion with the Lawrence
Asylum works.

Mr

Mr. Chisholm adverts to his having brought to notice in his letter of the 5th October 1868, No 226 the insufficiency of the rates entered in the estimate prepared by him. It will be observed from Para 3 of the letter to the Government of India dated 8th August 1870, No 1886 that the circumstance was brought to the notice of that Government, and it was explained that it was thro' an oversight that the matter was not reported when the estimate was submitted for sanction. The Government of India comments

on

The real history of the transaction is this. In 1864 when the estimates were still in course of preparation the [illegible] principally with the object of relieving [illegible] crowded jails [illegible] 500 convicts up to the Hills to prepare the sites for the new buildings. When the sites were ready it was urged that the convicts should be utilized in making bricks. Owing to various causes but principally in consequence of the original plans being abandoned there was great delay in the completion of the estimates and thus it came about that [illegible] the work was done before the estimates were completed & the first [illegible] that [illegible] in [illegible] of that was [illegible] the further [illegible]

lies with the first. not with the present Engineers or the other officers employed under his orders: to the Govt. of India & Secretary of State.

[illegible]

8th Aug/72

on this omission in Para 24 of their letter recorded in G.O. No 7 dated 4th January 1871.

The explanations to which Mr. Chisholm refers in Para 5, and which are contained in his letter printed with G.O. of the 11 January 1870, No 136, were also laid before the Government of India with letter dated 31st March 1870, No 886.

With reference to Colonel Farewell's explanations it is necessary to point out that his

letter

Letter of the 4th December
1869 No 982 with which I forwarded
for submission to Colonel
Walker's letter of the 23rd
February 1870 No 184 was
not laid before the Governor
of Madras in Council.

I have now received
instructions from Colonel Walker
to request that the enclosed
letter dated 30th March 1870
may be found recorded at the
head of P.C. No 885 dated
30th March 1870, but for
some reason not now
known it was neither
printed in extenso nor
laid before the Government
of Madras in Council.

12 Dr

P.C. [illegible] R. 18

To

The Secretary to the
Govt. of India
P.W. Dept.

Sir,

I am directed to request that Colonels Walker and Farewell and Mr. Chisholm may be exonerated from all blame in connection with the Lawrence Asylum Works which this Government [illegible] nisture consideration of the several representations of these Officers

Circ

Submitted

J. D.J

Letter from Govt of India dy 12th Nov/70, No 1205 B.M.

Rep of Do. Do. dy 31st July/71. No 925 Bk.

Signed in the way simply "are bound to declare attached only to"

have determined to take
on] themselves, and I am
instructed to represent
the circumstances under
which this Government
have been led into ex-
ceptional irregularities
in dealing with the work
in question.

It was in 1863/64
that the present site was
fixed on and instructions
issued to the Supt. Engi-
neer regarding prepara-
tion of Plans and Esti-
mates. These were Sub-
mitted (involving a cost
of 11/4 lakhs) in Septem-
ber 1864; and though

concurred in by all the
Departments to whom they
had to be referred did
not meet with the appro-
bation of the then Governor,
Sir William Denison,
himself an Engineer Offi-
cer, who ordered their re-
vision on a plan of
which he personally laid
down the details. Mean-
while, with a view to re-
lieve the overcrowded
Jails of the low country,
and pending construction
of Central Jails on im-
proved principles, some
500 Convicts had been
sent up to the Hills and
large outlay incurred in
building them & their Quarters
1864/65 in levelling Sites

manufacturing bricks conveying Chunam stone from the low country, and building permanent workshops.

In December 1865 the revised plans prepared by the Executive Engineer being disapproved by the Sub Engineer were transferred to the Civil Architect for improvement of their general effect, but that Officer also concurred in condemnation of the design. Matters were in this state when His Excellency Lord Napier assumed Office and

his paragraph, read with the preceding one, is in effect a condemnation of Lt Dunsire's interference with the plans approved by the then Superintending Engineer, who if this letter is perused will sign it in his capacity of Secretary. I sign all letters of mine relating to this case in this way.

A. T.

-hibit the concurrence & his colleague

one of the first objects that attracted his personal attention was the unhappy position of affairs. To remedy the same he proceeded shortly after his arrival in 1866 to the Hills, attended by the Civil Architect, and he there decided that Mr. Chisholm should have carte blanche for preparation of a new design. But (he authorized) the Hospital, to be constructed according to the Executive Engineer's original plan, in order to utilize

part of the year, and to keep the Convicts and work people employed. At this period it would appear that all connection with the work on the part of the Subs. Engineer ceased so far as related to the preparation of the Plans and Estimates. He only visited the works for his own satisfaction with reference to the Progress Reports received of it from the Executive Engineer and as the medium of communication between him and the Government, but the

former communicated direct with the Civil Architect and pushed on with the buildings as supplied from time to time with foundation and other plans. F
In this manner, within but 6 or 7 weeks of the date of the letter from this Govt. forwarding plans and Estimates amounting to nearly 10 Lakhs of Rupees, accommodation was ready for 150 boys in the Male Asylum Building.

The above plain sketch of the facts connected with the progress of the Lawrence Asylum Buildings is, I am instructed to say, not submitted

justification
in ~~satisfaction~~ of the
proceedings of the Madras
Government, which they
must allow to have
been in contravention of
all Standing Orders, but
to explain how the Supt.
Engineer ceased to have
any potential connection
with the work, and the
Civil Architect assumed
his place as to responsi-
bility for Plans; while
no responsibility for
Estimates could attach
either to the Architect
or to the
Executive Engineer, while
the latter was building
as it were hand to
mouth, from scraps of

plans supplied him by
the former, an arrange-
ment which this Go-
vernment must con-
fess to having (at least)
tacitly allowed.

Ellis

Public Works Department

(12)

1786

Proceedings of the Madras Government

Read the following

From The Consulty. Architect
to Government
} H.C. No. 2274 of 5th Oct. 1871

From The Supdg. Engr. 4th Dn.
} 190 " 28th Nov. 1871

The Government are of opinion that these Gentlemen, as well as Col. Walker (whose letter No. 184 of 15th February 1870 has not hitherto been noticed) may rest satisfied, so far as relates to the appreciation of their services by the Home Government, with the Despatch communicated to them with G.O. No. 2233 of 1st September 1871, wherein

I would say
for Sir Edwards that
the foregoing letters
forwarded to the Govt
of India & the Secretary
of State with an expression
of the opinion of this
Govt, that written the
Govt was the proper
Superior Authority Superior

R.C. 22nd May/72
16th May/72

the Secretary of State for India, in proportion to the degree of blame which may justly attach to their conduct towards the Local and Supreme Governments.

As regards the censure passed upon Colonels Walker and Farewell by the Supreme Government conveyed in G.O. No 7 of 4 January 1871, this Government are prepared to exonerate these Officers from all responsibility in that they acted under orders for the irregularity

which not they but the Government are to blame.

Enclosure

Educational Department.

No. 2282.

To

The Secretary to the Government

of India,

Department.

Sir,

I propose this draft, if substituted for that inclosed in the packet, the tone of which I think too censorious as regards the proceedings of Sir D. Denison & Lord Napier's Commands.

H. A. D.

The Secretary of State's despatch is not in the packet. It should be put up when this draft is sent on to the Governor General.

Adverting to your letter of the 12th November 1870 No 1205 S. M, and to the despatch from the Secretary of State under date the 26 May 1871, No 36, referring to the expenditure on the Lawrence Asylum buildings at Kotacamund, I am directed to submit, for the consideration of His Excellency the Viceroy and Governor General in Council, and for eventual transmission

transmission to the Secretary of State, the accompanying copies of letters from Mr. R. T. Chisholm, the Consulting Architect, and from Lieut. Colonel Yarnell, the Executive Engineer, whose proceedings in connexion with the buildings in question have elicited the censure of the Government of India and of the Home Government, requesting that, for the reasons stated, the censure passed upon them may be withdrawn.

2. I am also directed to bring under the consideration of the Government of India and of the Secretary of State.

the

the position which Colonel Walker who was included in the structures passed upon the officers of the Public Works Department, held in connexion with the buildings in question.

3. It appears on reference to the correspondence that the site on which the buildings have been erected was fixed on in the official year 1863/64, and in that year instructions were issued to the Superintending Engineer Colonel Walker to prepare plans and estimates. Previous to the completion of the plans which were submitted to Government

in

in September 1861, the Governor in Council, with the view of relieving some of the Jails in the plains, which at that time were greatly overcrowded, directed that 500 convicts should be sent up to the Mulgherry Hills for the purpose of being employed on the Lawrence Asylum Works. Some expence was necessarily incurred in shifting the convicts and their guards, and in order that their labor might be utilized they were at once employed in levelling the sites for

for the projected buildings and in the manufacture of bricks. It was also deemed advisable at once to erect permanent workshops for use, not only while the buildings were under construction, but subsequently for the instruction of the boys in Carpentry and other trades.

4. When the plans of the main buildings were laid before Government, Sir William Denison, who was then at the head of the Government, considered them to be defective in

in certain respects and suggested various alterations which were approved of by his colleagues. Orders were accordingly issued for the preparation of revised plans which were received by Government in December 1865. In the meantime Mr Chisholm had been appointed Civil Architect, and it was decided to transfer the plans to him with a view to the improvement of their general effect. Mr Chisholm urged various objections to the arrangement of the

the buildings as set out in the revised plans. Before the plans were settled Lord Napier succeeded to the Government and at his instance Mr Chisholm was asked to prepare a completely new design for the main buildings, but it was determined in order to furnish employment to the convicts and to the work people who had been collected in anticipation of the early commencement of the buildings, that the construction of the Hospital should be at once proceeded with

with on the plan originally prepaid by the Superintending Engineer.

5th From this time the responsibility of the Superintending Engineer, so far as related to the preparation of the plans and Estimates was at an end. The revised plans and Estimates were submitted direct to Government by Mr Chisholm in February 1867, the Estimates being framed with reference to the rates previously adopted by the Executive Engineer Major (now Lieut Colonel) Farewell. It is to be regretted that

(13) 2

that Mr Chisholm was not instructed to submit his plans and Estimates through the Superintending Engineer in order that the sufficiency of the Estimates might be duly scrutinized, but for this omission the Superintending Engineer Colonel Walker cannot be held responsible and in the opinion of the Governor in Council he should be relieved from the censure which has been passed upon him.

6th His Excellency in Council is also of opinion that

that Mr Chisholm is free from blame. It was not unreasonable that when first preparing his plans and Estimates he should rely on the rates adopted by the Executive Engineer. It will be seen from his letter of the 26th October last that Mr Chisholm, when submitting a revised Estimate for the Boys' Asylum in 1869, drew attention to the necessity of correcting the data, and subsequently when submitting the plan of the Girls' Asylum sent

19

sent in a blank Estimate with the Quantities only, leaving the rates to be filled in by the local Officers.

Lieutt Colonel Forrest was the Executive Engineer during the greater part of the time that the building was in progress, points out in his own vindication that owing to the expressed desire of the Government that the building should be prosecuted forward as rapidly as possible, a great deal of the work was actually done before the sanctioned Estimates reached him,

And

and that this was the
reason for his substituting
teak for stone in the
flooring. In regard to
the substitution in the roof
of iron sheeting under
the pantiles for flat tiles,
he views that the former
description of roofing had
been found unsuitable and
had been adopted for
several public buildings
on the Hills.

8. Under all the
circumstances of the
case, the Governor in
Council considers that
Lieut.t Colonel Tarenell
also should be exonerated
from

from the censure which has
been passed upon him, and
that the errors which have
occurred must be ascribed
to departures from the
established course of
procedure which is not per-
mitted by the Government,
and for which the responsi-
bility must rest with the
Government.

25
12

Docketed with the Share Certificates
of 38 Certificates of No 2281 - 14 10/72

Proceedings of a Board

and the following:-

From Col. J. R. Walker. H.Q. No. 184 of 15th Feby 70.)

" Lt Col. R. Farewell — 190 of 28 Nov 71

" R. L. Chisholm & — 227 of 5 Dec 71.)

Ordered that the

& every letter be

Read.—

H.Q. 20 9

To Col. G. W. Walker R.E. /

" Lt Col. W. J. F. Farewell /

Dated 14/11/72.