

- (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. 1323	Press
316-318	Mis.
Dated 15/2/52	18/6/52

Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,
15th May 1865.*

No. 316.

Read the following papers:—

No. 323.

NOTES ON CORRESPONDENCE OF CANNANORE RANGE.

Letter No. 925 of 25th March.

I have anxiously considered the subject of this letter, as its importance requires; and from Captain Norton's statements and my own observations in November last, I cannot but come to the conclusion that his apprehensions are exaggerated.

These have been founded on the fact of the front walls 15 feet high having separated from the partition walls for a width of 2 to 2½ inches, downwards from 6 to 9 feet. To the best of my belief these settlements are of old standing, and Captain Norton does not expressly say that they have extended within his observation. But he dreads the effect of dampness in the monsoon; and being single tiled with the exception of Block No. 2, it is possible that, however well tiled, the roofs may not be impervious to the weather. Block No. 2 has flat tiles, (added by Captain Vertue it is imagined,) which should obviate that evil, but at the cost of extra weight. (*Memo-
randum.*—Captain Norton will please report whether the flat tiles are an addition to the original sanction. Also whether the blocks now being erected are double tiled, single tiled, or single tiled with flat tiles)

So long as the roofs are tolerably water-tight I believe that no further settlement or outward thrust will occur. But considering the possible risk of life I am of opinion that the addition of a third set of couples lower down, and properly secured to the rafters should be made; the fastenings of the old couples being also looked to. Further security may also be obtained by the substitution of stone pillars 1½ feet square, in chunam, for the wooden posts already existing. And complete safety by dividing off the verandah by party walls of laterite in chunam between each quarter with a four feet arched opening to admit of circulation to and from the offices. And for this addition and a third set of couples I request Captain Norton to estimate; undertaking the work at once, with permission of the Brigadier General Commanding Malabar and Canara. Any thing is better than to substitute thatch for tiles in buildings of this nature. Captain Norton has under-stated the thickness of the walls at 1 foot; it is only the partitions that are 1 foot, the main walls being 1½ feet thick, as shown correctly in the plan.

In considering the cause of the fissures between the front and partition walls, the natural shrinkage of the sun-burnt bricks used for the upper 8 feet of the latter, in Blocks Nos. 2 and 3, must be taken into account. Also that it was an after-thought to raise them to the full height, matting having been originally proposed. And I can testify from personal inspection in May 1863, that the partition walls were not carried up uniformly with the main walls, but put in subsequently, a style of work which I then condemned as faulty in the extreme. The only real test of the condition of the front walls is to be obtained by plumbing them on the outside, not by mere inspection of the fissures between them and the partition walls inside.

OOTACAMUND,
1st April 1865.

(True Copy.)
(Signed) G. W. WALKER, Lieut.-Colonel, R. E.,
Superintending Engineer, 7th Division.

To the Secretary to Government, Department Public Works, for information and approval.

The estimates for the work proposed will be submitted for sanction when received.
(Signed) G. W. WALKER, Lieut.-Colonel, R. E.,
Superintending Engineer, 7th Division.

3rd April 1865.

From Captain E. N. NORTON, Assistant Engineer, to Lieutenant-Colonel G. W. WALKER, R. E., Superintending Engineer, 7th Division, Department Public Works, dated Cannanore, 22nd March 1865, No. 925.

SIR,

1. In answer to your letter No. 300 of 15th instant, I have the honor to forward the information therein called for, also a sketch of the buildings.

*Proceedings of the Madras Government, Public Works Department,
15th May 1865.*

2. The cause of danger I apprehend in the excessive dampness during the months of May, June, July, August, and September, when the walls become saturated with moisture.

3 I am also of opinion that the present couple roofs on the buildings under notice are not adapted to resist any great weight, and consequently give the lateral thrust against the outside wall, the partitions or cross walls in sun-burnt bricks in clay (a misnomer for mud), and laterite in clay being of no assistance in retaining the wall in its original position. If simple couple roofs for spans of 18 feet on this coast are used, the lower brace should be much lower in the rafters and act more as a tie. As it is the front walls of Blocks 2, 3 and 4 (sea faces) have separated from the cross walls from the top downwards 9, 7 and 6 feet, the width of the separation vary from 2 to 2½ inches at the top, gradually lessening to the bottom.

4 I now proceed to give a detailed account of the materials of the three blocks of married quarters, for which I think it highly desirable to re-place the tiles by caljan leaves as early as possible.

Block, No. 2

Main walls, laterite in clay 15 feet high
Cross or partition walls, laterite in clay to 7 feet high, above that sun-burnt bricks 8 feet high.
Width of walls, 1 foot.
Couple roof, pitch of roof one-third of span
Span, 18 feet.
Single pan tiles.

Probable weight of roof per square.

Timber, 800 lbs.
Tiles including chunam borders, 2,270 lbs.
Scantling of timber.—Rafters 5" x 3" do
Braces 5" x 3" do.

Kind of timber.—Ooropoc and Errool

Block, No. 3

Similar to block No. 2 with the exception of the following:—
Flat tiles 375 lbs. per square or 2,645 lbs. per square including chunam borders

Block, No. 4.

Similar to block No. 2 with the exception of partition walls which are laterite in clay.

(True Copy)

(Signed) G. W. WALKER, Lieut Colonel, R. E.,
Superintending Engineer, 7th Division.

No. 317. From Lieutenant-Colonel G. W. WALKER, R. E., Superintending Engineer, 7th Division, to Colonel C. A. ORR, R. E., Secretary to Government, Department Public Works, dated Coonoor, 6th May 1865, No. 2:—

Enclosure 2

Sir,

1. I lose no time in transmitting plan and estimate for alterations to three ranges of married quarters at Cannanore prepared by Captain Norton, in accordance with the instructions of my Memorandum No. 323 of 1st April, copy of which was forwarded to Government for information.

2. The alterations in the estimate are caused by my allowing for foundation and basement walls under the open arched spaces to obviate sinking and ensure stability. And to the omission of the item for turning tiles, which has been already provided for separately from the allotment for Military repairs.

3. The expenditure may be debited to item No. 9 of the Budget of 1865-66, Rupees 26,140, for married quarters at Cannanore.

No. 318.

MILITARY WORKS. No. 27.

ORDER THEREON, 15th May 1865, No. 1,323.

1. The estimate amounting to Rupees 2,850, for alterations and improvement to three ranges of married quarters mentioned by the Superintending Engineer.

*Proceedings of the Madras Government, Public Works Department,
15th May 1865.*

2. It is observed that the collar beam to be added to the couples of the roof is not placed so as to give the maximum of strength. His Excellency in Council is of opinion that the additional collar beam should be fixed immediately above the wall plates.

(True Extract.)

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

To the Superintending Engineer, 7th Division.
" Accountant General.
" Controller of Public Works Accounts.
" Military Department.

Exd. S. T. Augustin.

Malabar District — 1st of 1865-66.
 Estimate for making, certain alterations, and improvements to the Married Quarters at Cannanore, agreeably
 to orders from the Superintending Engineer of the Dⁿ dated 1st April 1865. N^o 323

	Amount of each	no.	the	est.	sum	in	it.

Cannanore
19th April 1865

D. N. James Brig. General
Commanding Malabar District

For one Block \$ 960
For 3 " 2880

Wm. L. ... Consulting Engineer & Co.

Edward Norton Captain
Assistant Engineer

Ind. 56.99

Madam Justice
Estimate for making
certain alterations and
improvements to the
Married Quarters
at Bangalore

Enclosure 2
to the Honble Secy to Govt
Bangalore 6th May 1865
P. M. 15/9/65

No. 2
Superintending Engineer's Office
7th Division
Bangalore 6th May 1865
From Lieut Colonel G. W. Walker R.E.
Superintending Engineer 7th Div
To Colonel C. A. Orr R.E.
Secretary to Government D.M.

Enclosure 2.

Sir, I lose no time in transmitting Plan and Estimate for alterations to 3 Ranges of Married Quarters at Bangalore prepared by Captain Norton in accordance with the instructions of my Memo No. 323 of 1st April copy of which was forwarded to Government for information.

2 The alterations in the Estimate are caused by my allowing for Foundation and Basement walls under the open arched spaces to obviate sinking and more stability. And to the origin of the item for turning tiles, which has been already provided for separately from the allotment for Military Repairs.

3 The expenditure may be debited to Item No. 9 of the Budget of 1865-66, Rs 26,140, for Married Quarters at Bangalore.

I have the honor to be
Sir,
Your most Obedt. Servant
G. W. Walker Lieut Col R.E.
Superintending Engineer 7th Div

PA

No 925
 From
 To
 Cannon 22nd March 1865.
 Captain E A Norton
 Assistant Engineer
 The Superintendent

March 22nd

15th Instant

therein

the ex-

4, some,

to become

not compl-

adapted

give the

darkness

more

distance

of

coast

er in the

th walls

from the

th the

les at the

top gradually leaping to the bottom.

4. I now proceed to give a detailed account of the materials of the three blocks of married Quaker for which I think it highly desirable to replace the tiles by cadjan leaves as early as is possible.

Block

To Mr. Norton
 Pro. of Govt for a day
 of 15th 1865

The Superintendent Engineer
 J. A. Norton

Office of the Superintendent Engineer
 Washington 11th 1865

11th

Ordered 6th 1865
 Received 11th 1865

Enclosure

Submits Plan and Estimate
 of \$2380 for alterations and
 improvements to 3rd Range
 of Harriet's Quarter as
 recommended and attached
 the engineering may be
 referred to the statement for
 Harriet's Quarter
 11th 1865 - 15th May 1865

Of 31st

No 925 Cannanore 22nd March 1865.

From Captain E. S. Norton
Assistant Engineer

To The Superintending Engineer

7th Division D.P.W.

Sir

In answer to your letter No 300 of 15th Instant I have the honor to forward the information therein called for also a sketch of the buildings.

2 The cause of danger I apprehend is the excessive dampness during the months of May, June, July, August and September, when the walls become saturated with moisture.

3 I am also of opinion that the present couple roofs on the buildings under notice are not adapted to resist any great weight and consequently give the lateral thrust against the outside wall. The partitions or cross walls in some burnt bricks in clay (a bad material for mud) and latterly in clay being of no assistance in retaining the wall in its original position. If simple couple roofs for spans of 15 feet on this coast are used, the lower brace should be much lower in the rafters and act more as a ke. Such is the front walls of blocks 2, 3 and 4 (sea faces) have separated from the cross walls from the top downwards 9, 7 and 6 feet the width of the separation vary from 2 to 2 1/2 inches at the top gradually lessening to the bottom.

4. I now proceed to give a detailed account of the materials of the three blocks of married Quarries for which I think it highly desirable to replace the tiles by cadjan leaves as early as possible.

Pollock

Of 3/4

7th Division D.P.W.

From The Superintending Engineer
7th Division

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

Dated 3rd March 1865

Copy of Capt. Norton's
letter regarding married
Quarries at Cannanore

delivered to the Assistant
Engineer at Cannanore -
No 1323-1500 Nov 1865

Block No 2

Main walls Lattice in clay 15 feet high.
Cross or partition walls Lattice in clay 10 1/2 feet high
above that sun burnt bricks 8 feet high.

Width of Walls 1 foot.

Couple roof. Pitch of roof 1/3 of span.

Span 18 feet.

Single pan tiles

Probable weight of roof per square

Timber 800 lbs

Tiles including chunnam borders 2270 lbs

Scantling of Timber. Rafters 5" x 3"

Braces 5" x 3"

Kind of Timber. Corropero and Erroob.

Block No 3.

Similar to Block No 2 with the exception of
the following.

Flat Tiles 375 lbs per square or 2645 lbs per square
including chunnam borders.

Block No 4

Similar to Block No 2 with the exception of
partition walls which are Lattice in clay.

I have &c

(Signed) E. S. Norton Captain

Spisbank Engineer

(True Copy.)

W. M. Smith Lieut. Col. R. E.

Superintending Engineer 7. 8. 83

Notes on Correspondence of Commander Raper

Letter No 925 of 25 March.

I have anxiously considered the subject of this
letter, as its importance requires; and from Captain
Norton's statements and my own observations
in a letter last I cannot but come to the
conclusion that his apprehensions are exaggerated.

These have been founded on the fact of the front
walls 15 feet high having separated from the
partition walls for a width of 2 to 2 1/2 inches,
downwards from 6 to 9 feet. So the best of my
beliefs, these settlements are of old standing, and
Captain Norton does not expressly say that they
have extended within his observations. But he
dreads the effect of dampness in the masonry;
and being single tiled with the exception of Block
No 2, he is justified that, however well tiled, the
roofs may not be impervious to the weather.
Block No 2 has flat tiles, (as said by Captain
Norton it is imagined), which should obviate
that evil but at the cost of extra weight.
(Memo: Captain Norton will please report
whether the flat tiles are an addition to the
original sanction - also whether the Block No
now being erected are double tiled, single tiled,
or single tiled with flat tiles.)

So long as the Roofs are tolerably watertight
I believe that no further settlements or outward
thrust will occur. But considering the possible
risk of life I am of opinion that the addition
of a third set of couple lower down, & properly
secured to the rafters should be made, the factu-
ring of the old couple being also looked to.

Further security may also be obtained by the
substitution of Stone Pillars 1 1/2 feet square
in Chumam for the wooden posts already existing.
And complete safety by dividing off the verandah
by party walls of Lathwork in Chumam between
each quarter, with a 4 feet arches opening to
admit of circulation to and from the offices.
And for this addition and a third set of Cuples
I request Captain. Norton to estimate, under-
taking the work at once, with permission
of the Brigadier General Commanding Malabar
and Canara. Anything is better than to sub-
stitute thatch for tiles in buildings of this
nature. Captain Norton has understated
the thickness of the walls at 1 foot; it is only
the partitions that are 1 foot the main walls
being 1 1/2 feet thick, as shown correctly in the plan.

In considering the cause of the fissures
between the front and partition walls, the
natural shrinkage of the sun burnt bricks
used for the upper 8 feet of the latter, in Nos. 1 &
2 and 3, must be taken into account. Also
that it was an after thought to raise them
to the full height, snalling having been originally
proposed. And I can testify from personal
inspection in May 1863, that the partition
walls were not carried up uniformly with
the main walls, but put in subsequently, a
style of work which I then condemned as
faulty in the extreme. The only real test of the
condition of the front walls is to be obtained
by plumbing them on the outside, not by mere
inspection of the fissures between them and
the partition walls inside.

Ootacamund
1st April 1866.

(Sigs) G. W. Walker Esq. R.E.

Staff Engineer

(True Copy)

G. W. Walker Esq. R.E.
Superintending Engineer

To The Secretary to Government D. P. W.
for information and approval.

The Estimates for the work proposed with
be submitted for sanction when received.

WLD
3-4-65

Military Works P.W.D.

No. 1323

Proceedings of the

Madras Government,
Tender date the 15th May 1865
Read the following

From the Superintending Engineer
Forwarding notes to
Captain Horton regarding
the Married Quarters at
Cannanore.

Yt. 1st April/65 No.

From — do — do.
Submits plan & estimate
of Rs. 2880 for alterations & im-
provements to 3 Ranges of
Married Quarters at Cannanore
& states that the expenditure
may be debited to the allotment
for Married Quarters —

Yt. 6th May/65 No. 2.

The estimate
amounting to Rs. 2880.
for alterations and
improvements to three
Ranges of married
Quarters at Cannanore
is sanctioned. The
expenditure will be
charged

[Signatures]

[Handwritten notes in left margin]

[Handwritten notes in left margin]

[Handwritten notes in left margin]

[Handwritten notes in left margin]

[Handwritten notes in left margin]

No. 1323-15th May/65

No. 316

charged against the
source mentioned by
the Superintending En-
gineer.

It is observed
that the collar beam
to be added to the
coupler of the roof
is not placed so as
to give the maximum
of strength. His
Excellency in Council
is of opinion that the
additional collar
beam should be
fixed immediately
above the wall
plate.

A.B.

To Sup^r Engr^y Gen^l
" Asst General
" Controller
" Military Dep^t

Sup^r Engr^y Gen^l

J. W. 1865 Department

Pro: of Capt for May

Of 1323

Pro: of the Madras Corp.

Of 15 May 1865

The estimates amounting
to Rs 2880 for alterations and
improvements to other ranges
of married quarters at Coim-
batore.

Apr 31/65 2318.