Archives I 10,006—16-8 77.

(1) Number of pages 32.

(2) Date of repair Feb. 87.

(3) Initials of the Referencer law

# TAMIL NADU ARCHIVES

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## GOVERNMENT OF TAMIL NADU

## P.W.D DEPARTMENT

G.O. No. / B.P. No. 1826 W.

Press. / Mis.

Dated 26.7.1881 ~~197~~.

***Not to be folded or roughly handled***

1896/1

## GOVERNMENT OF MADRAS.

## PUBLIC WORKS DEPARTMENT.

26th July 1881, No. 1,826 W.

Buildings and Roads.
Civil Works.

Read the following paper :—

No. 58. From N. St. B. BEARDMORE, Esq., Officiating Superintendent, Madras Harbour Works, to the Secretary to Government, Public Works Department, dated Madras, 5th July 1881, No. 22 W.

I have the honor to report to you on the progress of the Madras Harbour Works for the month of June as follows.

North Pier Superstructure.—Mr. Thorowgood left instructions for me to recommence blocksetting at my discretion on the 10th June if the weather was then favorable. I accordingly gave orders on the 8th June to move the north pier titan out from her place of safety to the pier end. The weather at the time could hardly be called settled as it had a somewhat stormy character, but I considered it advisable, as the generally supposed cyclonic period was passed, to have everything in readiness to set blocks at the first opportunity that offered itself. This occurred on Monday the 13th June. The progress however has been anything but continuous owing to the heavy swell that has been running at the entrance of the harbour throughout the month. Fifty-five blocks were set in the north and north centre walls which added 26 feet to their lengths, and completed them to the full length of 3,866 feet. The south and south centre walls remain the same length as reported last month, viz., 3,840 feet. An important portion of the work was setting and keying together the large quadrant blocks at the south-east corner of the pier. Setting such large blocks in such a sea as was running at the time is a difficulty in itself, and keying them together is troublesome. As an instance I may mention that the first two blocks, forming the bottom course of the tier, were set one day and had to be taken up and reset the next on account of an imperfection in the bed as prepared in the first instance. The method of keying together the six blocks in the upper portion of the tier was by means of filling up holes, three feet in diameter, which passed through five of them in a line with a canvas pocket twenty feet long filled with a strongly proportioned concrete, and by cementing the top block on to the one below it. It occupied two tides, that is to say, two different periods of a few hours each when the tide was near low water to fill the canvas pocket, but I believe all the concrete has thoroughly massed together, and formed a solid key cemented at the circumference of the holes to the blocks. Three days elapsed before an opportunity offered itself of cementing on the top block, but that was successfully done at low water on the 1st July.

North Pier Rubble Base.—This work, as reported last month, is completed; but about 20 tons of granite stone have been used in filling up inequalities in the base.

Concrete Blockmaking.—Fifty-four concrete blocks were made by machinery on the north pier block ground between the 1st and the 8th instant. The total number of blocks now made is 13,643, and this completes the full number of blocks required for the two piers. It includes in their construction 25,823 tons of cement, and the total amount of concrete is 348,605 tons.

QUARRIES.—One train per day from Ambatúr quarries has brought 6,296 tons of laterite stone, ballast and gravel, all of which has been used in the Beach Improvement Works. In consequence of the completion of blockmaking the three trains per day usually employed in carrying stone from Pallávaram were reduced on the 8th instant to one train per day. The total quantity of granite stone received during the month has been 5,181 tons. Of this quantity 760 tons have been used for blockmaking and the greater part of the rest for the rubble base of the south pier. A small quantity has been used for the rubble base of the north pier, and a small quantity for the Beach Protection Works at Ráyapuram.

SOUTH PIER SUPERSTRUCTURE.—The waves of the sea striking the south pier in a more parallel direction than they strike the north pier caused the interruption of work at the south pier to be greater than at the north. The weather in the early part of the month appearing to be unsettled I did not think proper to order the titan to be moved to the end of the pier until Monday the 13th instant. It occupied nearly three days to move her out and spike down again the line of railway for the blocks which had been taken up in anticipation of the rough weather. On the 16th block setting was recommenced. The work has been very intermittent owing to the rough sea. A portion of the pier, about 120 feet in length near the end, was very low, and here the sea during the hours near each period of high water, say from a third flood to two-thirds ebb, continually broke over the pier, at spring tides more than at neap tides. On some days the sea broke over continually throughout all periods of tide. Across this low part the line of railway had to be packed up with sleepers and wooden chocks to a height of three feet, and nearly every sea that broke over washed the whole of this packing out; it had to be picked up by boats and catamarans and replaced, sometimes while an engine and block were waiting to cross. It was impossible to build in the railway as there was not sufficient time for the cement to set. A temporary breakwater of timber was constructed across this low part in order to protect the line of railway, which fulfilled the requirements expected of it, but even when one was enabled to get the blocks to the end of the pier by this means the sea was often too rough to permit the divers working. Seventy-two blocks, making nine courses, were set between the 16th and 30th inclusive. This made the pier 42 feet longer than last month, total length now being 3,827 feet from point E on the plan accompanying this report.

SOUTH PIER RUBBLE BASE.—In the south pier rubble base 4,835 tons of granite stone were deposited chiefly from boats by manual labor. One hundred and forty tons of this quantity having been thrown from the pier end for levelling up inequalities in making the beds for the blocks.

PROTECTIVE WORKS NORTH OF THE HARBOUR.—The encroachment reported last month has continued, but in a slow manner. Steps have been taken to extend the protection works north of the Thannah, as some of the huts in that neighbourhood have been washed away; 160 tons of stone have been used for that purpose.

STORES.—The S.S. *Camorta* arrived from England with fifty lengths of stud chain and twelve lengths of bridle chains for the moorings and buoys.

MOORINGS.—The decks have been fitted on the hopper barges, the screwing engine has been fitted up on one, and other steps taken to prepare these vessels for screwing down the moorings. They are now about to be made fast together like a twin vessel, as there is not sufficient space on either one to use her alone. If the weather is favorable I hope to commence screwing down the moorings in a short time.

BEACH IMPROVEMENT.—The chief amount of work this month has been proceeding with the root for the landing jetty, south of the iron pier, and in metalling the sand which has been formed up into a platform nearly level with the beach road; 6,296 tons of laterite stone has been used for this purpose, of which 3,090 tons of stone have been used for preparing the root of the jetty, which now extends to 570 feet from the harbour works base line along the beach road, and 3,206 tons of laterite ballast and gravel for metalling over the made-up sand. 1,150 squares have now been metalled as shown by a burnt sienna tint on the accompanying plan. The yellow ochre tint shows the area of sand which has now been formed up, 3,226 cubic yards of sand having been added to it during the past month. The temporary railway has been lengthened by 140 feet.

GENERAL.—The Head Foreman, Mr. G. Lowe, a much valued man on these works, I regret to say, fell sick towards the end of May. He was recommended on a medical certificate for two months' leave to the Nílgiri Hills, and went there on the 7th June; so I have been without his services for the whole of the month. He returned to Madras on the morning of 2nd July.

EXPENDITURE.—Expenditure during the month of June has been 42,091 rupees. The total expenditure since the commencement of the work has been 55,10,990 rupees.

PLANS AND SECTIONS.—The usual lithographed plan, showing the new portion of the pier works in red, and a longitudinal section of each of the piers accompany this report.

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No. 59. ORDER THEREON, 26th July 1881, No. 1,826 W.

THERE are two points in this report which seem to call for attention, viz.:—

(1) the lowness of the outer ends of the breakwaters, and
(2) the continued erosion of the shore north of the harbour.

2. As regards the first point, it is observed from the remarks under "south pier superstructure" that near each period of high water from a-third flood to two-thirds ebb the sea continually broke over the pier. There may possibly be no danger in this, but it indicates that there has been very great settlement in the rubble base, owing, it is probable, to laterite instead of a harder description of rock having been used.

3. The Government would be glad to learn from the Engineer-in-Chief of the Harbour Works what has been the actual settlement, its causes and probable ultimate results to the work, also whether any action should, in his opinion, be taken with reference to this movement.

4. As regards the encroachment of the sea north of the harbour, it is observed that the erosion of the beach has continued to the north of the Thannah, and that some huts have now been washed away. As the movement is evidently progressive, there seems no alternative but to continue the longitudinal revetment ordered in paragraph 2 of G.O., No. 561 W., dated 1st March 1881, and this will accordingly be done pending any remarks on the matter which Mr. Parkes may have to offer.

(True Extract.)

Major, R.E.,
Under Secy. to Govt., P.W.D.

To the Superintendent, Madras Harbour Works.
" Engineer-in-Chief, Madras Harbour Works.
" Marine Department.

Exd. S. T. Austin.
Spare Copies

BUILDINGS AND ROADS.
CIVIL WORKS.

# Govt. of {1881} Madras.

## PUBLIC WORKS.

To

The Superintendent, Madras
Harbour Works,
&c., &c., &c.

Dated July, 26th.

Issued

Recd. Enc

G. O., 26th July 1881, No. 1,826 W.

JULY.
Nos. 58-59.

*Madras Harbour Works.*—Orders on Progress Report of the — for June 1881.

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No. 22 W

1896/3

From

The Superintendent,
Madras Harbour Works,

To

Colonel R. H. Sankey C.B. R.E.
Secretary to Government Public Works Depart
Buildings and Roads

Madras, 5 July 1881.

Sir,

I have the honor to report to you on the progress of the Madras Harbour Works for the month of June as follows.

North Pier Superstructure

Mr. Thorongood left instructions for me to recommence blocksetting at my discretion on the 10th June if the weather was then favorable. I accordingly gave orders on the 8th June to move the North Pier Titan out from her place of safety, to the Pier end. The weather at the time could hardly be called settled as it had a somewhat stormy character but I considered it advisable, as the generally supposed Cyclonic period was passed, to have everything in readiness to set blocks at the first opportunity that offered itself.

This occurred on Monday the 13th June. The progress however has been anything but continuous owing to the heavy swell that has been running at the entrance of the harbour throughout the month. Fifty-five blocks were set in the North and North Centre walls which added 26 feet to their lengths, and completed them to the full length of 3866 feet. The South and South Centre walls remain the same length as reported last month Viz: 3840 feet. An important portion of the work was setting and Keying together the large quadrant blocks at the SouthEast corner of the Pier. Setting such large blocks in such a sea as was running at the time is a difficulty in itself, and Keying them together is troublesome. As an instance I may mention that the first two blocks forming the bottom course of the tier were set one day and had to be taken up and reset th next on account of an imperfection in the bed as prepared in the first instance. The method of keying together the six blocks in the upper portion of the pier was by means of filling up holes three feet in diameter which passed through five of them in a line, with a canvas pocket twenty feet long filled with a strongly proportioned concrete, and by cementing the top block on-to the one below it. It occupied two tides, that is to say, two different periods of a few hours each when the tide was near low water to fill the canvas pocket but I believe all the concrete has thoroughly married together, and formed a solid key cemented at the circumference of the holes to the blocks. Three days elapsed before an opportunity offered itself of cementing on the top block but that was successfully done at low water on the 1st July.

North Pier
Rubble Base.

This work as reported last month is

completed: But about 20 tons of granite stone have been used in filling up inequalities in the base.

**Concrete Blockmaking**

Fifty four concrete blocks were made by machinery on the North Pier Block Ground between the 1st and the 8th instant. The total number of blocks now made is 13,643 and this completes the full number of blocks required for the two piers. It includes in their construction 25,823 tons of cement and the total amount of Concrete is 348,605 tons.

**Quarries**

One train per day from Ambatoor quarries has brought 6296 tons of laterite stone, ballast and gravel, all of which has been used in the Beach Improvement Works. In consequence of the completion of blockmaking the three trains per day usually employed in carrying stone from Pallavaram were reduced on the 8th instant to one train per day. The total quantity of granite stone received during the month has been 5181 tons. Of this quantity 760 tons have been used for blockmaking

1896/7

and the greater part of the rest for the Rubble base of the South Pier. A small quantity has been used for the Rubble base of the North Pier and a small quantity for the Beach Protection Works at Royapuram.

South Pier
Superstructure.

The waves of the sea striking the South Pier in a more parallel direction than they strike the North Pier caused the interruption of work at the South Pier to be greater than & the North. The weather in the early part of the month appearing to be unsettled I did not think proper to order the Titan to be moved to the end of the Pier until Monday the 13th instant. It occupied nearly three days to move her out, and spike down again the Line of Railway for the blocks which had been taken up in anticipation of the rough weather. On the 16th block setting was recommenced. The work has been very intermittent owing to the rough

1896/8

sea. A portion of the Pier about 120 feet in length near the end was very low and here the sea during the hours near each period of High Water say from a third flood to two thirds ebb continually broke over the Pier, at Spring tides more than at neap tides. On some days the sea broke over continually throughout all periods of tide. Acroſs this low part, the line of railway had to be packed up with sleepers and wooden blocks to a height of three feet, and nearly every sea that broke over washed the whole of this packing out: it had to be picked up by boats and catamarans and replaced sometimes while an Engine and block were waiting to croſs. It was impoſsible to build in the Railway as there was not sufficient time for the cement to set. A temporary breakwater of timber was constructed acroſs this low part in order to protect the line of Railway which fulfilled the requirements expected

1886/9

of it but even when one was enabled to get the blocks to the end of the Pier by this means, the sea was often too rough to permit the divers working. Seventy two blocks making nine courses were set between the 16th and 30th inclusive. This made the Pier 42 feet longer than last month total length now being 3827 feet from point E on the plan accompanying this Report

**South Pier Rubble Base.**

In the South Pier Rubble Base 4835 tons of granite stone were deposited chiefly from boats by manual labour. One hundred and forty tons of this quantity having been thrown from the Pier end for levelling up inequalities in making the beds for the blocks.

**Protective Works North of the Harbour**

The encroachment reported last month has continued, but in a slow manner. Steps have been taken to extend the Protective Works North of the Thanwah as some of the huts in that neighbourhood have been washed away. 160 tons of stone have been used for that purpose.

1886/10 P8

**Stores** The S.S. Camorta arrived from England with fifty lengths of stud chain and twelve lengths of Bridle chains for the Moorings and buoys.

**Moorings.** The decks have been fitted on the Hopper Barges, the screwing engine has been fitted up on one, and other steps taken to prepare these Vessels for screwing down the moorings. They are now about to be made fast together like a twin vessel, as there is not sufficient space on either one to use her alone. If the weather is favourable I hope to commence screwing down the moorings in a short time.

**Beach Improvement.** The chief amount of work this month has been proceeding with the root for the landing Jetty South of the Iron Pier and in metalling the sand which has been formed up into a platform nearly level with the Beach road. 6296 tons of laterite stone has been used for this purpose of which 3090 tons of stone have been used for preparing the root of the Jetty which now extends to 570 feet from the Harbour Works Base Line along the Beach road, and 3206 tons of laterite ballast and gravel for metalling over the made up sand. 1150 squares have now been metalled as shewn by a burnt Sienna tint on the accompanying plan. The yellow ochre tint shews the area of sand which has now been formed up, 3226 cubic yards of sand having been added to it during the past month. The temporary Railway has been lengthened by 140 feet.

**General**

The Head Foreman Mr. G. Lowe, a much valued man on these Works, I regret to say fell sick towards the end of May. He was recommended on a Medical Certificate two months leave to the Nilgiri Hills, and went there on the 7th June; so I have been without his services for the whole of the month. He returned to Madras on the morning of 2nd July.

**Expenditure.** Expenditure during the month of June has been 4,20,91 Rupees.— The total expenditure since the commencement of the Work has been 55,10,990 Rupees

**Plans & Sections** The usual lithographed plan shewing the new portion of the Pier works in red, and a longitudinal Section of each of the Piers accompany this Report.—

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

Nathl F. B. Beardmore
Offg. Superintendent
Madras Harbour Works

G. O. No 1516 W. d/ 17th June 1881
13-3-79 No 758 W
4-5-80 - 42 Cl.
22-5 - 12400 W
19-7 - 1713 W
7-12 - 2823 W
4-2-81 316 W
22-2 - 492 W
1-3 - 566 W

A
Cir

Ordered to be
recorded.

Cu

## Buildings & Roads.

From P. W. C. No 3896

The Offg Superintendent
Madras Harbour Works

No 22 W.

Dated 5th July 1881.
Recd do.
No of Enclosures 3 (Plans)

Madras Harbour Works
Progress Report
Submits - for June 1881

S. M. H. Works
Marine Dept.

W Thornton

7.6.7.81 Ackd 6/7. Cir 14/7.

Approved M

Ackd 6/7. Cir 14/7

6. 28.7.81

1826/13 1820 W

## For Order

There are two points
in this report which
seem to merit attention
viz: the lowering of the
outer ends of the breakwaters
and (2) the continued
erosion of the shore north
of the Harbour.

As regards the 1st point
it will be observed that the
remarks particularly ask
"Water from Superstructure
that near each period
of low "a third to two
thirds ebb" the seas broke
continuously over the works

There may it is true be
no danger in this to the
work: but it proves con-
clusively that there has
been very great settlement
in the rubble base, and
as I myself believe the
Laterite instead of a
harder description of
rock having been used

In any case it would be well I think to ask Mr Parkes to shew what has been the ~~settlement~~, its causes, ~~limitation~~, & probable results ultimately to the work — also if any action should be taken with reference to this movement

For the second point, the encroachments north of the harbour, it will be seen that the encroachment north of the Triangle has continued and some huts have been washed away

This matter of the encroachment is one regarding which as will be seen from my office note of 26/1/81 I was compelled to take a different view from Mr Parkes, and as it is evidently a progressive movement I would still beg to suggest that (1) Mr Parkes's attention be drawn to it again & (2) that my original recommendation to carry on the longitudinal revetment be carried out as the only effectual remedy

14-7-81

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11 B 71

P. W. Department.

No. 1826 W

PROCEEDINGS of the MADRAS GOVERNMENT.

Under date the 26th July 1881 (1886/14)

READ the following

From,

The Superintendent,
Madras Harbor Works } (A.E. No. 22 W. d/ 5th July 1881)

There are two points in this report which seem to call for attention, viz

(1) the lowness of the outer ends of the breakwaters and

(2) the continued erosion of the shore north of the Harbour.

2. As regards the first point, it is observed from the remarks under "South Pier Superstructure" that

near each period of high water from a third flood to two-thirds ebb, the sea continually broke over the Pier. There may poſsibly be no danger in this, but it indicates that there has been very great settlement in the rubble base, owing, it is probable, to laterite instead of a harder description of rock having been used.

3. The Government would be glad to learn from the Engineer-in-Chief of the Harbor Works, what has been the actual settlement, its causes and probable ultimate results to the work, also whether any action should, in his opinion, be taken with reference to this movement.

86/18

4. As regards the encroachment of the sea north of the Harbour, it is observed that the erosion of the beach has continued to the north of the Channel, and that some huts have now been washed away. As the movement is evidently progreſsive, there seems no alternative but to continue the longitudinal revetment ordered in para 2 of G.O. No. 561 W dated 1st March 1881, and this will accordingly be done pending any remarks on the matter which Mr Parke

may

may have to offer.

20/7/87

[illegible]

Recd from [illegible]

Supdt. M. A. Works

Engineer-in-Chief.

Marine Dept.

Do & despth thro India Office 6/8/

DSW
1-8-87

186/16

387

# Govt. of (1879) Madras.

## PUBLIC WORKS.

Urgent

26/7/

To

Dated

Issued

Recd.

Encl.

G.O., 26 July ~~1879~~ 1881, No. 1826 W

Nos. 378-379

Madras Harbour Works

Orders on progress report &c. – for June 1881.

46