(1) Number of pages 30
(2) Date of repair 23.12.87
(3) Initials of the Referencer

TAMIL NADU ARCHIVES

GOVERNMENT OF TAMIL NADU

P.W. DEPARTMENT

G.O. No. 3072 Press.
B.P. No. Mis.

Dated 19-11-1886 ~~198~~ .

Not to be folded or roughly handled

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Archives 1--10,006 1 -80.

19th November 1886, No. 3072 W., Public Works.

3072/1

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads
Civil Works.

Read—the following letter from the Hon. R. W. BARLOW, C.S., Chairman, Harbour Trust Board, Madras, to the Secretary to Government, Public Works Department, dated Madras, 15th November 1886, No. 1161:—

I have the honor to forward herewith, for the information of Government, copy of a letter from the Superintendent, Madras Harbour Works, No. 410 M., dated 6th November 1886, reporting progress made during the month of October 1886, together with the original plan and photographs referred to therein, which I request may be returned.

Enclosure.

From F. N. THOROWGOOD, Esq., M. Inst. C. E., Superintendent, Madras Harbour Works, to the Chairman, Harbour Trust Board, Madras, dated Madras, 6th November 1886, No. 410 M.

I have the honor to submit, with the report of progress on these works during October, four photographs of the break-waters and blocks as they were on October 20th, 22nd and 23rd, together with a plan showing what progress has been made.

2. *North Pier Rubble Base.*—The extension and filling in of the rubble foundation at the north pier was worked at with fair regularity during October. As the swell rolls over the new base the slopes get flattened and the whole gets consolidated, so that much stone has to be added on top of what was deposited in June. The actual advance of the work in lineal measurement was only 140 feet in October, but the greater part of the stone deposited was used in making up the base that had settled down. The quantity of stone deposited in October has been 13,646 tons. All this has had to be brought across from the south pier to the north base, a method which I dislike, as I fear the boats laden with stone often obstruct the traffic in the harbour. I have not, however, been able to avoid this arrangement lately on account of the position of the large crane which, when working effectually, closes the line from which boats would be loaded at the north pier. I do not think this system of working across the harbour will ever have to be adopted again

3. *North Pier Superstructure.*—As the 15th October is the date from which stormy weather may be expected, I had to time all operations which required the use of cranes, so as to allow of their being in safety by the 15th. The north titan set 28 blocks in the new superstructure, advancing the work by a length of 18½ feet, and bringing the termination of the new work to a distance of 2,280¼ feet from the point B, where blockwork commences. On October 8th the titan was turned round with its "beak" pointing north-east, and wavebreaker blocks were dropped between the old line of work and the new, filling up the space completely. Where the opening was very narrow, large boulders and cement concrete in bags were jammed in. The whole of the new work was then securely cramped together, and on the 14th the titan was safely drawn home to land. I am sorry to say that two or three of the blocks in the new work have cracked slightly in setting down by reason of the weight of the titan over them, but I believe I know the cause of this, and hope I can prevent it in future.

4. I cannot think that any more could be done to render the new work more secure than it is, but in the event of a heavy sea from the E.N.E., I should not be surprised to see some of the wavebreaker blocks thrown on top of the pier.

5. *North Pier Wavebreaker.*—On the 13th October the large wavebreaker crane was drawn home to the shore. By the 19th I had laid in a special road on which the north titan was shunted to one side, as I mentioned I intended to try in my last report (paragraph 5). On the 20th the wavebreaker crane was drawn out again (leaving the titan behind), and every day during the month work has been carried on with it, the crane being drawn home by two locomotives every evening. By adopting this measure 267 blocks were dropped alongside the north pier during October, thus affording protection to very nearly the whole length as shown on the plan herewith.

6. *Concrete Block-making.*—The making of blocks was carried on with fair speed during October, 196 blocks having been made. Blocks were also removed from the north to the south stacking ground. The stone-crushing machines, the engines and boilers all want overhauling and repairing, and this must be done during the current month.

7. *South Pier Works.*—At the south pier no rubble base was deposited in October, but 10 blocks were set in the new superstructure, bringing it to a satisfactory termination for the time being. The titan was turned round on the 7th, and after depositing 59 blocks to complete the wavebreaker at the end of the work, it was on the 13th October drawn back to a safe place on the pier where it was secured. I consider that nothing more could be done as preparation against bad weather.

8. *Pallávaram Quarries.*—The quarries were kept at work with regularity during October, but for various reasons it was necessary to cancel 43 trains during the month. There were 16,344 tons of stone sent down to Madras for block-making and for rubble foundations. The lines have been maintained in good order, but one derailment of wagons occurred, which was the result of carelessness on the part of the platelayers. No damage was done to either rails or wagons.

9. From correspondence between myself and the Consulting Engineer for Railways it appears that the South Indian Railway Company consider me responsible for the *working* of the quarry lines as well as for their repair and efficiency. This I did not before understand to be the case, and am glad that it is so, as in future I shall be able to regulate the speed of the South Indian Railway engines. No serious additional expense will be incurred under this arrangement, but I have had to put on a few extra platelayers and signal-men to regulate the traffic and the speed, as well as to keep strict watch over the line.

10. *Survey of Harbour and Surroundings.*—I am glad to report that we have completed a most searching survey of the harbour and of the sea bottom north and south and outside. Mr. A. L. Pogson did the greater part of the work, but I repeated his lines independently, and also ran lines of soundings diagonally across his work as a check. The survey is not yet wholly plotted on paper, but it will be a most interesting plan when finished. I am sorry to say that there is undoubted silting in the south-west corner of the harbour, but until all the soundings are all plotted and compared with the survey of 1882, it would be premature to make any remarks.

11. *Stores received on works from England.*—During October the S.S. *Manora* arrived with 120 tons of Portland cement, and the *Navarino* with 200 tons of cement, as well as fish-bolts for railway lines, stone-crusher jaws and divers' air pipes.

12. *Estimate and Expenditure.*—For the first time since the work of reconstruction was commenced, the monthly accounts (for September) have been prepared in conformity with the new estimate. I did intend to append with this report a summary of expenditure as compared with estimate over the whole works, but I think it will be better to wait for the return of the accounts after the Examiner's audit, as there may be errors in this first set of papers. I will therefore forward a sheet, showing expenditure compared with estimate, when I have heard from the Examiner.

13. *Mr. W. S. Boteler.*—On October 25th Mr. W. S. Boteler assumed charge of his post as General Foreman of these works, and bids fair to do very well.

14. *Sea Encroachment to the North.*—I have not taken any steps to protect the coast to the north until I hear from Mr. Parkes, as this is a subject on which he is, I know, desirous to be very cautious. If the present month passes by without serious erosions there will be valuable accretion until the end of March, and then the sand may be impounded by a revetment if thought advisable.

ORDER—dated 19th November 1886, No. 3072 W., Public Works.

Recorded.

2. Paragraphs 8 and 9 will be communicated to the Consulting Engineer for Railways.

3. The result of the survey of the harbour and surroundings is awaited.

4. The Government would be glad to have a report on the effects of the late cyclone on the harbour works.

(True Extract.)

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

To the Chairman, Harbour Trust Board,
with plan and photographs returned.
" Consulting Engineer for Railways.
" Marine Department.
" Newspapers.

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of 1886 Madras.

PUBLIC WORKS.

Dated November, 19th.

Recd.

Encl.

G.O., 19th Nov. 1886, No. 3072 W.

NOVEMBER.

Madras Harbour Works.

The progress report of the — for October 1886, recorded with remarks.

1st November 1886, No. 2857 W., Public Works.

3072/3

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Civil Works.

Read—the following letter from the Chairman, Harbour Trust Board, Madras, to the Secretary to Government, Public Works Department, dated Madras, 25th October 1886, No. 954 :—

I have the honor to acknowledge receipt of G.O., No. 2793 W., dated 22nd October 1886, forwarding copy of progress report of the Superintendent, Madras Harbour Works, for the month of September 1886, submitted with my letter, No. 856, dated 19th October 1886, and directing that paragraph 14 should be expunged.

2. The original report has been returned to the Superintendent, Madras Harbour Works, and he has struck out paragraph 14 as directed.

3. I have the honor to forward, herewith, copy of the corrected progress report for September as it now stands.

Enclosure.

From F. N. THOROWGOOD, Esq., M. Inst., C.E., Superintendent, Madras Harbour Works, to the Chairman, Harbour Trust Board, Madras, dated 7th October 1886, No. 329 M.

I have the honor to submit, herewith, a plan showing the progress on these works during September, and to make the following report.

2. *North pier rubble base.*—On ten days during September the swell was such as either to prevent work altogether or seriously to interfere with it. It became extremely difficult to load the boats with rubble stone at the north pier, so I transferred them to the south to receive their load, which had then to be conveyed to the north rubble base to be deposited. This extra long journey in the boats adds a little to the price of the rubble base, but it is better to incur this extra cost rather than stop work. There were 15,660 tons of stone deposited in September, extending the base by a length of 240 feet, as shown in the accompanying plan.

3. *North pier superstructure.*—I reported last month that we had arrived at the first row of blocks in the new section of the work. This has been progressing fairly well during September, but was delayed by local swell and thick water, which greatly hindered diving operations. There were 94 of the new blocks set in position, advancing the work by a length of 56 feet. This now brings the new work clear away from the old ruined wall, and when the space between the old and new walls is properly filled up with 30-ton blocks, the cranes will have to be drawn back for the stormy season. This new section of work, of which 62 feet is now built, is, in my opinion, very satisfactory, and I do not see that the fact of the blocks being "bonded" together causes much delay in construction, as was at one time feared might be the case.

4. *North pier wave-breaker.*—Work was resumed at the wave-breaker in September, but for various reasons not at full speed. There were 170 blocks dropped over during the month, representing about 5,000 tons of concrete, and protecting a length of about 246 feet of the north pier. I earnestly hope to be able to carry on this protective work during the stormy season, except in bad weather, and thus render the whole of the north pier secure from accident.

5. To do this it will be necessary to draw back the north Titan and "shunt" it on a siding so as to allow the larger wave-breaker crane to pass it. Then the latter crane can be run out every morning by two locomotives, drop blocks, and be drawn back every night to shore. If I can manage to carry this out, it will be a great advantage; but all depends upon whether I can effect this "shunt" of the Titan.

6. *Concrete block-making.*—This work was hindered a good deal by rain on several mornings, but 218 blocks were made during September, all of them for the curved work at the south pier. I fear it will be impossible to keep on block-making throughout the current month, as few blocks will be placed in the sea after the 15th instant.

7. *South pier.*—No work was done at the rubble base of the south pier in September, the boats being all transferred to the north pier as already reported. In the superstructure, 45 blocks were set in the new work, advancing the wall by 42½ lineal feet. This brings the south pier work to its new section, and, in future, the wall will be of the "bonded" design as at the north pier. There were 356 cubic yards of concrete filling put in at this work and the old and new walls have been clamped together as usual. The heavy swell from the south of east rushing past the end of the old work has interfered most seriously with progress at the south pier. On two occasions, the moorings of the diving boat were carried away, and once a diver got knocked down and his face-glass broken. He was just hauled up in time to be saved from drowning. Having reached the full new section of the south pier, the Titan will have to be turned round through 180° to drop wave-breaker blocks over the outer side of the wall previous to being withdrawn for the stormy season, as already mentioned in my last report.

8, *Pallávaram quarries.*—Owing to various causes, it was necessary to cancel 28 trains during September, so the out-put of stone was not so large as it has sometimes been, the total for the month being 20,102 tons as compared with 22,596 tons quarried in August, and 25,762 tons in July. The lines at the quarry are in good order, and no derailments or other accidents have occurred during the month. A new piece of line, about ¼ mile in length, has been opened for traffic, after having been passed by the South Indian Railway Engineers.

9. *Estimate and expenditure.*—It was with great satisfaction that I received the order sanctioning the estimate for the work of restoration. It is rather a complicated undertaking to take out the expenditure since 1st January 1885 and divide it over the proper sub-heads of the new estimate; but this is being done. I have compared the estimate with the actual cost of several items, and I think they are not unsatisfactory, always bearing in mind that the estimate was framed when the South Indian Railway charge for haulage of stone was exactly half of what it is now, the increased rate meaning an addition of 8½ annas on to every ton of stone delivered. I subjoin a few items—

	Estimate.			Actual.		
	RS.	A.	P.	RS.	A.	P.
Rubble base per ton	2	0	0	1	15	3
Large rubble "	1	12	0	1	12	4
Building abutment of new work, north pier, per cubic yard	2	0	0	1	15	0
Concrete blocks per cubic yard	9	0	0	9	4	0
Depositing wave-breaker blocks	1	0	0	0	6	3

10. Another item (of great importance on works like these) is that of "contingencies," which Mr. Parkes estimated at 2½ per cent. on the cost of construction. Up to 31st August 1886 the expenditure on the new work (exclusive of "stock" charges and "establishment") has been Rs. 13,48,643, and 2½ per cent. on this sum would be Rs. 33,716, whereas the actual sum expended under "contingencies" up to 31st August 1886 has been only Rs. 20,905, giving an excellent margin on the safe side.

11. With the item "establishment" (estimated as being 7½ per cent. of the cost of construction), in the early part of a large work this often goes to a much higher percentage than it ought to do, because with the full "establishment" it is often not possible to show the full return of work (and consequently of expenditure on work) until affairs have settled down into a groove. So, on this work of restoration, which is officially supposed to have commenced on 1st January 1885, there was very little actual work done until November of that year. Still, on this sub-head the result is not wholly unsatisfactory as the expenditure on establishment has actually been Rs. 1,19,116 to 31st August 1886, while 7½ per cent. on the expenditure on construction up to that date gives Rs. 1,01,148.

12. *Stores from England.*—Three vessels brought stores from England in September as beneath—

S.S. *Bulimba*	50 tons Portland cement.
" *India*	500 " "
" "	Diving dresses.
" "	Blocks and tackles.
" "	1 Cement gauger.
" *Abergeldie*	1 Case leather lacings for belts.

The Portland cement is by White Brothers, a most eminent firm, but one from which cement has never before been supplied direct to these works, although I have occasionally purchased some locally.

3072/4

13. *Survey of the roadstead and harbour.*—The survey of the harbour and adjacent roadstead is being carried out, as opportunity offers, under the charge of Mr. A. Lee Pogson, Assistant Superintendent. When completed and plotted, the survey will be forwarded to the Harbour Trust Board.

14. *Mr. W. Boteler.*—I am glad to learn from Mr. Parkes that Mr. Boteler, General Foreman, should arrive here on 25th October.

Order—dated 1st November 1886, No. 2857 W., Public Works.

Recorded.

2. Paragraph 8 will be communicated to the Consulting Engineer for Railways.

3. The figures quoted in paragraphs 9, 10 and 11 appear to be generally satisfactory.

4. The submission of the quarterly progress map for the Government of India is awaited.

(True Extract.)

(Signed) J. O. HASTED, Colonel, R.E.,
Secretary to Govt., P.W.D.

+ Not yet submitted.-
17-11-86-

To the Chairman, Harbour Trust Board.
" Consulting Engineer for Railways.
" Marine Department.
" Newspapers.

Exd. E. Fernandez.
Spare Copies

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of (1886) Madras.

PUBLIC WORKS.

Dated November, 1st.

Recd. *Encl.*

G.O., 1st Nov. 1886, No. 2857 W.

NOVEMBER.

3072 M

Madras Harbour Works

The progress report of the — for September 1886, recorded, with remarks.

Recd the following letter

V. & Co. H.T. No. 1

Harbour Trust Board Office,

MADRAS, 15th November 1886.

No. 1161 3072/5

FROM The Honorable R. W. Barlow C. S.

CHAIRMAN, HARBOUR TRUST BOARD,
MADRAS,

TO Colonel J. O. Hasted R. E.

~~Chief~~ SECRETARY TO GOVERNMENT,
Public Works ~~Marine~~ Department.
Chepauk.

17th Nov/86 No 3072 W
13-1-1887
Civil Works

SIR,

I have the honor to forward herewith for the information of Government, Copy of a letter from the Superintendent Madras Harbour Works No. 410 M, dated 6th November 1886, reporting Progress made during the month of October 1886, together with the Original plan and Photographs referred to therein which I request may be returned.

I have the honor to be
Sir
Your most Obedient Servant

R. W. Barlow
Chairman
Harbour Trust Board.

Secy H. B.

P.W.C. No 8961

MARINE DEPARTMENT.

From

THE CHAIRMAN,
Harbour Trust Board,
MADRAS.

G.O. No 2857 W. d/ 1.11.86

To

The ~~Chief~~ Secretary to Government,
Public Works ~~Marine~~ Department.
Chepauk.

Dated 15th } November 1886.
Received 17 }

Enclosure ~~7~~ 6
+ 1 plan
+ 4 photos

16 NOV 86

No. 1161

SUBJECT.

Forwarding for the information of Government Progress report of the Madras Harbour during the month of October 1886

Cn. 17.11.86

Enclosure

No. 410 M.

1 - 8/12

3072
7

From
The Superintendent,
Madras Harbour Works,

To
The Chairman,
Harbour Trust Board, Madras.

Madras 6th November 1886.

Sir,

I have the honour to submit with the report of progress on these works during October, four photographs of the breakwaters and blocks as they were on October 20th, 22nd and 23rd, together with a plan showing what progress has been made.

North Pier Rubble Base

2. The extension and filling in of the rubble foundation at the North Pier was worked at with fair regularity during October. As the swell rolls over the new base the slopes get flattened and the whole gets consolidated, so that much stone has to be added on top of what was deposited in June. The actual advance of the work in lineal measurement was only 140 feet in October, but the greater part of the stone deposited was used in making up the base that had settled down. The quantity of stone deposited in October has been 13,646 tons. All this

has had to be brought across from the South Pier to the North base, a method which I dislike as I fear the boats laden with stone often obstruct the traffic in the Harbour. I have not however been able to avoid this arrangement lately on account of the position of the large crane which, when working effectually closes the line from which boats s would be loaded at the North Pier. I do not think this system of working across the Harbour will ever have to be adopted again.

North Pier Superstructure

3. As the 15th October is the date from which stormy weather may be expected I had to time all operations which required the use of cranes so as to allow of their being in safety by the 15th. The North Titan set 28 blocks in the new superstructure, advancing the work by a length of 18½ feet, and bringing the termination of the new work to a distance of 2280¼ feet from the point B, where blockwork commences. On October 8th the Titan was turned round with its "beak" pointing North East, and wavebreaker blocks were dropped between the old line of work and the new, filling up the space completely. Where the opening was very narrow large boulders and cement concrete in bags were jammed in. The whole of the new work was then securely cramped

together, and on the 14th the Titan was safely drawn home to land – I am sorry to say that two or three of the blocks in the new work have cracked & slightly in settling down by reason of the weight of the Titan over them, but I believe I know the cause of this and hope I can prevent it in future.

4. I cannot think that any more could be done to render the new work more secure than it is, but in the event of a heavy sea from the E. N. E. I should not be surprised to see some of the Wavebreaker blocks thrown on top of the pier.

North Pier Wavebreaker.

5. On the 13th October the large wavebreaker crane was drawn home to the shore. By the 19th I had laid in a special road on which the North Titan was shunted to one side, as I mentioned I intended to try in my last report (para 5). On the 20th the Wavebreaker crane was drawn out again, (leaving the Titan behind) and every day during the month work has been carried on with it, the crane being drawn home by 2 locomotives every evening. By adopting this measure 267 blocks were dropped alongside the North Pier during October, thus affording protection to very nearly the whole length, as shewn on the

plan herewith.

Concrete blockmaking

6. The making of blocks was carried on with fair speed during October, 196 blocks having been made. Blocks were also removed from the North to the South stacking ground. The stone crushing machines, the engines and boilers all want overhauling and repairing, and this must be done during the current month.

South Pier Works.

7. At the South Pier no rubble base was deposited in October, but 10 blocks were set in the new Superstructure, bringing it to a satisfactory termination for the time being. The Titan was turned round on the 7th and after depositing 59 blocks to complete the wavebreaker at the end of the work, it was on the 13th October drawn back to a safe place on the pier where it was secured. I consider that nothing more could be done as preparation against bad weather.

Pallaveram Quarries.

8. The quarries were kept at work with regularity during October, but for various reasons it was necessary to cancel 43 trains during the month. There were 16,344 tons of stone sent down to Madras for blockmaking and for rubble foundations. The lines have been maintained in good order, but one derailment

of wagons occurred which was the result of carelessness on the part of the plate layers. No damage was done to either rails or wagons.

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Survey of Harbour & Surroundings

10. I am glad to report that we have completed a most searching survey of the Harbour and of the sea bottom North and South and outside. Mr. A. L. Pogson did the greater part of the work but I repeated his lines independently, and also ran lines of soundings diagonally across his work as a check. The survey is not yet wholly plotted on paper, but it will be

a

a most interesting plan when finished. I am sorry to say, that there is undoubted silting in the South-west corner of the Harbour, but until all the Soundings are all plotted and compared with the Survey of 1882 it would be premature to make any remarks.

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11. During October the S.S. "Manora" arrived with 120 tons of Portland Cement, and the "Navarino" with 200 tons of Cement, as well as fish-bolts for railway lines, stone crusher jaws and divers air pipes.

Estimate and Expenditure

12. For the first time since the work of re-construction was commenced the monthly accounts (for September) have been prepared in conformity with the new Estimate. I did intend to append with this report a Summary of Expenditure as compared with Estimate over the whole works, but I think it will be better to wait for the return of the accounts after the Examiner's Audit, as there may be errors in this first set of papers. I will therefore forward a sheet showing expenditure compared with Estimate when I have heard from the Examiner.

Mr W. S. Boteler.

13. On October 25th Mr W. S. Boteler assumed charge of his post as General

Foreman of these works, and bids fair to do very well.

Sea encroachment to the North

14. I have not taken any steps to protect the coast to the North until I hear from Mr. Parkes, as this is a subject on which he is, I know, desirous to be very cautious. If the present month passes by without serious erosions there will be valuable accretion until the end of March, and then the sand may be impounded by a revetment if thought advisable.

I have the honour to be,
Sir,
Your Most Obedient Servant,
(Signed) F. N. Thorowgood,
Superintendent,
Madras Harbour Works.

(True Copy)

C. Pinsent
Secretary,
Harbour Trust Board.

B & R
of Works

10

PUBLIC WORKS DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT. 3022/14

READ the following

A/Circ

From the Ch: H. T. Bd. No. 1161, d 15/11/86.

Orders with report

Recorded.

2. Paras 8 and 9 will be comd. to the Consulting Engineer for Railway.

3. The result of the survey of the Harbour and surroundings is awaited.

4. The Govt wd. be glad to have a

JW 18/11

The Honourable

Mr. Forster Webster

a report on the
Effects of the late
Cyclone on the
Harbour works.

17.11.86

17/11/86

DC
2/12/86

Ch. H. T. Board
with plan and
photographs retd.
Consulting E. for Ry.
Marine Dept.
Newspapers —

JB.
17.11.86 Cir. 17.11.86

Govt. of [1886] Madras.

PUBLIC WORKS.

Dated 9th Nov/86

Recd: Encl.

G.O., 19th Nov. 1886, No. 3072

Madras Harbour works

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The progress reports of the — for October '86, recorded with remarks.

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