Archives I —10,006—16-8 77.

(1) Number of pages 44

(2) Date of repair 11-2-87

(3) Initials of the Referencer Leno

TAMIL NADU ARCHIVES

GOVERNMENT OF TAMIL NADU

P.W.D DEPARTMENT

G.O. No. / B.P. No.	2854-W 2855-W	Press. / Mis.	
Dated	15-11-1881	197 .	

Not to be folded or roughly handled

B.S.K

2854/1

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

15th November 1881, No. 2854 W.

Buildings and Roads.
Civil Works.

No. 77. Read the following paper:—

Report by the Secretary and Chief Engineer, Public Works Department, regarding the effects of the Cyclone of the 12th instant on the Madras Harbour Works.

From the state of the weather throughout the night of the 11th instant it was concluded that a cyclone was blowing out in the Bay, with centre somewhat north of Madras, and early on the 12th instant heavy seas broke over the works, chiefly along the north and east of the harbour.

2. As the day advanced the height of the seas sensibly increased, and about 11 A.M. the Titan cranes which had been withdrawn, and apparently very safely secured to the strongest portions of the pier heads, were one after the other seen to yield and disappear.

3. The block work of the two seaward arms almost immediately afterwards gave signs of subsidence, the straight portions however running out perpendicularly from the shore remaining intact. Though perhaps a little shaken at their extreme ends, the latter have to all appearances weathered the storm quite satisfactorily.

4. Towards evening it was clear that both the seaward arms had sustained serious injury, and on the morning of the 13th instant, when the weather and sea had somewhat calmed down, those portions of the work were only marked by a broken and serrated line of blocks, nearly all of which had evidently been much tilted and displaced. At several places there were also intervals and gaps indicating the probable occurrence of more serious injury.

5. The sea having sufficiently calmed down on the morning of the 14th instant, to allow of soundings being made from a boat close to the remains of the work, the Chief Engineer and the Master Attendant examined it, and found that the injury was not as at first had been hoped confined to the mere removal of the upper tier of concrete blocks, but that very general subsidence had occurred, from which it is to be feared that the rubble base had to some extent been scoured and lowered by the action of the sea.

6. The concrete blocks, excepting in a few places where the movement had been seaward, were found to have a cant inwards towards the harbour, indicating to all appearances that the swirl and scour round the pier heads and along the back of the arms had been even more severe than on the outer faces.

7. At one place immediately north-east of the turn in the south pier all four tiers of blocks appeared to have been cleared away to a depth of about 18 feet below mean sea level, and a complete breach had here been made for 90 or 100 feet. This was found to be the worst point, but there were other short portions where two or three tiers of blocks had been displaced.

8. The extreme ends where the Titan cranes had stood and where the work was broadest and strongest had, comparatively speaking, sustained less damage, though even here great depression and displacement of the block work was visible.

9. No trace of either of the Titan cranes was found, but it was satisfactorily shown that the dispersion of the materials had hardly affected the mouth of the harbour, which was found to be perfectly clear for a width of at least 400 feet. Three steamers almost immediately afterwards entered the harbour without any trouble.

10. Fortunately a series of accurate sections of the work including the rubble base had been completed by the harbour staff immediately before the occurrence of the storm, so that on a return of calm weather admitting of a thorough examination by divers, the precise condition of the rubble base, and the amount of injury it has sustained can be accurately gauged.

11. Inside the harbour, so long as the outer arms remained intact, the disturbance of the water, though no doubt considerable, was very much less than outside, and the protection thus afforded by the works was shown in a very marked manner by the increased height of the seas which invaded the harbour on these giving way.

12. Five of the buoys attached to the new screw pile moorings gave way and came ashore at the height of the storm (about midnight of the 12th instant).

13. This accident appears to have been directly attributable to the increased disturbance within the harbour at this period, and also, it is thought, to the small amount of play which had been allowed to the chains attaching the buoys to the screw pile moorings.

14. The invasion of the sea led also to a lamentable accident in the loss of the two steam hopper barges (the *Salisbury* and *Hobart*) on the evening of the 12th instant.

15. By an accident to the stern mooring buoy, these vessels, which had been united with the object of carrying and working the machinery for screwing down the piles, were swung violently round so as to catch the swell broadside on, and breaking up sank at once.

16. Most unfortunately the European Captain (Berlie) and 13 of the native crew perished. Mr. Botteler, the Mechanical Engineer, who had lately come out to direct the screwing operations and three of the native, escaped by swimming. Three more were also picked off the rigging on the morning of the 13th instant.

17. No fear had been entertained for the safety of the vessels as they appeared to be riding out the storm easily, owing no doubt to the protection afforded by the works.

18. To the north of the Harbour Works there was as might have been expected much displacement of the materials of the rough stone revetment extending for about $1\frac{1}{2}$ miles, but on the whole the work has stood the attack well, and no serious encroachment occurred within the revetted lines. There can however be little question that much property would have been injured in this direction had it not been for the energetic and intelligent manner in which Mr. Thorowgood had acted in this as in all other matters connected with his position as Superintendent of the Harbour Works.

19. Appended are two photographs of the harbour taken after the storm, which however rough printed will with the appended references serve to explain graphically the present position of matters.

(Signed) R. H. SANKEY, Colonel, R.E.,
Chief Engineer and Secy. to Govt., P.W.D.

No. 78. ORDER THEREON, 15th November 1881, No. 2854 W.

ORDERED that the following Despatch be sent to the Secretary of State for India.

(True Extract.)

(Signed) R. H. SANKEY, Colonel, R.E.,
Secretary to Govt., P.W.D.

To the Superintendent of Madras Harbour Works.
" Marine Department.

Exd. E. C. Shunker.
Spare Copies

2854
2

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of (1881) Madras

PUBLIC WORKS.

To

The SUPERINTENDENT, MADRAS
HARBOUR WORKS

&c. &c.

Dated November, 1881.

Adopted

G. O., No. dated November 1881, No. 2854

NOVEMBER.

Nos. 77-78.

Madras Harbour Works.—Report by the Chief Engineer and Secretary to Government, Public Works Department, on the damages to the — during the cyclone of the 15th November.

To C

2894/3

The Papers have gone in by Newspaper to the Post office 4:5 PM. with the Despatch Modified as shown The fair copy was made in the Private Secretary's office.

R.S.

2854W 15-11

C.A.W.

Have the and my memo faired Should go by next weeks mail to

S.J.S. 15/11/81 Attd

Mr. Soon

Madras, 15th November 1881

No. 71.

2854/4

To,

The Right Honorable
the Secretary of State for India.

My Lord Marquis,

Pending the drawing up of a fully detailed statement which we hope soon to be in a position to furnish and in immediate connection with another Despatch No. 11 of this date forwarding the report of the Master Attendant, we desire now to submit for your Lordship's information with all reserve the accompanying brief and necessarily incomplete report by our Secretary and Chief Engineer P.W. Dept. of the effect

produced by the cyclone of the 12th instant on the new Madras Harbour Work.

2. As your Lordship will doubtless recognize it would be premature at the present moment to express any decided opinion as to the ultimate action to be taken in proceeding with the Harbour Works.

3. That some of the principles on which they have been constructed have so far been invalidated appears hardly to admit of doubt, but at the same time bearing in mind the repeated accidents to works of a similar character in all parts of the world, and also the very small relative cost of Mr Parke's Harbour scheme there would seem to be a good hope that eventually the works may be completed at a not extravagantly large price.

4. The materials of which the piers are composed have no doubt to a very great extent taken up a natural position which will admit of permanent upper works being erected under the best guarantees for future security.

5. We take this opportunity to assure your Lordship that no blame whatever attaches to Mr Thorowgood and his Harbour Staff with regard to the manner in which the works have been executed.

6. No men could, we believe, have executed the task assigned to them with greater self denial and intelligence.

7. In conclusion we would beg to submit for your Lordships' consideration

whether Mr Parkes should not at once proceed to this country to examine and report on the state of the works in view to future proceedings.

We have the honor to be,

My Lord, Marquis

Your Lordships' Most Obedient & Humble Servants

A Grant Duff

1854
b

and 3 more were
hoisted up the
rigging at the
upper end of the
B.k and.
No fears had been
entertained that the
vessels would be hurt
as they appeared
all through the opening
to the protection of
the works to ride
easily
Thro the attempts
were made to explain
the rocket train by
throwing a rope over
the vessels as quickly
as possible after the
accident to the buoy
was perceived but
failed owing to
the distance at
which the vessels
were anchored
out in the harbour

As your Lordships with Shorbitlees recognize it would be premature at the present moment to express any decided opinion as to the ultimate action to be taken in proceeding with the Harbour works

That the principles upon which they have been constructed have so far been invalidated as to express hardly to admit of doubt but at the same time bearing in mind the repeated accidents to works of a similar character in all parts of the world, and also the very small relative cost of

1854
7

Mr Parkes' Harbour Scheme would seem to be a good hope that eventually the works may be completed at a not extravagantly large price

of which the piers are composed

The materials ~~would~~ have no doubt to a very great extent taken as a natural position which will admit of permanent upon works being executed under Guarantees for future Security ~~if future~~ ~~which could not be~~ ~~forthcoming~~

We take this opportunity to assure your Lordships

that no blame whatever attaches to Mr Thornycroft and his Workmen Staff with regard to the manner in which the works have been executed No man could have believe have executed the task assigned to them with greater Self-denial and intelligence

In conclusion we would beg to submit for your Lordships consideration whether Mr Parkes should not at once proceed to this country to examine and report on the

State of the works in order to future proceedings 1854/8

RBN
15-10-81

2854/9

Report by the Lieut. and Chief Engineer P.W. Dept. regarding the effects of the Cyclone of the 12th instant on the Madras Harbour works

Pending the fuller & detailed Statement which we hope soon to be in a position to furnish, we deem it our duty to submit for your Lordship's information the following brief account of the effects produced by the Cyclone of the 12th instant on the Madras Harbour Works which with the exception of some trifling work at the extremities of the Leeward arms may be said to have just been completed

1 — From the State of the weather throughout the night of the 11th instant, it was

as may appear to our Public Works Secretary Chief Engineer. The ~~inform~~ ~~Letters~~ of H. Madge addressed and have been communicated to your Lordship in another Despatch.

Concluded that a Cyclone was blowing out in the Bay with Centre somewhat North of Madras, and early on the 12th instant heavy Seas broke over the works chiefly along the North and East of the Harbour

2 As the day advanced the height of the Seas sensibly increased and about 11 a.m. the Titan Cranes which had been withdrawn, and deposited very safely secured to the strongest portions of the Pier heads, were one after the other seen to yield and disappear

3 The block work of the two Seaward arms almost immediately afterwards gave signs of distress the straight portions however remaining but perpendicular from the shore remaining intact

2854/10

This perhaps a little shaken at the extreme ends to the latter gave to all appearances within the storm quite satisfactorily

Towards evening it was clear that both the Seaward arms had sustained serious injury, and on the morning of the 13th instant when the weather and sea had somewhat calmed down these portions of the work were each marked by a broken and serrated line of blocks, nearly all of which had evidently been tilted and displaced

At several places there were also indications of the probable occurrence of Lesions in very

5 The Lower backing Layer of Concrete was found clean as the morning of the 14th instant to allow of Soundings being made from a boat close to the remains of the work and the Chief Engineer and the Master Attendant examined it and found that the injury was not as at first supposed confined to the mere removal of the upper tier of Concrete blocks, but that very Serious Subsidence had occurred from which it is found that the foundation has been disturbed and lowered by the action of the Sea.

2854
11

6 — The Concrete blocks excepting in a few places where the movement had been Seaward was found to have a Cant inwards towards the Harbour, indicating to all appearances that the Swirl and Scour round the Pier heads and along the back of the arms had been even more severe than on the outer faces

7 At one place immediately East of the South Pier all the four tiers of Concrete blocks appeared to have been

2854/12

~~7~~ cleared away to a depth of about 18 feet below mean Sea level and a complete breach had been made for 90 x 700 feet - This was found to be the worst point but there were otherwise two or three ~~rows~~ tiers of blocks had been displaced

8 The extreme ends where the titan cranes had stood and where the work was broadest & strongest had comparatively speaking sustained less damage, though even here great depression and displacement of the block work was visible

9 No trace of either

Short portions

of the titan cranes was found, but it was satisfactorily shewn that the dispersion of the materials that had affected the mouth of the Harbour which was found to be perfectly clear for a width of at least 400 feet - Three Steamers almost immediately afterwards entered the harbour without any trouble

10 Fortunately a Series of examinate Sections of the work including the rubble base had been completed by the Harbour Staff immediately before the occurrence of the Storm, so that on a return

of Calm weather admitting of a thorough examination by divers, the precise condition of the rubble base, and the amount of injury it has sustained can be accurately gauged

11 Inside the Harbours so long as the outer arms remained intact, the disturbance of the water through no doubt considerable was very much less than outside, and the protection thus afforded by the works was shewn in a very marked manner by the increased height of the seas which invaded the harbours on these giving way

11 five of the buoys attached to the new screw pile moorings have given way and came ashore at the height of the storm (about mid night of the 12th inst) This accident appears to have been directly attributable to the increased disturbance within the Harbours at this period, and also it is thought to the small amount of play which has been allowed to the chains attaching the buoys to the screw pile moorings

2854/13

12

13 - The invasion of the sea has also to a lamentable accident in the

loss of the two steam
launches belonging to the
"Salisbury" and the
"Hobart" on the morning
of the 12th instant.
14 By an accident-
to the mooring buoy
three vessels, which
had been moored
with the object of
carrying & erecting
the machinery for
screwing down the
piles, were swung
violently round so
as to catch the
whole broadside
on end against the
Sandy at once
15 Most unfortunately
the European
Captain (Berlis)
and 13 of the native
crew perished -
Mr. Bottler the
Government Surveyor
who had taken
and 3 of the natives
escaped by swimming

Three more vessels also
[illegible] on the
rising on the
morning of the
13th instant
16 No fears had been
entertained
safety of the vessels
as they
afterwards to be
riding at the storm
early owing no
doubt to the protection
afforded by the
anchor

to depict the surviving operations

17 - To the north
of the Harbour works
there has as might
have been expected,
been much displacement of
the materials of the
rough stone revetment
extending in for about
1½ miles; but on the
whole the work has
stood the attacks
well, and no serious
encroachment occurred
within the revetted
line - There can
however be little doubt
that much property
would have been in-
-jured in this direction
had it not been for
the energetic and intelligent
manner in which the
Harbour Staff had, on
this as in all other
matters connected with

2854/14

No 71 of 15th Nov. 1881
3653

Sir D. Margin 28 5/15

Pending the drawing up of a fully detailed statement which we hope soon to be in a position to furnish we deem now to submit to your Lordships information with all reserve the accompanying brief and necessarily incomplete report by our Secretary and Chief Engineer in the P.W. dept. of the effects produced by the Cyclone of the 12th. instant on the Madras Harbour works

and in immediate connection with another despatch of this date forwarding the report of the Master Attendant

Rec'd in Mrs.
15/11/81

This position as Superintendent of the Harbour Works 16 Appended are two photographs of the Harbours taken after the Storm which [illegible] printed

known rough [illegible] with the appended

will [illegible] serve to references

explain graphically the present position of matters

15/11/81

1854/16

Report by the Secretary and Chief Engineer Public Works Department regarding the effects of the Cyclone of the 12th Instant on the Madras Harbour works.

From the state of the weather throughout the night of the 11th Instant it was concluded that a Cyclone was blowing out in the Bay with Centre somewhat north of Madras and early on the 12th Instant heavy seas broke over the works chiefly along the north and east of the Harbour.

2. As the day advanced the height of the seas sensibly increased, and about 11 A.M. the Titan Cranes which had been withdrawn, and apparently very safely secured to the strongest portions of the pier heads were one after the other seen to yield and disappear.

3. The block work of the two Seaward arms almost immediately afterwards gave signs of subsidence, the straight portions however running

P.T.O.

out perpendicularly from the shore remaining intact. Though perhaps a little shatten at their extreme ends the latter have to all appearances weathered the storm Quite satisfactorily

4. Towards evening it was clear that both the seaward arms had sustained serious injury, and on the morning of the 13th Instant when the weather and sea had somewhat calmed down those portions of the work were only marked by a broken and serrated line of blocks nearly all of which had evidently been much tilted and displaced. At several places there were also intervals and gaps indicating the probable occurrence of more serious injury

5. The Sea having sufficiently calmed down on the morning of the 14th Instant to allow of soundings being made from a boat close to the remains of the work the Chief Engineer and the Master Attendant examined it and found that the injury was not as at first had been hoped confined to the mere removal of the upper tier of concrete blocks but that very general subsidence had occurred from which it is to be feared that the rubble base had to some extent been scoured and lowered by the action of the sea

2854/17

6. The concrete blocks excepting in a few places where the movement had been Seaward were found to have a cant inwards towards the harbour, indicating to all appearances that the swirl and scour round the pier heads and along the back of the arms had been even more severe than on the outer faces.

7 At one place immediately North-east of the turn in the South pier all four tiers of blocks appeared to have been ~~—~~ clean away to a depth of about 18 feet below mean Sea level and a complete breach had here been made for 90 or 100 feet - This was found to be the worst point but there were other short portions where 2 or 3 tiers of blocks had been displaced.

8. The extreme ends where the two cranes had stood and where the work was broadest and strongest had comparatively speaking sustained less damage, though even here great depression and displacement of the block work was visible

9 No trace of either of the two

cranes was found, but it was satisfactorily shewn that the dispersion of the materials had hardly affected the mouth of the Harbour which was found to be perfectly clear for a width of at least 400 feet. Three steamers almost immediately afterwards entered the harbour without any trouble.

10. Fortunately a series of accurate sections of the work including the rubble base had been completed by the Harbour Staff immediately before the occurrence of the Storm so that on a return of calm weather admitting of a thorough examination by divers, the precise condition of the rubble base, and the amount of injury it has sustained can be accurately gauged.

11. Inside the harbour so long as the outer arms remained intact the disturbance of the water though no doubt considerable was very much less than outside, and the protection thus afforded by the works was shewn in a very marked manner by the increased height of the seas which invaded the Harbour on these Diving days.

12 June of the buoys attached to the new screw pile moorings [illegible] day and came ashore at the height of the storm (about midnight of the 12th Instant)

13 This accident appears to have been directly attributable to the increased disturbance within the Harbour at this period, and also it is thought to the small amount of play which had been allowed to the chains attaching the buoys to the screw pile moorings.

14 The invasion of the sea led also to a lamentable accident in the case of the two Steam hopper barges (the "Salisbury and "Robert") on the evening of the 12th Instant

15. By an accident to the steam mooring buoy these vessels which had been united with the object of carrying and working the machinery for screwing down the piles were swung violently round so as to catch the swell broadside on, and - breaking up Sant Rat once.

16 Most unfortunately the European Captain (Berlis) and 13 of the native crew perished. Mr Bottler the mechanical engineer who had lately come out to direct the screwing operations

operations and 3 of the natives es-
-caped by swimming. Three more were also
picked off the rigging on the morning
of the 13th Instant.

17. No fears had been entertained for
the safety of the vessels as they ap-
peared to be riding out the storm
easily, owing, no doubt to the protection
afforded by the works.

18. To the north of the Harbour works
there was as might have been expected
much displacement of the materials
of the rough stone revetment ex-
tending for about 1½ miles; but on the
whole the work has stood the attack
well, and no serious encroachment
occurred within the erected
lines. There can however be
little question that much property
would have been injured in this
direction had it not been for the
energetic and intelligent man-
ner in which Mr Thorowgood
had acted in this as in
all other matters connected
with his position as Superin-
-tendent of the Harbour works.

19. Appended are two photographs
of the harbour taken after the
storm which however
printed will with the appended
references serve to explain graphi-
-cally the present position of
matters.

2334/19

/Signed/ R. H. Laucher Col R.E.

Chief Engineer and Secy:
P.W. Department.

4 Encl

No. 2854 W

PUBLIC WORKS DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

UNDER date the 15th Nov 1881

Read the following:—

Report by the Secretary and Chief Engineer P. W. Dept dated 15 November 1881.

2854/20

Ordered that the following despatch be sent to the Secretary of State for India.

(P.W. No. 2855 W dy 15 Nov 1881)

R.A.

S. to H. W. No. ✓
Marine Dept. ✓
desp'd 18-11-81.

Madras, 15th November 1881.

1854/21

No. 71.
1853 W.

To,

The Right Honble
the Secretary of State for India.

My Lord Marquis,

Sending the drawing up of a fully detailed statement which we hope soon to be in a position to furnish and in immediate connection with another Despatch No 11 of this date forwarding the report of the Master Attendant, we desire now to submit for your Lordship's information with all reserves the accompanying brief and necessarily incomplete report by our Secretary and Chief Engineer & W Dept of the effect produced by the

Cyclone of the 12th instant on the new
Madras Harbour Works.

2. As your Lordship will doubtless recognize it would be premature at the present moment to express any decided opinion as to the ultimate action to be taken in proceeding with the Harbour Works.

3. We would further beg to submit for your Lordships' consideration whether Mr Parkes should not at once proceed to this country to examine and report on the state of the work in view to future proceedings.

We have the honor to be
My Lord Marquis,
Your Lordships' Most Obedt & Humble Servants
Signed/ M E Grant Duff
— " — W Hudleston
Rec'd Sept 15/71 J. F. Carmichael
Printed Copy
Sept 21/71

97

Govt. of 1881: Madras.

PUBLIC WORKS.

To

Dated

Issued

Recd. Encl.

Sheard 16-11-81

G. O., 15th Nov.r 1881, No. 2854-5. W

Nos. 77-78-79

Madras Harbour works.

Report by the Chief Engr. & Secy. to Govt. P.W. Dept. on the damages to the —— during the Cyclone of the 12th Nov.r.

Forwarding report by the Chief Engr. & Secy. to Govt. P.W. Dept. on the damages to the Madras Harbour works during the Cyclone of the 12th November.