M.R.O. 1—77,006—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. 3155 Press
Mis.
94-95
Dated 4 — 10 — 1866.

Not to be folded or roughly handled

Proceedings of the Madras Government, Public Works Department, 4th October 1866.

No. 95 Read the following Proceedings of the Madras Government in the Military Department:—

Approving of an estimate, amounting to Rupees 44,000, for renewing the roof, &c., of the Palace in the Fort of Mercara. (Here enter 4th September 1866, No. 3,090.)

No. 95 ORDER THEREON, 4th October 1866, No. 3,155.

MILITARY WORKS, No. 4.

1. Communicated to the Superintending Engineer of the 5th Division.

2. It being desirable that the proposed alterations and improvements to the Palace in the Mercara Fort should be put in hand as early as practicable, the Government resolve, in anticipation of the approval of the Government of India, to sanction the following transfer of funds:—

	RS.		RS.
From.—Budget Item No. 1.	5,000	*To.*—Improvements to the	
Do. ,, 7	5,000	Palace in the Mercara	
Total ...	10,000	Fort	10,000

3. Colonel Foord will take measures for the immediate commencement of the work, making such arrangements for its supervision with Major Sankey as may be necessary.

(True Extract.)

Colonel, R. E.,
Secretary to Government.

To the Superintending Engineer, 5th Division, with one Specification
,, Controller of Public Works Accounts.
,, Accountant General.
,, Military Department.

Exd. S. T. Augustin.

MILITARY DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Read the following papers:—

From the Secy. to Govt., Public Works Dept. Here enter 18th May 1866.
From the Commissioner of Coorg... ... ,, 21st August 1866, No. 193.

From the Superintending Engineer, 5th Division, Cuddalore, 14th May 1866, No. 15; to the Secretary to Government, Public Works Department.

I have the honor to forward for the sanction of Government, an estimate of Rupees 44,000, accompanied by plan and specification, for renewing the roof of and making sundry repairs to the Palace in the Fort of Mercara, now occupied by the Officers of the 15th Native Infantry.

Enclosures.

1 *Plan.*
1 *Estimate.*
1 *Letter.*
1 *Specification.*

2. The dangerous state of the roof of the building was brought to the notice of Government by the Chief Engineer of Mysore, and in accordance with the Order of Government of the 20th December 1865, No. 3824, Sub-Engineer Martin was directed to proceed to Mercara to report on the building and submit an estimate of the repairs required.

3. Mr. Martin went to Mercara in January, but, as reported in my letter of the 20th of February No. 82, he overlooked the state of the ceiling and roof and forwarded an estimate that was evidently so inadequate, that it could not be submitted to Government. I was then authorized to depute Lieutenant Pennycuick to examine the building, and the estimate and full report now forwarded were received from him.

4. The upper story of the Palace consists of a room 17 feet wide running round the four sides of a square, with an enclosed verandah outside, and an open terrace inside. On the east face of the square, the open terrace is walled in and forms a second set of rooms behind the principal room. On this face the front verandah is covered with a terraced roof. The rest of the building has a tiled roof of a steep pitch. Under the tiled roof is a heavy terraced ceiling supported by joists and planking. The terraced and tiled roofs and the ceiling are in a ruinous state, and the greater part of the large estimate is for renewing these portions of the building.

5. The terraced roof leaks throughout, the joists are rotten and sag in the middle. No effectual repairs can be made, and it is proposed to re-place it by an entirely new roof with greater slope at an estimated cost of Rupees 2,250.

6. The ends of some of the beams and rafters of the tiled roof are decayed, and the tiled covering is full of holes. It is proposed to support the ends of the beams where necessary by stone corbels let into the wall, and the rafters by a purlin all round the building, and to re-place the tiled covering by one of corrugated iron. Ordinary tiles are of no use in a Coorg monsoon, and a tiled covering suited to the climate would cost nearly as much as iron sheeting and be excessively heavy. The wood work being old it is desirable to reduce the weight on it as much as possible. The terraced ceiling is to be taken down and re-placed by a planked ceiling attached to the cross beams of the roof. The cost of renewing the tiled roof and ceiling is estimated at Rupees 39,400. A terraced roof in place of the present ceiling and tiled roof would not cost half this sum, but a terraced roof of this extent would not answer in the heavy monsoon of Coorg.

7. The rest of the estimate is for repairs of an ordinary kind to the main building and out-offices.

8. If this estimate is approved of, I beg to recommend that the sum of ten thousand Rupees be sanctioned for this year's operation. It will be necessary to send an Officer or Upper Subordinate to superintend the work. I purpose going to Bangalore next month, and can, while there, arrange for supervision and for obtaining the materials which will have to be sent to Mercara, or for getting the whole work done on contract.

From Lieutenant J. PENNYCUICK, Royal Engineers, Assistant Engineer, Bangalore, 9th April 1866; to the Executive Engineer, Bangalore.

With reference to your No. 930 of the 7th instant, and the Order of Government, No. 692 of the 28th February 1866, forwarded therewith, I have the honor to report that I started from this station for Mercara on the 11th instant, and having inspected the buildings referred to in the Order, returned here on the 18th.

2. I enclose an estimate amounting to Rupees 44,000 for the alterations which I consider should be made to the buildings, with plan and specification, and beg to offer the following remarks thereon.

3. GENERAL DESCRIPTION OF THE BUILDING.—The upper story of the old Palace in the Fort of Mercara, now used as a mess-house and quarters for the officers of the Regiment at that station, consists essentially of a long centre room or corridor, 17' broad, running round the four sides of a square, with an enclosed verandah 9' 6" broad outside, and an open terrace 12' broad inside. The lower story is arcaded under the terrace, and has an inner verandah with a sloping roof, covered with copper sheeting and supported on square pillars.

4. The longitudinal walls are 2½' thick, and appear to have been originally arcaded throughout the greater portion, if not the whole of their length, but most of the arches have now been built up, and doors and windows let into the walls, and cross walls built in convenient positions, so as to divide the main building into a number of apartments.

5. Along the east face of the square, which is chiefly occupied by the officers' mess-room, billiard-room, &c., the open terrace is walled in, and forms a second row of rooms at the back of the main corridor.

6. A glance at the plan will shew the general arrangement of the building better than any amount of description, but it must be understood that the plan does not profess to show the dividing walls between the different rooms, nor the interior doors and other details. These could only have been obtained by taking measurements of every room, at a great expense of time and trouble, and some inconvenience to the occupants of the quarters, several of whom are married officers; they would also have been perfectly useless when obtained, as they do not in any way bear upon the work to be done, or affect its cost.

7. On the east face of the building the front verandah is covered by a flat terraced-roof, supported on broad, but apparently not very deep, wooden joists. The main corridor and the rooms formed by the walling in of the inner terrace are covered with a rajah tiled roof, of a steep pitch, the construction of the framing of which will be best understood from the sections.

8. On the other three sides, the outer verandah and the main corridor are covered by a pent roof similar to that on the eastern face with the same rise, and consequently a slightly steeper pitch, the base being rather less.

The outside length of each side of the square is 183 feet, and the length of the ridge of the pent roof is consequently :—

On the north and south faces $183-\left(\frac{2\frac{1}{2}+9\frac{1}{2}+17+12\times7\frac{1}{2}}{2}+\frac{17+9\frac{1}{2}+7\frac{1}{2}}{2}\right)=183-47\frac{1}{2}=135\frac{1}{2}$ feet.

On the east and west faces $183-\left(\frac{17+9\frac{1}{2}+7\frac{1}{2}}{2}+\frac{17+9\frac{1}{2}+7\frac{1}{2}}{2}\right)=183-34=149$ feet.

9. Underneath the pent roof, all round the buildings is a heavy terraced ceiling, supported upon wooden joists and planking as shewn in the sections.

10. CONDITION OF THE ROOF OF THE FRONT VERANDAH.—The terraced roof of the front verandah along the east face is in about as bad a condition, short of absolute falling down, as it can possibly be in. It appears to leak throughout its whole length, the joists nearly all sag in the middle, and a great many of them are so rotten at the ends that they can be no support whatever to the terrace, which must be supported simply by its own cohesion. The leakage is aggravated by the insufficiency of the provision for carrying off the rain which falls upon the terrace, as well as that flowing from the adjacent pent roof, which in the height of the monsoon must amount to a considerable quantity.

11 I should mention that along part of the length of this verandah, apparently with a view to support the sagging and rotten joists, three longitudinal joists, each 4"×3½" have been put up, as shown in the section; these again are supported by beams 5"×8" built into the piers of the arches. These longitudinal joists are far too weak to be of the slightest use if the upper joists were really to give way.

12. SUGGESTIONS FOR ITS REMEDY.—I do not believe that any amount of patching will be of the slightest use here; as fast as one leak is stopped another will show itself, to say nothing of the state of the ends of the joists. moreover the terrace has sunk so much in the middle from the sagging of the joists that in order to allow water to run off it at all a considerable quantity of extra material must be laid on, which would add to the weight of the superstructure and probably bring the whole roof down. I therefore recommend that the roof of this verandah be removed along its whole length, and an entirely new one put up, with new joists, and a proper slope for the water to flow off, sufficient openings being made in the parapet wall for the same purpose.

13. The estimate for this portion of the work amounts to Rupees 2,250.

14. CONDITION OF THE PENT ROOF.—The pent roof is perfectly honey-combed with leaks. It has been thatched over along the whole length of the east face of the building, and there its condition could not be well ascertained, but along the other three faces, the light streamed through the roof as through a sieve, and whereas under the thatch the space between the roof and the ceiling was so dark that an ordinary candle did not enable one to see two yards, on the other three sides it was almost as light as in the open air. During the next monsoon this space will become a regular tank.

15. SUGGESTIONS FOR ITS REMEDY.—I do not believe that any thing short of an entirely new roof will be of the slightest use. Ordinary tiles will never stand the Coorg monsoon, and the present style of roof, though very good when in good order, is difficult to repair, and besides that it is enormously heavy. A new roof, which is absolutely necessary here, would be nearly as expensive as one of iron. I therefore recommend that the present tiling be entirely removed, and corrugated iron sheeting substituted for it.

16. SUGGESTIONS FOR SUPPORTING THE ENDS OF THE DECAYED CROSS BEAMS AND RAFTERS.—The moisture appears to have affected the ends of some of the rafters and cross beams of the roof where they are imbedded in the outer walls, and though not many appear to be thus affected, still it will be necessary to provide for the support of those that are.

17. For this purpose I propose to let a stone corbel into the wall under the end of each cross beam which has rotted; the corbel to project 1' 6" beyond the wall, to be 6" broader than the beam which it is to support (or 1' 3") and grooved for the breadth of the beam (9") to a depth of 3" to keep the beam steady.

18. These corbels will support the cross beams; to support the rafters, I propose to run a purlin (6' + 9') all round the building. The purlin to be supported by uprights and struts resting on the cross beams, and the end of every rafter which shows signs of rottenness to be strapped to it,

19. There are 68 cross beams in the whole building, which if all were rotten would require 136 corbels. I have provided in the estimate for 100 corbels, and straps for 400 rafters. I do not think nearly this number will be required, certainly nothing like it are wanted now but it is impossible to say what may be the state of the roof after the next monsoon (the work cannot be completed before the monsoon) so I have thought it best to be on the safe side.

20. It is necessary to provide a purlin for the whole circumference of the roof, as a single rotten rafter will require a purlin for the whole bay to which it belongs, these being no intermediate point of support between the cross beams.

21. The wood work to be removed from the terraced verandah and ceiling will provide the material for the uprights and struts, so that the only expense to be incurred on their account will be the labor of cutting and fixing them, for which a sum of 8 Annas each has been allowed.

22. New timber for the purlin has been estimated for, as it is doubtful whether sound timber in sufficient lengths will be obtained from the ceiling or verandah.

23. CONDITION OF THE TERRACED CEILING UNDER THE PENT ROOF.—The ends of the joists which support the terraced ceiling all round the building are nearly all rotten, and a great deal of the planking between the joists and the terrace has rotted away altogether, so that the ceiling is in many places entirely unsupported, and though from its own great strength it may stand for a long time without falling, it cannot be considered safe, and any sudden vibration communicated to the building might bring it down at any moment, so that the sooner it is removed the better.

24. SUGGESTIONS FOR ITS REMEDY.—I recommend therefore that the whole of this ceiling be removed, and a light planked ceiling, supported by battens fastened to the cross beams of the roof, substituted for it.

25. The wood work of the present ceiling will provide the material for the battens, which will therefore cost only the labour of cutting out and fixing ; the cost of this is included in the rate per square of planking.

26. The total amount of the estimate for this portion of the work amounts to Rupees 39,400.

27. REPAIRS REQUIRED TO BE EXECUTED.—The estimate provides further for slight repairs and whitewashing to the walls and floor of the building, and for thatching the out-houses, as provided in Mr. Martin's original estimate.

28. There are a number of little things that require to be done, a little plaster here, a repair to a door there, &c., which cannot well be measured, and which it would be very little use measuring even if it could be done, as by the time the work comes to be executed, new requirements will have arisen. I have therefore inserted in the estimate a sum of nearly Rupees 1,000 (including the allowance for sundry charges and scaffolding) to be applied at the discretion of the Officer or Agent employed in carrying out the work, in such minor repairs as the Commanding Officer of the Regiment may wish to have executed.

29. Including this allowance the amount of the estimate for repairs is Rupees 1,600.

30. REMARKS REGARDING RATES, &c.—The total of the estimate thus amounts to Rupees 44,000 and large as this sum appears, I believe it will be good economy to spend it in putting the building into a proper state of repair. The rates for the different kinds of work have been furnished me by Major Sankey, and may therefore be taken as the lowest possible consistent with proper execution. Some of them are enormous, compared with those ruling at the Presidency and Bangalore ; this is caused chiefly by the high price of lime, which has to be brought from Fraserpett, a distance of 20 miles up a steep ghaut, and by the scarcity of labor.

31. It is possible that some saving may be made in the item of planking by the use of such of the present ceiling planks as may be found serviceable ; but I have not ventured to make any allowance on this account as until the ceiling is taken down it cannot be ascertained what proportion of the planking is fit for use, and I myself believe nearly the whole to be rotten.

32. SUGGESTIONS REGARDING THE EXECUTION AND SUPERINTENDENCE OF THE WORK.—As to the execution of the work, it does not seem probable that any contractor can be found on the spot willing and competent to undertake it, but it is not improbable that one might be found here to do so, in which case it would be best to have it executed by contract. If this cannot be done, it must of course be executed by direct departmental Agency.

33. As to superintendence ; the work is extensive, and the fixing of the iron sheeting, which is the principal part of it, will require very careful supervision. The work should therefore if possible be put under the charge of a special Superintendent. There must be plenty of men in Madras (the Railway authorities or Messrs. Parry and Co., would doubtless know where to find one) competent to supervise a work of this description, and one of these might, I should think, be found willing to go to Mercara for three months if well paid. I have allowed a sum of Rupees 750 in the estimate for superintendence. For this sum a first rate Superintendent ought to be obtained. If this course is not approved, the best way would perhaps be for myself to go to Mercara to carry out the work ; but I do not think this would be such a good course as the one I have recommended, as I have had no experience in this particlar kind of work.

75

34. Major Sankey informs me that the Mysore Government are about to spend a sum of between Rupees 7,000 and Rupees 8,000 in some alterations to the Superintendent's quarters in the Fort of Mercara, of a nature very similar to those which the accompanying estimate provides for the Palace, and that he would be glad if an arrangement could be made by which the two estimates could be put under the charge of one Superintendent, the cost of Superintendence being divided in fair proportion between the two Governments. I should think the plan would be a good one if it can be carried out.

35. I must mention that I am indebted to Major Sankey, who has kindly allowed me to peruse all the papers in his office which bear upon the subject of this report, for much valuable assistance and advice. I have shown him the rough draft of this report, and he concurs in the opinions expressed therein.

Referred to the Military Department.

FORT SAINT GEORGE,
18*th May* 1866.

(Signed) C. A. ORR, Colonel, R. E.,
Secretary to Government, P. W. D.

From the Commissioner of Coorg, Bangalore, 21st August 1866, $\frac{\text{General No. 193}}{\text{Military P. W. D. 1.}}$; to the Deputy Secretary to Government, Military Department, Fort Saint George.

I have the honor to acknowledge the receipt of your letter No. 2491 of the 18th ultimo, and in reply to enclose for the information of the Right Honorable the Governor in Council, a copy of the letter noted in the margin relative to the proprietorship of the old Palace at Mercara.

From the Officiating Chief Engineer of Mysore, No. $\frac{2109}{264}$, *dated 15th August* 1866.

From the Officiating Chief Engineer of Mysore, Bangalore, 15th August 1866, No. $\frac{2109}{264}$; to the Secretary to the Commissioner of Mysore, for the affairs of Coorg.

Adverting to your docket No. $\frac{153}{12}$ of the 27th ultimo, forwarding for report letter No. 2491, dated 18th July 1866, from the Deputy Secretary to Government, Military Department, Fort Saint George, I have the honor to state that so far as can be ascertained, no information respecting the proprietorship of the Mercara Palace is discoverable in the records of this office ; and the only repairs executed in late years have been those for thatching the front face of the Palace roof, amounting to Rupees 350, sanctioned by Chief Engineer on the 25th April 1864.

ORDER, No. 3090, 4th September 1866.

The estimate for repairs required for the Palace of Mercara is approved,—it will be considered in the Public Works Department whether, with reference to the state of the roof as reported in the correspondence on the subject,* funds can be made available for the immediate prosecution of the work.

* *Proceedings of Government, No.* 4461, *4th December* 1865.

2. Adverting to the large outlay to be incurred for the repairs in question, His Excellency the Commander-in-Chief will be requested to favor Government with his views, in respect to the amount of rent Officers of the Regiment stationed at Mercara and occupying rooms in the Palace should be called upon to pay according to the accommodation afforded them.

3. On the repairs being completed, the building will be brought on the returns of the Quarter Master General's Department.

(True Extract.)

Colonel,
Deputy Secretary to Government.

To the Public Works Department, with 3 enclosures.
" Quarter Master General.
" Controller of Military Accounts.

Exd. J. E. Casbart.

Sect Works. Fifth Division P.W. Military.
Bangalore

9 D

Abstract of Estimate No. for 1866.67.

Work Altering and repairing the Palace in the Fort of Mercara now occupied as a Mess House and Officers quarters by the 15th Regiment Native Infantry.

Quantity or Number	Description of Work	Per	Rate	Amount	Total
1	2.	3.	4	5.	6.
	No. 1.				
	Renewing the terraced roof of the Verandah in front of the East face of the building.				
303¾	Cubic feet of Joists	Cft.	4 " "	1215. " "	
1800.	Squares ft. of removing the present terrace wood work &ca	Sq. ft.	3 " "	54. " "	
1800	Sq. ft. of covering the roof with new terrace, consisting of brick on edge Jelly 3" thick, 3 courses of flat tiles, and 3 coats of chunam plastered to the top of the terrace and to the ceiling	do.	30 " "	540. " "	
2160	Sq. ft. of painting Joists with 2 coats of white paint	do.	6. " "	129. 9. 7	
	Removing and plastering the walls where they are injured by the removal of the old terrace			150. " "	
	Jarring the ends of Joists &ca			40. " "	
	Sundries			121. 6. 5.	2250. " "
	Carried forward				2250. " "

1.	2.	3.	4.	5.	6.
	Brought forward			2250	" "
	No 2.				
	Altering the sloping roof over the whole Building.				
3417	Sqre feet of removing the present tiled roof	Sqre	3 " "	1025	1 7
1426½	do. of removing the present terraced ceiling wood work	do	4 " "	570	11 2
33872	do. of corrugated iron roofing including fixing	do	50 " "	16936	" "
720	Running feet of ridging & ridge and hips of roof	Rft	1 4 "	900	" "
360	Ridge caps	Rft	" 10 "	225	" "
1800	Sqre ft of zinc sheeting for covering the joints of the iron sheeting at the receiving angles of the	Sqre	20 " "	360	" "
426¾	Cre ft of teak wood purlins & support the ends of such rafters as may be decayed	Cft	4 " "	1707	" "
136 Uprights 136 Struts	for supporting purlins removed from the present ceiling and terrace	Rft	" 8 "	136	" "
33872	Sqre ft of ½" planking over rafters and under the iron sheeting of the roof	Sqre	15 " "	5058	12 10
	Carried forward			26940	8 7 2250 " "

1.	2.	3.	4.	5.	6.
	Brought forward			26940	8 7 2250 " "
14590½	Sqre ft of ceiling with ¼" planks including nails & battens for fixing the planks (the battens to be made from the timber of the present ceiling and terrace)	Sqre	30 " "	4377	2 5
100	Granite corbels for supporting such of the rafters as may be decayed at the ends	pach	5 " "	500	" "
136	Iron straps and nails for fastening the uprights & the itnets	do.	1 " "	136	" "
400	do. do. do. rafters & the purlins	do.	1 8 "	600	" "
6500	Cre ft Raising the centre and cross walls with the brick in cheinam to the level of the ceiling	Cft	" 6 8	2708	5 4
5200	Square ft of plastering the walls & raised with 2 coats of Chunam	Sqre	7 " "	364	" "
46000	Square ft of two coats of wood oil & surface of wood work	do.	2 " "	920	" "
14590½	do. of two coats of white paint & under surface of ceiling	do.	6 " "	875	6 10
	Sundries			1978	8 10 3940 " "
	No 3.				
4312	Sqre ft of white washing the walls of Mess Room with one coat	Sqre	" 10 "	27	" "
840	do. of Repairing the floor on East face with one coat of Chunam	do.	3 8 "	29	6 5
	Carried forward			56	6 5 41650 " "

	Brought forward					56 1 2 44
3504	Sqre ft of repairing of new terrace with 2 Coats of chunam	Sqre	4.	"	"	14 2 7
8080	——do:—— of thatching roof of out houses with jungle grass covered with a layer of straw and trellis work of — Bamboos	do.	5.	"	"	404 " "
	Sundry Minor repairs to doors and Windows, walls ceiling &c including Sundry charges					999 7 "
	Superintendance for 3 months at 250 Rupees per month					75
	Total Estimate Rupees					1[illegible]

Superintg Engrs Office 5th Divn
Cuddalore 14th May 186.

Ed Ford Lt
Superintg Engr 5th Divn.

5th Division D.P.W.

Bangalore

Abstract Estimate No. for 1865-6.

3705

O.O. 2244/16.

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M. D. No. 2352 of 1866

Amount of Estimate Rs 44,000

15-9

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4. The longitudinal walls are 2½' thick, and appear to have been originally arcaded throughout the greater portion, if not the whole of their length, but most of the arches have now been built up, and doors and windows let into the walls, and cross walls built in convenient positions, so as to divide the main building into a number of apartments.

5. Along the east face of the square, which is chiefly occupied by the officers' mess-room, billiard-room, &c., the open terrace is walled in, and forms a second row of rooms at the back of the main corridor.

6. A glance at the plan will shew the general arrangement of the building better than any amount of description, but it must be understood that the plan does not profess to show the dividing walls between the different rooms, nor the interior doors and other details. These could only have been obtained by taking measurements of every room, at a great expense of time and trouble, and some inconvenience to the occupants of the quarters, several of whom are married officers; they would also have been perfectly useless when obtained, as they do not in any way bear upon the work to be done, or affect its cost.

7. On the east face of the building the front verandah is covered by a flat terraced-roof, supported on broad, but apparently not very deep, wooden joists. The main corridor and the rooms formed by the walling in of the inner terrace are covered with a rajah tiled roof, of a steep pitch, the construction of the framing of which will be best understood from the sections.

8. On the other three sides, the outer verandah and the main corridor are covered by a pent roof similar to that on the eastern face with the same rise, and consequently a slightly steeper pitch, the base being rather less.

The outside length of each side of the square is 183 feet, and the length of the ridge of the pent roof is consequently:—

On the north and south faces $183-\left(\frac{2\frac{1}{2}+9\frac{1}{2}+17+12\times7\frac{1}{2}+17+9\frac{1}{2}+7\frac{1}{2}}{2}\right)=183-47\frac{1}{2}=135\frac{1}{2}$ feet.

On the east and west faces $183-\left(\frac{17+9\frac{1}{2}+7\frac{1}{2}}{2}+\frac{17+9\frac{1}{2}+7\frac{1}{2}}{2}\right)=183-34=149$ feet.

9. Underneath the pent roof, all round the buildings is a heavy terraced ceiling, supported upon wooden joists and planking as shewn in the sections.

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10. CONDITION OF THE ROOF OF THE FRONT VERANDAH.—The terraced roof of the front verandah along the east face is in about as bad a condition, short of absolute falling down, as it can possibly be in. It appears to leak throughout its whole length, the joists nearly all sag in the middle, and a great many of them are so rotten at the ends that they can be no support whatever to the terrace, which must be supported simply by its own cohesion. The leakage is aggravated by the insufficiency of the provision for carrying off the rain which falls upon the terrace, as well as that flowing from the adjacent pent roof, which in the height of the monsoon must amount to a considerable quantity.

11. I should mention that along part of the length of this verandah, apparently with a view to support the sagging and rotten joists, three longitudinal joists, each 4"×3½" have been put up, as shown in the section; these again are supported by beams 5"×8" built into the piers of the arches. These longitudinal joists are far too weak to be of the slightest use if the upper joists were really to give way.

12. SUGGESTIONS FOR ITS REMEDY.—I do not believe that any amount of patching will be of the slightest use here; as fast as one leak is stopped another will show itself, to say nothing of the state of the ends of the joists. moreover the terrace has sunk so much in the middle from the sagging of the joists that in order to allow water to run off it at all a considerable quantity of extra material must be laid on, which would add to the weight of the superstructure and probably bring the whole roof down. I therefore recommend that the roof of this verandah be removed along its whole length, and an entirely new one put up, with new joists, and a proper slope for the water to flow off, sufficient openings being made in the parapet wall for the same purpose.

13. The estimate for this portion of the work amounts to Rupees 2,250.

14. CONDITION OF THE PENT ROOF.—The pent roof is perfectly honey-combed with leaks. It has been thatched over along the whole length of the east face of the building, and there its condition could not be well ascertained, but along the other three faces, the light streamed through the roof as through a sieve, and whereas under the thatch the space between the roof and the ceiling was so dark that an ordinary candle did not enable one to see two yards, on the other three sides it was almost as light as in the open air. During the next monsoon this space will become a regular tank.

15. SUGGESTIONS FOR ITS REMEDY.—I do not believe that any thing short of an entirely new roof will be of the slightest use. Ordinary tiles will never stand the Coorg monsoon, and the present style of roof, though very good when in good order, is difficult to repair, and besides that it is enormously heavy. A new roof, which is absolutely necessary here, would be nearly as expensive as one of iron. I therefore recommend that the present tiling be entirely removed, and corrugated iron sheeting substituted for it.

16. SUGGESTIONS FOR SUPPORTING THE ENDS OF THE DECAYED CROSS BEAMS AND RAFTERS.—The moisture appears to have affected the ends of some of the rafters and cross beams of the roof where they are imbedded in the outer walls, and though not many appear to be thus affected, still it will be necessary to provide for the support of those that are.

17. For this purpose I propose to let a stone corbel into the wall under the end of each cross beam which has rotted; the corbel to project 1' 6" beyond the wall, to be 6" broader than the beam which it is to support (or 1' 3") and grooved for the breadth of the beam (9") to a depth of 3" to keep the beam steady.

18. These corbels will support the cross beams; to support the rafters, I propose to run a purlin (6'+9') all round the building. The purlin to be supported by uprights and struts resting on the cross beams, and the end of every rafter which shows signs of rottenness to be strapped to it,

19. There are 68 cross beams in the whole building, which if all were rotten would require 136 corbels. I have provided in the estimate for 100 corbels, and straps for 400 rafters. I do not think nearly this number will be required, certainly nothing like it are wanted now but it is impossible to say what may be the state of the roof after the next monsoon (the work cannot be completed before the monsoon) so I have thought it best to be on the safe side.

20. It is necessary to provide a purlin for the whole circumference of the roof, as a single rotten rafter will require a purlin for the whole bay to which it belongs, these being no intermediate point of support between the cross beams.

21. The wood work to be removed from the terraced verandah and ceiling will provide the material for the uprights and struts, so that the only expense to be incurred on their account will be the labor of cutting and fixing them, for which a sum of 8 Annas each has been allowed.

22. New timber for the purlin has been estimated for, as it is doubtful whether sound timber in sufficient lengths will be obtained from the ceiling or verandah.

23. CONDITION OF THE TERRACED CEILING UNDER THE PENT ROOF.—The ends of the joists which support the terraced ceiling all round the building are nearly all rotten, and a great deal of the planking between the joists and the terrace has rotted away altogether, so that the ceiling is in many places entirely unsupported, and though from its own great strength it may stand for a long time without falling, it cannot be considered safe, and any sudden vibration communicated to the building might bring it down at any moment, so that the sooner it is removed the better.

24. SUGGESTIONS FOR ITS REMEDY.—I recommend therefore that the whole of this ceiling be removed, and a light planked ceiling, supported by battens fastened to the cross beams of the roof, substituted for it.

25. The wood work of the present ceiling will provide the material for the battens, which will therefore cost only the labour of cutting out and fixing ; the cost of this is included in the rate per square of planking.

26. The total amount of the estimate for this portion of the work amounts to Rupees 39,400.

27. REPAIRS REQUIRED TO BE EXECUTED.—The estimate provides further for slight repairs and whitewashing to the walls and floor of the building, and for thatching the out-houses, as provided in Mr. Martin's original estimate.

28. There are a number of little things that require to be done, a little plaster here, a repair to a door there, &c., which cannot well be measured, and which it would be very little use measuring even if it could be done, as by the time the work comes to be executed, new requirements will have arisen. I have therefore inserted in the estimate a sum of nearly Rupees 1,000 (including the allowance for sundry charges and scaffolding) to be applied at the discretion of the Officer or Agent employed in carrying out the work, in such minor repairs as the Commanding Officer of the Regiment may wish to have executed.

29. Including this allowance the amount of the estimate for repairs is Rupees 1,600.

30. REMARKS REGARDING RATES, &c.—The total of the estimate thus amounts to Rupees 44,000 and large as this sum appears, I believe it will be good economy to spend it in putting the building into a proper state of repair. The rates for the different kinds of work have been furnished me by Major Sankey, and may therefore be taken as the lowest possible consistent with proper execution. Some of them are enormous, compared with those ruling at the Presidency and Bangalore ; this is caused chiefly by the high price of lime, which has to be brought from Fraserpett, a distance of 20 miles up a steep ghaut, and by the scarcity of labor.

31. It is possible that some saving may be made in the item of planking by the use of such of the present ceiling planks as may be found serviceable ; but I have not ventured to make any allowance on this account as until the ceiling is taken down it cannot be ascertained what proportion of the planking is fit for use, and I myself believe nearly the whole to be rotten.

32. SUGGESTIONS REGARDING THE EXECUTION AND SUPERINTENDENCE OF THE WORK.—As to the execution of the work, it does not seem probable that any contractor can be found on the spot willing and competent to undertake it, but it is not improbable that one might be found here to do so, in which case it would be best to have it executed by contract. If this cannot be done, it must of course be executed by direct departmental Agency.

33. As to superintendence ; the work is extensive, and the fixing of the iron sheeting, which is the principal part of it, will require very careful supervision. The work should therefore if possible be put under the charge of a special Superintendent. There must be plenty of men in Madras (the Railway authorities or Messrs. Parry and Co., would doubtless know where to find one) competent to supervise a work of this description, and one of these might, I should think, be found willing to go to Mercara for three months if well paid. I have allowed a sum of Rupees 750 in the estimate for superintendence. For this sum a first rate Superintendent ought to be obtained. If this course is not approved, the best way would perhaps be for myself to go to Mercara to carry out the work ; but I do not think this would be such a good course as the one I have recommended, as I have had no experience in this particlar kind of work.

34. Major Sankey informs me that the Mysore Government are about to spend a sum of between Rupees 7,000 and Rupees 8,000 in some alterations to the Superintendent's quarters in the Fort of Mercara, of a nature very similar to those which the accompanying estimate provides for the Palace, and that he would be glad if an arrangement could be made by which the two estimates could be put under the charge of one Superintendent, the cost of Superintendence being divided in fair proportion between the two Governments. I should think the plan would be a good one if it can be carried out.

35. I must mention that I am indebted to Major Sankey, who has kindly allowed me to peruse all the papers in his office which bear upon the subject of this report, for much valuable assistance and advice. I have shown him the rough draft of this report, and he concurs in the opinions expressed therein.

Referred to the Military Department.

FORT SAINT GEORGE,
18*th May* 1866.

(Signed) C. A. ORR, Colonel, R. E,
Secretary to Government, P. W. D.

From the Commissioner of Coorg, Bangalore, 21st August 1866, $\frac{\text{General No. 193}}{\text{Military P. W. D. 1.}}$; to the Deputy Secretary to Government, Military Department, Fort Saint George.

I have the honor to acknowledge the receipt of your letter No. 2491 of the 18th ultimo, and in reply to enclose for the information of the Right Honorable the Governor in Council, a copy of the letter noted in the margin relative to the proprietorship of the old Palace at Mercara.

From the Officiating Chief Engineer of Mysore, No. $\frac{2109}{264}$, *dated 15th August* 1866.

From the Officiating Chief Engineer of Mysore, Bangalore, 15th August 1866, No. $\frac{2109}{264}$; to the Secretary to the Commissioner of Mysore, for the affairs of Coorg.

Adverting to your docket No. $\frac{153}{12}$ of the 27th ultimo, forwarding for report letter No. 2491, dated 18th July 1866, from the Deputy Secretary to Government, Military Department, Fort Saint George, I have the honor to state that so far as can be ascertained, no information respecting the proprietorship of the Mercara Palace is discoverable in the records of this office ; and the only repairs executed in late years have been those for thatching the front face of the Palace roof, amounting to Rupees 350, sanctioned by Chief Engineer on the 25th April 1864.

ORDER, No. 3090, 4th September 1866.

The estimate for repairs required for the Palace of Mercara is approved,—it will be considered in the Public Works Department whether, with reference to the state of the roof as reported in the correspondence on the subject,* funds can be made available for the immediate prosecution of the work.

* *Proceedings of Government, No. 4461, 4th December* 1865.

2. Adverting to the large outlay to be incurred for the repairs in question, His Excellency the Commander-in-Chief will be requested to favor Government with his views, in respect to the amount of rent Officers of the Regiment stationed at Mercara and occupying rooms in the Palace should be called upon to pay according to the accommodation afforded them.

3. On the repairs being completed, the building will be brought on the returns of the Quarter Master General's Department.

(True Extract.)

Macmullen Colonel,
Deputy Secretary to Government.

To the Public Works Department, with 3 enclosures. 1320 ofsame Copies
,, Quarter Master General.
,, Controller of Military Accounts.

Rrd. J. E. Cashart.

Wksp 25-Oct

P. W. 1866 Dept.
Proc: of Govt for Octoter
No: 3705

Pro: of the Madras Govt
in the Milty: Dept.

Dated 4 Sept 1866
Read 8

No 3090.

Encl: 3-

Approving of an estimate amounting to Rs. 1,40,000 for repairing the Palace in the Fort of Mercara-

No 94.

C. 25th Sept 1866. R. 1st Octo 1866

G.O. 3156 - 1st Octr 1866

P. W. Dept.
G.O. 3156

Proceedings of the Madras Government
Under date the 1st Octr 1866
Read the following

Proceedings of the Madras Govt
in the Milty: Dept - dated 4th Sept 1866

No 3090

Communicated to the Supt Engineer of the 5th Division -

It being desirable that the proposed alterations and improvements to the Palace in the Mercara Fort should be put in hand as early as practicable, the Government resolve, in anticipation of the approval of the Government of India, to sanction the following transfer of funds -

From

Budget Item No 1 - Rs 5,000
" " 7 - Rs 5,000
Total Rs 10,000

To

Improvements to the Palace in the Mercara Fort - Rs 10,000

Colonel Foord will take measures for the immediate commencement of the work -

The Supt Engineer 5th Div. with one Specn
The Supply & 5th Divn
Controller of the Accts
Accountant General
Military Dept -

Dept 5th Octr

Wt

Rec: of Govt for October

£ 3155

Rec: of the Madras Govt

£ 4" Oct/66.

CM 434/66

No 94-95

28th Sept 1866 Rec. 10th Oct/66.

making such arrangements for its supervision with Major Saulkey as may be necessary—

The transfer of Rs 10,000 from Items 1 and 7 of the Budget to the improvement of Palace in the Mercara Fortification ned in anticipation of the approval of the Govt of India.