M.R.O. 1—77,006—8-6-37.

(1) Number of pages 10

(2) Date of repair 22-9-38

(3) Initials of the Referencer

MADRAS RECORD OFFICE.

Government of Madras.

Revenue Works DEPARTMENT.
Con 28/9/59

G.O. No. 2278 Press Mis.

85-86
Dated 23-9- 1859

Not to be folded or roughly handled

Proceedings of the Madras Government, Public Works Department, from 17th to 23rd September 1859.

No. 85. Read the following Proceedings of the Madras Government in the Military Department, dated 19th September 1859, No. 3336.

Read the following Proceedings of the Madras Government in the Public Works Department.

Containing observations on the investigation of Lieutenant-Colonel Lawford as to the causes of costliness and slow progress in the construction of the barracks at Jackatalla. } (Here enter 7th September 1859, No. 2151.)

Ordered that the foregoing Proceedings in the Public Works Department be communicated to the Commander-in-Chief.

2. With reference to the 17th paragraph of the letter from the Chief Engineer, and paragraph 7 of the above order, the Governor in Council concurs in the expediency under existing circumstances, of completing the works now in hand, before others are commenced upon. It must, however, be borne in mind, that accommodation for the families expected from Home has to be provided; the repairs,* therefore, ordered in paragraph 2 of the Proceedings of Government in the Military Department, dated 29th July 1859 No. 2701, must under any circumstances be completed without delay.

* To the old married quarters.

(Signed) R. HAMILTON, Lieut.-Colonel,
Actg. Dy. Secretary to Government.

No. 86. ORDER THEREON, 23rd September 1859, No. 2278.

Ordered to be communicated to the Chief Engineer for information and guidance with reference to the order of 6th August last No. 1887.

(Signed) W. C. SIM,
Actg. Dy. Secretary to Government.

PUBLIC WORKS DEPARTMENT.

Military.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Read the following papers.

From Lieutenant-Colonel J. H. BELL, Chief Engineer; to J. D. BOURDILLON, Esq., Secretary to Government, dated 8th July 1859, No. 2547.

I have the honor to forward Colonel Lawford's report* on the Jackatalla barracks, called for in Extract Minutes Consultation, No. 290 A, dated 1st February 1859.

* No. 11 dated 24th June 1859.

2. Colonel Lawford states that the delay in forwarding it has arisen from various accidental circumstances not under his control, and believes that it would have been impossible in a shorter period to have arrived at any safe conclusions on the subject.

1 Original letter from Lieutenant-Colonel Lawford No. 11, dated 24th June 1859, with 5 enclosures.
1 Original letter from Do. No. 14, dated 29th June 1859 with 1 enclosure.

3. Colonel Lawford is not satisfied that these important works, are so far advanced as they might have been, had greater exertions been made to cope with the unusual difficulties which undoubtedly exist, such as the scarcity of labor, the unsuitableness of the climate to workmen from the low country, and latterly and most severely felt, Railway competition; to meet this last difficulty, there is no doubt it would have been wiser to have raised the rates of labor at once. Captain Campbell who was until June 1858 under the control of the District Engineer, represented the necessity of higher rates, in a letter dated December 30th 1858; and I observe that it was on account of an impression that the rates were already too high received from Captain Francis, that the Chief Engineer recommended the deputation of Lieutenant-Colonel Lawford to investigate the subject.

4. The difficulty of making bricks, owing to the climate, and want of suitable soil has been another prevailing cause of delay, raising the price of bricks to Rupees 8½ per thousand, nearly double that of the low country.

5. Colonel Lawford also remarks, that a serious obstacle to rapid progress has been the scanty and uncertain supply of timber, at first procured at heavy cost from the Annamalay and Segoor forests, and latterly from the Moodoomullay forest, rented for the express purpose. The supply has not been any thing like adequate to the demand, the wastage on the Moodoomullay timber averages 50 per cent., and it requires from eight to nine months to procure enough for one building.

6. Colonel Lawford forwards tables exhibiting the data on which the original estimates were prepared, with corresponding ones according to the existing rates to account for the great excess in the estimates, which must take place, and in forwarding these, he presses upon Government the necessity of obtaining a greater control over the workmen, a subject already submitted for their consideration, in my letter of 18th June 1859, No. 1805; with an increased rate of pay even the labor performed is far less than in the low country.

7. As to the actual state of the barracks, Colonel Lawford reports that three (3) ranges are completed and occupied, also the block of staff serjeant's quarters, and that a 4th range ought to be completed by the 15th of October next, the 5th range has the lower walls only built, and is covered in with thatch, to serve as an Officer's mess-room and a school-room. This "block, therefore, cannot be proceeded with until the permanent mess-house and school-room are ready.

8. The married men's quarters, Colonel Lawford reports to be in a very backward state, but he considers that they ought to be completed by the beginning or early part of next year, if due exertion be made.

9. One range of these quarters is now appropriated as solitary cells, and a magazine, consequently the building cannot be occupied by the families of the Regiment until the military prison, and permanent magazine, (neither of which is commenced), shall be completed.

10. The magazine, store rooms for camp equipage, and gun sheds, are included in the defensive tower not yet commenced.

11. The works headed bridge bund and road include the Waterloo bridge, (which fell down last December), and a reservoir for supplying the barracks with water.

12. Colonel Lawford remarks, that it is greatly to be regretted that these works were recommended to be commenced before the barracks were finished, and further, that he considers the Waterloo bridge an ill-judged and unnecessary work, as a much smaller bridge, higher up the stream, would answer equally well, and that the loss of money and time is, "lamentable."

13. Scarcely any thing has been done to the drainage works, a few pipes lead the water from the barrack roofs, the greater part is carried off by spouts, and in windy weather, is dashed against the walls.

14. The sewerage comprizes only a main pipe from the hospital to the Waterloo stream, but the sewerage of the barrack privies, is not yet commenced.

15. On the plans that have been brought forward for the sewerage, Colonel Lawford reports that he considers the one for leading the sewage by a pipe and culvert along the whole extent of the ravine to Coonoor, quite out of the question, from its practical difficulty and great expense, but if a pipe is conducted part of the way from the barracks, and the flushing regular, he sees no reason why the stream should not effectually carry off the night soil, without any injury to the people of Coonoor, who do not use the water of this river, but if this be considered objectionable, the barrack privies should be emptied, and the soil carted to pits as at present. The more extended plan of sewerage besides costing not less than 2 lacs, would be constantly liable to be damaged, and then the evils it would cause, would be excessive. As, therefore, there appears no real danger of any ill consequences from the present mode of carrying on the sewerage, the permanent arrangements should be deferred till the buildings are finished.

16. The night privies attached to each block were found to be very inconvenient and disagreeable, they were consequently closed; these should be converted into wash-houses, and there should be a detached privy on the north side of the barracks, but these arrangements may be deferred till the water service is complete. Colonel Lawford states, that it is difficult to say to what amount the estimates will be exceeded, as in many cases they seem loosely framed, and a large amount has been sunk in plant and stores, which is excluded from the available balance.

17. The actual excess on important items is considerable, but the aggregate increase, Colonel Lawford believes, will not be more than 10 per cent., and with the freedom as to rates which the Special Executive Engineer now possesses, the essential works ought to be completed by July 1860, but it must be borne in mind, that it is impossible to complete the buildings, already sanctioned, in any definite period, if additional works are to be undertaken; the labor now available barely suffices to carry on the barracks, and other necessary buildings, and if a church, mess-house or other erections be called for, while the barrack buildings are in progress, delay is absolutely unavoidable, and the Special Executive Engineer must be held free from blame.

18. In conclusion, Colonel Lawford states, that the works generally have been well built, though the bricks latterly have not been of such good quality, as could be wished, owing to the exhaustion of good clay in the nearest beds.

19. In 1857, Colonel Lawford reported the mortar to be good and well set, but he had not seen it tried, as it recently was, by a heavy storm of rain, when the walls were penetrated with damp; he does not consider it necessary, however, to incur the great expense of increasing the proportion of lime, in the mortar, but has desired it to be increased in the plaster.

20. Colonel Lawford condemns the use of unseasoned timber from the Moodoomullay forest and strongly recommends a more liberal resort to the Mysore market for that material.

21. The use of asphalte has been found to be very advantageous, and this material has been ordered to be used in the two unfinished blocks.

59

22. Lists of labor rates paid at Jackatalla, have been sent to all the neighbouring districts, and advances have been authorized to be given to artizans and laborers, willing to accept employment, but hitherto with very partial success.

23. Coolies are embarking for the Mauritius and Ceylon by hundreds, the authorities of the latter island have a paid European Agent at Madura purposely to collect coolies, and the great Southern Railway of India also will soon drain the labor market of Tanjore and Trichinopoly.

24. The expectations of Government, both as to prospect of reduction in cost, and early completion will, I fear, be disappointed, but it is difficult to estimate the obstruction, expense, and anxiety caused under the head of labor alone, to say nothing of the many other hindrances Colonel Lawford has so fully explained, as attending the erection of the Jackatalla buildings; and in their judgment on the progress made, and cost incurred, I would press upon Government, the necessity, of giving those difficulties the consideration they most undoubtedly demand.

25. As Lieutenant-Colonel Lawford has not been able to estimate correctly the cost of the works, as it will be determined by the increased prices of labor and materials and by the amount sunk in plant, &c., I have directed the Executive Engineer to prepare revised estimates for the remaining works as soon as possible.

26. It appears from the tabular statement submitted by Lieutenant-Colonel Lawford, that the expenditure on estimate amounting to Rupees 16,21,133-15-6, has been Rupees 10,72,239-10-3, and that the increase and decrease upon completed works are nearly equal.

From Lieutenant-Colonel J. H. BELL, Chief Engineer; to J. D. BOURDILLON, Esq., Secretary to Government, dated 13th July 1859, No. 2699.

In continuation of my letter,* I have the honor to state for the information of Government, that Colonel Lawford in a letter† now reports, that in addition to the expenditure of Rupees (10,72,239-10-3) ten lacs, seventy-two thousand, two hundred and thirty-nine, annas ten and pice three, on the Jackatalla barracks up to the 30th April 1859, as stated in his report,‡ there is an out-standing balance of Rupees (2,45,928-5-9) two lacs, forty-five thousand, nine hundred and twenty-eight, annas five and pice nine, on account of stores, plant and advances for materials, making the aggregate expenditure up to the date above mentioned Rupees 13,18,168.

* No. 2547, July 8th 1859.
† 8th July 1859, No. 19.
‡ 24th June 1859, No. 11.

2. The building materials must of course be debited to the respective estimates for works for which they have been supplied, and will considerably decrease the balance, but there will be a large amount on account of stores and plant on which the Government must eventually decide, whether to be placed to the account of "general stores," "Engineer stores attached to the Coimbatore district," or defrayed by a per centage on the work performed.

3. A detailed statement of the out-standing balance has been called for, and will be forwarded when received.

From Lieutenant-Colonel J. H. BELL, Chief Engineer; to J. D. BOURDILLON, Esq., Secretary to Government, dated 23rd July 1859, No. 3037.

I have the honor to acknowledge the receipt of Proceedings of the Madras Government, marginally noted.

No 1652, dated 7th July 1859.

2. The Chief Engineer in his letter, No. 7138, under date 18th January 1859, reported that the two blocks of barracks, then completed, would only hold 00 men, besides quarters for the non-commissioned regemental staff, but that they could nly be accommodated, then even, by the restricted allowance of 27 superficial feet per each lan; in this calculation, however, no notice was taken of the enclosed verandahs, intended for ressing purposes, but really making the area available for each man 44 superficial feet.

3. The five ranges of barracks are designed to hold 1,000 men, including sick; the aggregate area of the sleeping rooms being 53,760 superficial feet, and that of the verandahs 30,720 superficial feet, the latter being intended for messing purposes.

4. Each man will then occupy 53 superficial feet, exclusive of verandahs, or 84 superficial feet including verandahs.

5. The special report on these buildings was forwarded to Government on the 8th instant, No. 2547.

From Lieutenant-Colonel E. LAWFORD, Deputy Chief Engineer, in charge of Central Office, P. W.; to J. D. BOURDILLON, Esq, Secretary to Government, dated 6th August 1859, No. 3548.

In reply to your memorandum of the 4th instant, No. 190, I have the honor to state that to the best of my recollection and belief, there were actually 800 men of H. M.'s 3rd Battalion 60th Rifles in occupation of two blocks of the Jackatalla barracks for a short period.

2. When the Regiment first reached Jackatalla it was about 1200 strong, and occupied two complete blocks, the staff serjeant's quarters and some temporary buildings, but the actual space allowed each man cannot be stated.

3. Should further information be required, it can only be obtained from the military authorities.

Memorandum from Colonel F. A. REID, Quarter Master General of the Army; to J. D. BOURDILLON, Esq., Secretary to Government, dated 3rd September 1859, No. 350.

The Quarter Master General of the Army has the honor, in reply to Mr. Bourdillon's memorandum, dated 9th ultimo, No. 200, to forward copy of a letter from the Special Executive Engineer, Jackatalla, affording the information required.

The Quarter Master General begs also to say, that there are still two blocks of barracks incomplete.

Letter from Captain W. FAREWELL, Special Executive Engineer; to the Deputy Assistant Quarter Master General, Southern Division, Trichinopoly, dated Jackatalla, 27th August 1859, No. 342.

In reply to your letter No. 823, under date 13th August 1859, I have the honor to annex a memorandum, shewing what was the superficial area and cubical space occupied by each man of Her Majesty's 3rd Battalion 60th Rifles, in the Jackatalla barracks on first arrival, and what it is now.

2. On the first arrival of the Battalion at this station, 372 men were housed in the temporary huts now occupied as depôt barracks and temporary married quarters, and the men of the depôt one room and back verandah of the lower story of No. 2 block, which I have excluded in the memorandum forwarded.

3. The whole of the Battalion excepting a few married men are now housed in the barracks and hospital; the upper story of staff quarters are occupied by 73 men distributed in various rooms, the lower portion of the building which gives a guard room for the main guard, as well as different Regimental offices, Serjeants' mess, canteen and stores are not taken into account at all.

MEMORANDUM

Shewing what was the superficial area and cubical space occupied by each man of Her Majesty's 3rd Battalion 60th Rifles in Jackatalla barracks on first arrrival and what is now.

Rooms.	Dimensions.		Number of men occupying it on first arrival.			Number of men occupying it at present.		
	Superficial feet.	Cubic. feet.	No. of men.	Superficial feetperman.	Cubic feet per man.	No. of men.	Superficial feetperman.	Cubic feet per man.
No. 1 block of barracks, lower story rooms and enclosed verandah.....	7,982	1,19,737	95	42	630	170	47	704
No. 1 block of barracks, upper story rooms and enclosed verandah.....	8,168	1,44,561	190	43	761	170	48	850
No. 2 block of barracks, lower story rooms and enclosed verandah.....	7,982	1,19,737	190	42	630	170	47	704
No. 2 block of barracks, upper story rooms and enclosed verandah.....	8,168	1,44,561	190	43	761	170	48	850
No. 3 block of barracks, lower story rooms and enclosed verandah.....	8,527	1,27,912	...	...	...	170	50	752
No. 3 block of barracks, upper story rooms and enclosed verandah.....	8,732	1,51,900	...	...	...	170	51	890
Staff quarters, lower story rooms and enclosed verandah.....	8,714	1,30,000	...	...	...	...	...	...
Staff quarters, upper story rooms and enclosed verandah.....	7,434	1,23,118	59	126	2,086	73	102	1,686
12 Serjeants' rooms.....	5,544	91,248	...	...	...	29	184	3,249
Nos. 1 and 2 ranges of hospital 4 main rooms and enclosed verandah.....	8,906	1,64,032	80	111	2,050	85	105	1,929

(Signed) W. FAREWELL, Captain,
Special Executive Engineer.

ORDER THEREON, 7th September 1859, No. 2151.

At the suggestion of the late Chief Engineer, Colonel Lawford was deputed to Jackatalla for the purpose of ascertaining the causes which had led to the costliness and the slow progress in construction, of the barracks at that place.

2. The result of Colonel Lawford's investigations is given in the papers submitted by the Chief Engineer. The construction of the barracks was commenced in 1852 on estimates framed by Captain Francis who held executive charge till 1854, when he was appointed District Engineer of Malabar and Coimbatore, with general control of the Jackatalla works which were placed under the executive charge of Captain Campbell. The expenditure under Captain Francis was Rupees 2,53,576, and subsequently under Captain Campbell Rupees 10,76,419, the average monthly expenditure under each officer being Rupees 12,075 and 21,106 respectively. Although therefore there was some improvement in the prosecution of the works under Captain Campbell, yet Colonel Lawford thinks that with greater exertions to overcome the unusual difficulties which interfered with their progress; these buildings might have been far more advanced than they are at present. The difficulties mentioned, are, the scarcity of labor; the unsuitableness of the climate to work-people from the low country; and Railway competition; also, the difficulty of making bricks, both from the nature of the climate and of the soil; and lastly, the scanty and uncertain supply of timber.

3. These are the chief causes of the slow progress of the work; and they have also tended greatly to increase prices, as shewn in the statement accompanying Colonel Lawford's letter of the 29th June. Bricks in particular, though manufactured by the executive on the spot, averaged 8½ Rupees per thousand, or nearly double that of the low country. The difficulties attend-

ing the manufacture of this material, and the causes which enhanced its cost are fully explained in paragraph 5 of Colonel Lawford's report. Compared with "the old prices," to wit, the data on which the estimates were framed, the present prices of the different descriptions of bricks are shewn to be between 33 and 66 per cent. in excess.

4. The timber is procured at a heavy cost from the Annamalay, Seegoor, and Moodoomullay forests and the loss on that from the last mentioned source of supply, by wastage alone, amounts to 40 per cent. The rates of wages for workmen and laborers are all largely on the increase, the average being 21 per cent. above the old rates. Colonel Lawford assumes the average increase on all items at about 20 per cent., but, as the higher rates have only recently been adopted, he calculates that the excess will not be more than 10 per cent. on the estimate, or an additional expenditure of a lac and fifty thousand Rupees.

5. The present state of the principal buildings is thus reported.

Three ranges of the barracks completed and occupied; also the block of staff serjeants quarters.
The fourth range is in such a state that it ought to be completed by the 15th of October next.
The fifth range has the lower walls only built and is covered with thatch; but the work cannot be proceeded with as the building is at present occupied as a mess-house and school-room.
The married mens' quarters are in a backward state, but with proper exertion, it is stated, should be completed early next year. One range of these quarters is now used for other purposes, and the work on it cannot be proceeded with until the military prison and magazine are completed.

The magazine, camp equipage rooms, and gun sheds in the defensive tower are not yet commenced.

The water supply of the barracks and the drainage and sewerage works appear to be in a backward state.

6. The statement of the progress of work to the 30th April 1859 exhibits more fully and in a more complete form the expenditure incurred on the principal and subsidiary buildings appertaining to the barracks, and shews that many of the minor works have been completed, and that others are in progress.

Completed works.
Hospital and out-houses.
Commissariat godowns.
Cutwall's choultry.
Post office.
Permanent bazars
Magazine.
Racket court.
Commissariat staff serjeants quarters.
Roads, &c., &c.

7. The essential works, it is stated, ought to be completed by July 1860 provided that no other public buildings be undertaken while these are in progress. Such parts as have been already constructed are well reported on, and measures have been taken for procuring better material, and for commanding a larger amount of labor, and otherwise expediting the progress of the works; but, with all these arrangements, the Chief Engineer apprehends that the expectations of Government both as to reduction of expenditure, and early completion of the works will not be realized.

8. The whole of the estimates for the Jackatalla buildings amount to Rupees 16,21,134; of which Rupees 10,72,240 had been laid out to 30th April 1859; there was besides an outstanding balance of Rupees 2,45,928 on account of stores, plant and advances for materials, which make the aggregate expenditure Rupees 13,18,168.

9. The Government consider that great credit is due to Colonel Lawford for his painstaking enquiries and complete report, as well as for the improvements which he appears to have effected in the executive arrangements. They are satisfied from his report, that the great delay in the construction of the barracks commented upon by both the India and Home Governments as well as the large increase in the cost, is in great part due to causes peculiar to the locality and unavoidable; but that the effect of these causes has been aggravated by want of skill and activity in the executive.

10. One other point connected with these barracks and which has formed the subject of reference from the Government of India is the space allowed to each man. The Chief Engineer's letter of the 23rd July explains that the five ranges of barracks are designed to hold 1,000

men; that the aggregate area of the sleeping rooms is 53,760 superficial feet; and that of the verandahs 30,720 superficial feet, so that the allowance of each man will be 53 superficial feet exclusive of verandahs, or 84 superficial feet including verandahs.

11. But the letter from the Special Executive Engineer at Jackatalla dated 27th August received with that from the Quarter Master General of the Army above recorded, shews more particularly how the men of H. M. 3rd Battalion 60th Rifles were housed on their first arrival at that station, and how they are now accommodated. On the first arrival of the Regiment 372 men were housed in temporary huts; those in the barracks had each an average space of 42 or 43 superficial feet; while those now occupying the completed blocks have a space ranging from 47 to 51 superficial feet.

(True Extract.)

(Signed) J. D. BOURDILLON,
Secretary to Government.

To the Chief Engineer.
" Military Department.

Exd. Wm. Thomas.

P.W. Cons. 12th Augt/59 - Nos 5-6.
9th Sept 6627.

No 85486.

To Captn Colin Mackenzie Chief Engr. Nilgiris.

Public Works Department
Madras 23d August 1859.

Sir,

I am directed to forward for your information and guidance with reference to the order of 6th August last, a copy of the Proceedings of Government in the Military Department dated 19th instant No 2278 on the subject of the completion of the essential works connected with the new Barracks and of the repairs to the old Married Quarters at Jackatalla.

I have the honor to be
Sir
Your most obedient Servant
(Sd) W. Taylor
Secy to Govt

To
The Secretary to Government
Military Department

P.W. 1859 Octobr
Pro: of Govt 23d Septr
No 2467

Proceedings of the Madras Govt in the Military Department

Dated 19th
Received 20th } Septr 59

From the Chief Engr No 3336
D/28th Septr/59 Ret 2648 in Comn:

Ordering the early completion of the essential works connected with the new Barracks and of the repairs to the old Married Quarters at Jackatalla -

No 2278. 23d Septr 1859
Wm Taylor Esqr
Secy to Govt

Military Department

No 3336.

Ordered that the foregoing Proceedings in the Public Works Department be communicated to the Commander in Chief.

2. With reference to the 4th Para: of the letter from the Chief Engineer and Para: 3 of the above order, the Governor in Council concurs in the expediency under existing circumstances of completing the works now in hand, before others are commenced upon - It must however be borne in mind, that accommodation for the Families expected from Home has to be provided; the Repairs therefore ordered in Para: 2 of the Proceedings of Government in the Military Department dated 29th July 1859 No 2251 must under any circumstances be completed without delay -

(Sd) W. Taylor
Secy to Govt

Fort St George
19th September 1859

To the Secretary to Public Works