M R O 1—77,000—8-6-37.

(1) Number of pages_____

(2) Date of repair_____

(3) Initials of the Referencer_____

MADRAS RECORD OFFICE.

Government of Madras.

Public works **DEPARTMENT.**

G.O. No. 136 Press Mis.

261-62

Dated 11. 1. 1870.

Not to be folded or roughly handled

No. 261. Read the following letter from R F. CHISHOLM, Esq., Consulting Architect, to the Secretary to Government, Public Works Department, dated Madras, 30th December 1869, :—

I HAVE the honour to acknowledge the receipt of G O , No. 3,679, dated the 18th ultimo, and the appended documents which relate to an excess expenditure on the works of the male branch of the Lawrence Asylum of upwards of a lac of rupees. Before replying to the Order in question I may mention that I pointed out in my letter, No 226, dated the 5th of October, that the amount of the estimate, although arrived at from Major Farewell's rates, was not to be relied on, as some of these rates I knew to be incorrect It is much to be regretted that they were not revised before the estimate was passed and sanctioned.

2 The question which arises from this correspondence is one of very vital importance, and I trust before any orders are passed by Government more detailed information may be called for. Both Colonel Walker and Major Farewell represent that the excess of upwards of a lac of rupees is caused by the superior style of architecture introduced by me. I regret that I am unable to examine the accounts, for by so doing I think I should be in a position to show these statements to be inaccurate.

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 amount of accommodation at a cheaper rate than the symmetrical building designed by Major Farewell.* Putting the question generally, Major Farewell estimated his building to cost Rupees 4,50,000,* I estimated my design at the same rates to cost Rupees 3,95,000. As my rates (with the exception of Rupees 10,000 for elaboration of surface) were the same as Major Farewell's this difference of Rupees 55,000 was due to the lesser quantity of material consumed by my design. Now, by the explanations offered, it must be inferred that not only this difference but upwards of Rupees 46,000 in addition were swallowed up in architectural elaboration I cannot think that Colonel Walker could remain long of this opinion if he would go carefully over the work and point out the particular parts of the design which he conceives would entail such a vast excess of labour. If such an effect as that produced in the building in question (which, I may remark, is one of the meanest of those structures which occupy a line between mere building and architecture) can only be obtained at the vast excess expenditure of upwards of a lac of rupees, I should be one of the first to condemn it and revert to the Wellington Barracks style, and, as this building represents little more than half the work to be undertaken at Lovedale, it is of the utmost importance that the subject should receive the fullest investigation. 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 "site" 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

* I am unable to obtain the exact figures

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 works to be accurate. I would respectfully remark, before passing on to a closer examination of the subject, that Colonel Walker misses the point when he instances in support of his views on architectural ornamentation the excess cost of half a dozen Talook Cutcherries under construction in the 7th Division. The point in question is not whether the *estimates* for these buildings exceed *my estimates* for similar structures, but *whether the same cubic space could be so arranged, without sacrificing convenience, that the building would cost less* When Colonel Walker speaks of architectural ornamentation in connexion with these structures, I am at a loss to conceive to what portions he refers. There is considerable less ornament that an ordinary Overseer would feel justified in putting on a Traveller's bungalow. The whole effect is due to arrangement.

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 25,005, as detailed below —

		RS
1.	Night privies added by order of the Municipal Commissioners ..	4,900
2.	Additional accommodation on third story of Principal's house, executed by my order in consultation with Captain Hankin	1,705
3.	Spiral staircase at angle of tower, found to be absolutely necessary ..	1,200
4.	Pulling down and re-constructing screen-wall which was incorrectly built . . .	2,200
5	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)	
	Total	25,005

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 cube 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 cube foot
2 —Iron work at per lb.
3 —Reepers at per square.
4.—Tiling at per square

5 Sir Digby Wyatt, in his despatch, dated the 26th February 1869, pointed

Proceedings of the Madras Government, Public Works Department,
11th January 1870.

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 An Executive Officer should possess much the same kind of knowledge in India. That Major Farewell is a little mistaken on these points of detail is evident, for he speaks of his doors and windows as being very plain in comparison with mine As far as my experience carries me in Madras I find this form of the door to be much cheaper *

6. 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 Rupees 102 costs Rupees 130, and roofing estimated at Rupees 106 cost Rupees 136 8-0 This latter rate, however, includes 15,000 rupees, 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

7. 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 :—

	RS.	Advanced rate.
Estimated	102	
	——	28 per cent.
Executed	130	

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

	RS.	Advanced rate.
Estimated .	3,94,000	
	——	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 instances Colonel Walker mentions in support of his views on architectural elaboration, namely, the excess cost of the Ootacamund Library, the Coimbatore Church, and Talook 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

* 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

8. The excess on the Ootacamund Library, carried out by amatur builders who laboured under all kinds of disadvantages, is as follows —

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

9 Colonel Walker appears to have fallen into the very common error of confusing the labour of the Architect and the Supervisor with the labour of the workmen. A large random building of this kind, exhibiting great variety of outline and broad effects of light and shadow, indicates a vast expenditure of labour in designing (the working drawings alone covered fifty-two lineal feet of broad tracing cloth) and the most pains-taking and constant supervision, but both these items, if added to the estimate, would swell the cost of labour and materials by a very small fraction.

10 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 Major Farewell's estimate. I included all items which I formed in the latter, and the cost of such items as water-pipes, lightning conductors, etc., I imagined to be provided for under the head of "Contingencies"

No 262. ORDER THEREON, 11th January 1870, No 136

MILITARY WORKS, No. 5

THIS letter will be forwarded to the Superintending Engineer of the 7th Division with a view to his again taking into consideration the causes which have led to the large excess in the estimated cost of the male branch of the Lawrence Asylum, and to his submitting such further explanations as he may have to offer.

2. On reference to Mr. Chisholm's letter of the 5th October 1868, No 226, it appears that, entertaining doubts as to the correctness of the rates entered in the estimate submitted by him to Government, he forwarded a duplicate set of the plans and a blank estimate to Lieutenant-Colonel Farewell for the purpose of his making such alterations as might, in his opinion, be necessary. As no action seems to have been taken on the receipt by Lieutenant-Colonel Farewell of this reference, Colonel Walker will state the cause

3 The Government observe that the excess has been chiefly in the following items —

	Amount of excess Rs
Brick-work	29,926
Teakwood flooring	18,990
Tiled roofing	13,503
Doors and windows	17,540
Out-houses	14,819
Items not provided in Mr. Chisholm's estimate	10,618

4. It is not clear what influence "architectural ornamentation" can have had on the increased cost of such portions of the structure as "timber flooring" and "doors and windows" of the simple construction described by Mr. Chisholm.

(True Extract.)

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

To the Superintending Engineer, 7th Division, with copy of letter from Mr. Chisholm.

seeks further explanation

R.W.D.

No 136

Proceedings of the Trade Dept. &c.
Under date the 11th June 1870.
Read the following

From R.F. Thirlwall - Engr Architect - Kandy 30th Dec. 69

The letter will be forwarded to the Superintending Engineer, of the 7th Dvn, with a view to his again taking into consideration the causes which have led to the large excess in the estimated cost of the Kadie Branch of the Lawrence Reylway and to his submitting such further explanations as

as they may have to offer.

On reference to Mr Chisholm's letter of the 5th October 1868, Mr Wells will appear, that, entertaining doubts as to the correctness of the rates entered in the estimate submitted by him to Government the former awarded a sum equal to one half of the flooring and a blank estimate to Lieut. Colonel Farewell for the purpose of making such alterations as might in his opinion be necessary - As no action seems to have been taken on the receipt by Lt. Colonel Farewell of this reference Colonel Walker will state the circumstances himself.

The Govt observes that the excess above chiefly in the following items -

	amount of excess
Brickwork	Rs 2,926
Teakwood flooring	" 18,990
Tiled roofing	" 13,503
Doors and windows	" 17,540
Out houses	" 14,819
Items not provided in Mr Chisholm's Estimate	" 10,618

It is not clear
what influence "Ar
=chitectural ornamenta
=tion." can have had
on the increased cost
of such portions of the
structure as "timber
flooring" and "doors
and windows" of the
simple construction
described by Mr
Chisholm.

To Mr Chisholm
with copy of letter
from Mr Chisholm
Dec 11/70 Dec 12/70

C. No. 11

Govt. of 1870 Works.

PUBLIC WORKS.

To The Superintending Engineer
Dist. Lucknow

Dated

Rec'd.

C. O. No. January 1870, No. 136

Nos. 261-262

Lawrence Asylum - Letter from Mr Chichester forwarding Colonel Walker's R.E. with instructions for the submission of further explanations as to the cause except in the estimated cost of the Male branch of the Lawrence Asylum at Cotacamund -

Dr. Dept. 11/1870 Cr. Dept. 2/1870