Rec: & No 3412

Transferred to the Public Works Depart-ment, in continuation of Endorsement dated 23rd September 1882, Mis: No 3113.

Further enclosure

Secy to Govt

Collectorate Madras
17th October 1882

No 2759 W of 23rd October 82

B

Recorded with reference to &c. No 2618 W dy 20th Oct 1882.

Ch

20.10.82

To

The Secretary to Government
Rev. Dept.

M.C. No 7171

Rec'd 20/10/82

Encls: 3

Rec'd 14th Oct'r

Encl: 2

Proceedings, dated 12th October 1882.
No. 7884 Mis:

Subject.

No 2759 W of 23-10-82
Submitting to Government letter from the Collector of Madras requesting early orders on his application for the entertainment of a temporary establishment in connection with the acquisition of land for the Madras Harbour works.

Witness 14/10/82

Transferred.

Dr

Sated in Receipt Regr.

1882.

Board of Revenue,

MADRAS.

No 2766 W of 24 October 82

B

The Supdg Engr Fifth Circle will be furnished with a Copy of G.O. No. 2079 W of 14th August 1882, from which it will be seen that a sum of Rs 1000 has already been transferred from the Bangalore Post office to the Combined Post & Telegraph office at Ootacamund

Ch

19.10.82

for 25-9-82.
23-9-82 - 5-10-82
24-9-82 - 14-9-82
20-8-82 - 18-9-82
- 14-8-82.

CH 24/10

S.E. Fifth Circle
with one Encl:
Despd 25/10/82. Dr

From

The Superintending Engineer,
5th Circle,

To

The Chief Engineer
P.W. Deptt

Dated 17th October 1882.
Recd.

Enclosures.

No 2766 W of 26 October 82

No. 2582.

Post Office at Bangalore.

States that a sum of Rs 1000 is available for transfer from the grant provided in the Budget for additions to the

With Order

Sated in Receipt Regr.

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of {1882} Madras.

PUBLIC WORKS.

Dated October, 5th.

Recd. *Encl.*

G.O., 5th Oct. 1882, No. 2593 W.

OCTOBER.
Nos. 29-30.

Post Office at Bangalore.

Letter from the Assistant to the Resident in Mysore stating that instructions have been issued for placing at the disposal of the Madras Public Works Department Rs. 1,920, *one-third of the estimated amount for certain improvements to the* —, communicated to the Superintending Engineer, Fifth Circle.

No. 2582.

SUPERINTENDING ENGINEER'S OFFICE,
5TH CIRCLE, MADRAS,
Chepauk, 17th October 1882.

From

THE SUPERINTENDING ENGINEER,
5TH CIRCLE,

To

THE Chief Engineer
S. W. D.

SIR,

Enclosures.

I have the honor to bring to your notice that the estimate for additions to the Post Office at Bangalore Rs. 5760 is sanctioned in G. O. No. 2375 W. dated 14th ultimo, the balance Rs. 3840 being provided in the Current year's Budget, Imperial Other Services, Item No. 2 — But as this Budget item provides Rs. 4840, the sum of Rs. 1000 is available for transfer to other works.

I have the honor to be
Sir
Your Most Obedt Servt
Alex Skene Lt Col. R.E.
Supdg Engr 5th Circle

To The Secretary to Government
Public Works Department

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of {1882} Madras.

PUBLIC WORKS.

Dated September, 14th.

Recd. *Encl.*

G.O., 14th Sept. 1882, No. 2376 W.

SEPTEMBER.

Nos. 104—106.

Post Office at Bangalore.

ESTIMATE, amounting to Rs. 5,760, for additions to the —, sanctioned.

5TH OCTOBER 1882, No. 2593 W., PUBLIC WORKS.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Civil Works.

No. 29.

READ—the following letter from Major H. WYLIE, C.S.I., Assistant to the Resident in Mysore, to the Secretary to the Government of Madras, Public Works Department, dated Bangalore, 28th September 1882, No. 1514/668 :—

With reference to the Proceedings of the Madras Government, Nos. 104-106, dated 14th September 1882, I am desired by the Officiating Resident to state that instructions have been issued to the Comptroller of Mysore to place the sum of Rs. 1,920 at the disposal of the Madras Public Works Department from the revenues of the assigned tract, being one-third of the estimate for certain improvements and repairs to the Post Office building at Bangalore.

I am further desired by Mr. Sandford to request that the Executive Engineer may be directed to proceed with the work with as little delay as possible.

No. 30.

ORDER—dated 5th October 1882, No. 2593 W., Public Works.

Communicated to the Superintending Engineer, Fifth Circle, for information and guidance, with reference to G.O., No. 2375 W., dated 14th September 1882.

(True Extract.)

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

To the Superintending Engineer, Fifth Circle.
„ Examiner of Public Works Accounts.

Exd. C. Howarth.
Spare Copies

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Civil Works.

No. 29.

Read—the following letter from Major H. WYLIE, C.S.I., Assistant to the Resident in Mysore, to the Secretary to the Government of Madras, Public Works Department, dated Bangalore, 28th September 1882, No. 1514/668 :—

With reference to the Proceedings of the Madras Government, Nos. 104-106, dated 14th September 1882, I am desired by the Officiating Resident to state that instructions have been issued to the Comptroller of Mysore to place the sum of Rs. 1,920 at the disposal of the Madras Public Works Department from the revenues of the assigned tract, being one-third of the estimate for certain improvements and repairs to the Post Office building at Bangalore.

I am further desired by Mr. Sandford to request that the Executive Engineer may be directed to proceed with the work with as little delay as possible.

No. 30.

Order—dated 5th October 1882, No. 2593 W., Public Works.

Communicated to the Superintending Engineer, Fifth Circle, for information and guidance, with reference to G.O., No. 2375 W., dated 14th September 1882.

(True Extract.)

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

To the Superintending Engineer, Fifth Circle.
„ Examiner of Public Works Accounts.

Exd. C. Howarth.
Spare Copies

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Civil Works.

No. 104.

Read—the following papers :—

From Colonel H. L. PRENDERGAST, R.E., Superintending Engineer, Fifth Circle, to the Chief Engineer, Public Works Department, dated Chepauk, 1st August 1882, No. 1624.

With reference to G.O., No. 1,184 W., dated 10th May 1882, I have the honor to report that the estimate prepared by the Superintending Engineer, Mysore, provides for all the additions required by the Post Office at Bangalore. I enclose the plan and estimate which has been corrected to Rs. 5,760. There is an allotment of Rs. 4,840 in the current year's Budget,* Item No. 2.

1 Estimate with Report.
1 Plan.

* Imperial Other Services.

2. The building does not require any repairs. The roof of the dome was said to have leaked a little during recent rains, but it appears that some rain came in because the movable ventilating shutters were not properly closed.

No. 1,473 C.

Forwarded, with a copy of G.O., No. 1184 W., dated 10th May 1882, to the Postmaster-General, Madras, for countersignature to the plan and estimate if approved.

2. Early return of the papers is requested.

(By Order.)

(Signed) A. S. RUSSELL,
5th August 1882. Under Secy. to Govt., P.W.D.

No. 104-A.

From C. W. HUTCHINSON, Esq., Postmaster-General, to the Under Secretary to Government, Public Works Department, dated Madras, 9th August 1882, No. 4880.

With reference to your No. 1473 C., dated 5th instant, I have the honor to inform you that the revised estimate, amounting to Rs. 5,760, for the additions to the Bangalore Post Office has been submitted to the Director-General of the Post Office for sanction, and will, on return, be forwarded to you duly countersigned.

No. 104-B.

From the same Officer, dated Madras, 31st August 1882, No. 5546-2055.

In continuation of my letter No. 4880-2055, dated 9th instant, I have the honor to return herewith your endorsement No. C. 1473, dated 5th idem, as also the plan and estimate, amounting to Rs. 5,760, for additions to the Bangalore Post Office, which have been duly approved and countersigned by the Director-General of the Post Office in India. A copy of the Director-General's letter, No. 5,474, dated 22nd idem, on the subject, is also forwarded herewith.

14th September 1882, No. 2376 W., Public Works.

Copy of a communication from the Director-General of the Post Office of India, to the Postmaster-General, Madras, dated Simla, the 22nd August 1882, No. 5474.

I have the honor to return duly approved of and countersigned the plan and estimate received with your letter No. 411 of 9th August 1882, the latter amounting to Rs. 5,760, for making certain additions to the Bangalore Post Office building.

2. I note that out of the sum of Rs. 5,760 for this work, Rs. 3,840 will be provided from the Madras Budget for the year 1882-83, the balance, Rs. 1,920, being contributed by the Resident of Mysore.

3. You are requested to be so good as to report to this office when the work is completed.

No. 105.

Order—dated 14th September 1882, No. 2375 W., Public Works.

The estimate, amounting to Rs. 5,760, for additions to the Post Office at Bangalore is sanctioned for early execution.

2. A copy of these Proceedings, with copy of G.O., No. 1184 W., dated 10th May 1882, will be forwarded to the Resident in Mysore, with request that one-third the amount of the estimate, viz., Rs. 1920, may be placed at the disposal of the Madras Public Works Department. The balance, Rs. 3840, is provided in the current year's Imperial Other Services Budget, Item No. 2.

3. This sanction has been registered as Imperial Other Services, No. 20 W., of 1882-83, and classified as Civil Buildings, Original works.

(Here enter No. 2376 W., dated 14th September 1882.)

(True Extract.)

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

To the Superintending Engineer, Fifth Circle, with four enclosures.
" Examiner, Public Works Accounts, with Abstract Estimate.
" Postmaster-General.

No. 106.

Endorsement—dated 14th September 1882, No. 2376 W., Public Works.

Copy of the above forwarded to the Resident in Mysore.

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

Exd. S. T. Austin.
Spare Copies

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of {1882} Madras.

PUBLIC WORKS.

Dated September, 14th.

Recd. *Encl.*

G.O., 14th Sept. 1882, No. 2376 W.

SEPTEMBER.

Nos. 104—106.

Post Office at Bangalore.

ESTIMATE, amounting to Rs. 5,760, for additions to the —, sanctioned.

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of {1882} Madras.

PUBLIC WORKS.

Dated September, 18th.

Recd. *Encl.*

G.O., 18th Sept. 1882, No. 2419 W.

SEPTEMBER.

Nos. 138-139.

Post and Telegraph Office at Ootacamund.

Letter from the Government of India communicating approval to the re-appropriations from the existing Imperial Other Service grant to the extent of Rs. 10,000 to meet the cost of the combined —, communicated to the officers concerned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Civil Works.

No. 138.

Read—the following letter from Major G. F. L. MARSHALL, R.E., Under Secretary to the Government of India, Public Works Department, (Civil Works—Buildings,) to the Secretary to the Government of Madras, Public Works Department, dated Simla, 6th September 1882, No. 320 B. :—

In reply to your endorsement No. 2080 W., dated 14th August 1882, I am directed to communicate the approval of the Government of India to the re-appropriations which have been made from the existing Imperial Other Services grant, to the extent of Rs. 10,000, to meet the cost of the combined Post and Telegraph Office at Ootacamund.

No. 139.

Order—dated 18th September 1882, No. 2419 W., Public Works.

Communicated to the officers concerned.

(True Extract.)

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

To the Superintending Engineer, Fourth Circle.
" Postmaster-General.
" Director-General of Post Offices in India.
" Superintendent of Telegraphs, Malabar Division.
" Examiner, Public Works Accounts.
" Financial Department.

Exd. S. T. Austin.
Spare Copies

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of {1882} Madras.

PUBLIC WORKS.

Dated August, 14th.

Recd. *Encl.*

G.O., 14th Aug. 1882, No. 2080 W.

AUGUST.

Nos. 86—90.

Post and Telegraph Office at Ootacamund.

Forwarding copy of Proceedings allotting, with remarks, Rs. 10,000 for the combined —.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Civil Works.

No. 138.

READ—the following letter from Major G. F. L. MARSHALL, R.E., Under Secretary to the Government of India, Public Works Department, (Civil Works—Buildings,) to the Secretary to the Government of Madras, Public Works Department, dated Simla, 6th September 1882, No. 320 B. :—

In reply to your endorsement No. 2080 W., dated 14th August 1882, I am directed to communicate the approval of the Government of India to the re-appropriations which have been made from the existing Imperial Other Services grant, to the extent of Rs. 10,000, to meet the cost of the combined Post and Telegraph Office at Ootacamund.

No. 139.

ORDER—dated 18th September 1882, No. 2419 W., Public Works.

Communicated to the officers concerned.

(True Extract.)

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

To the Superintending Engineer, Fourth Circle.
" Postmaster-General.
" Director-General of Post Offices in India.
" Superintendent of Telegraphs, Malabar Division.
" Examiner, Public Works Accounts.
" Financial Department.

Exd. S. T. Austin.
Spare Copies

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Civil Works.

No. 86.

READ—the following papers :—

From C. W. HUTCHINSON, Esq., Postmaster-General, to the Secretary to Government, Public Works Department, dated Madras, 3rd August 1882, No. 4673-1679.

With reference to G.O., No. 1533 W., dated 19th June 1882, I have the honor to forward a copy of a telegram received by me this day from the Director-General of the Post Office of India, and request that you will be so good as to inform me whether the sum of Rs. 17,880 required for the new Post Office at Ootacamund is to be included in the schedule of Original Works in the Post Office Department for the year 1883-84 to be submitted to the Government of India by the Director-General of the Post Office.

2. I request the favor of an early reply to this letter, in view to the information being wired to the Director-General of the Post Office.

No. 87.

From Major G. F. L. MARSHALL, R.E., Under Secretary to the Government of India, Public Works Department (Civil Works—Buildings), to the Secretary to the Government of Madras, Public Works Department, dated Simla, 28th July 1882, No. 263 B.

I am directed to acknowledge the receipt of your endorsement, No. 1534 W., of the 19th ultimo, applying for a grant of Rs. 17,880 under "Postal" for the completion of the combined Post and Telegraph Office at Ootacamund.

2. In reply I am to state that the excess provision of Rs. 2,882 under Telegraph, which is now surrendered, may be appropriated for the work and arrangements made for further expenditure by re-appropriation from the existing Imperial Other Services Grant.

No. 88.

From Lieutenant-Colonel H. R. MEAD, R.E., Superintending Engineer, Fourth Circle, to the Chief Engineer, Public Works Department, dated Arcot, 7th August 1882, No. A.

With reference to your telegram, dated 4th August, asking whether Rs. 17,880, in addition to the current year's grant of Rs. 10,645, can be spent on the Telegraph and Post Office at Ootacamund, I have the honor to report that the Executive Engineer reports that it cannot be, but that an additional grant of Rs. 10,000 (making a total of Rs. 20,645) can be with advantage allotted to this work this current year.

No. 89.

ORDER—dated 14th August 1882, No. 2079 W., Public Works.

With reference to G.O., No. 1533 W., dated 19th June 1882, the Superintending Engineer, Fourth Circle, asks for an allotment of Rs. 10,000 under Postal, in addition to the grant of Rs. 10,645 under Telegraph, for expenditure during the current official year on the combined Post and Telegraph Office at Ootacamund.

2. The Government of India having intimated that any additional funds required for this work may be provided by re-appropriations from the existing Imperial Other Services Grant, the sum of Rs. 10,000 asked for is allotted as follows subject to the confirmation of that authority:—

		Rs.
(1)	From the sum of Rs. 2,882 surrendered under Telegraph in G.O., No. 1533 W., dated 19th June 1882	2,882
(2)	From additions to the Post Office at Bangalore, Budget Item No. 2	1,000
(3)	From Minor Works, Postal	1,000
(4)	From Minor Works, Salt	1,118
(5)	From Minor Works, Telegraph	4,000
	Total ...	10,000

3. The balance required under Postal, Rs. 7,880, to complete the building, will be entered by the Director-General of the Post Office of India in his schedule of requirements under Original Works for the year 1883-84.

4. Ordered that a copy of these Proceedings be forwarded to the Government of India.

(Here enter No. 2080 W., dated 14th August 1882.)

(True Extract.)

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

To the Superintending Engineer, Fourth Circle.
" Postmaster-General.
" Director-General of the Post Office of India.
" Superintendent of Telegraphs, Malabar Division.
" Examiner of Public Works Accounts.
" Financial Department.

No. 90.

ENDORSEMENT—dated 14th August 1882, No. 2080 W., Public Works.

Forwarded.

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

Exd. A. F. Goodall.
Spare Copies

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of {1882} Madras.

PUBLIC WORKS.

Dated August, 14*th*.

Read. *Encl.*

G.O., 14th Aug. 1882, No. 2080 W.

AUGUST.

Nos. 86—90.

Post and Telegraph Office at Ootacamund.

FORWARDING copy of Proceedings allotting, with remarks, Rs. 10,000 for the combined —.

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

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of (1881) Madras.

PUBLIC WORKS.

To

THE SUPERINTENDENT, MADRAS
HARBOUR WORKS,
&c., &c., &c.

Dated November, 15th.

Issued

Recd. *Encl.*

G. O., 15th November 1881, No. 2855 W.

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 12th November.

PUBLIC WORKS DEPARTMENT.

No. 71.
2855 W.

TO THE MOST HONORABLE THE MARQUIS OF HARTINGTON,
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, Public Works Department, of the effects 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 Lordship's 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 Lordship's most obedient, humble servants,

(Signed) M. E. GRANT DUFF.
(„) W. HUDLESTON.
(„) DAVID F. CARMICHAEL.

Fort St. George,
15th November 1881.

Exd. S. T. Austin.

FORT ST. GEORGE.

PUBLIC WORKS DEPARTMENT.

Letter to the Most Honorable the Secretary of State for India.

Dated 15th November.

No. $\frac{71}{2855\ \text{W.}}$ *of* 1881.

FORWARDING report by the Chief Engineer and Secretary to Government, Public Works Department, on the damages to the Madras Harbour Works during the cyclone of the 12th November.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

23rd November 1881, No. 2927 W.

Buildings and Roads.
Civil Works.

Read the following paper :—

No. 105. From F. N. THOROWGOOD, Esq., M. INST. C.E., Superintendent, Madras Harbour Works, to the Secretary to Government, Public Works Department, dated Madras, 21st November 1881, No. 65 W.

I HAVE the honor to submit as detailed a report as I am able of the damage sustained by these works on 12th November. The destruction of the two piers is, however, so very extensive that, even at this date and without having lost any time, my information is somewhat meagre.

Three accompaniments (photographs).

2. PRECAUTIONS FOR BAD WEATHER.—On the afternoon of the 11th November I received a private note from Captain Taylor warning me that the weather was suspicious ; but, as I had taken all the precautions that were in my power to protect the works and the plant, I could do nothing more when this warning was received.

The two Titan cranes were withdrawn as far from the ends of the piers as I considered safe, and my reasons for leaving them where they stood instead of taking them quite back were these :—

I. On two occasions at the north pier, and on one occasion at the south pier, the work has been rather badly damaged nearer shore than where the Titans stood on these occasions to which I refer ; and I have from long observation come to the conclusion that a position a short distance back from the end has hitherto been better than one nearer shore.

II. The position I selected as storm quarters for the Titans this season was where the blocks are more deeply founded than anywhere in their rear, and therefore less likely to be undermined. Moreover the surface of the piers was ~~for~~ 35 to 45 feet wide at these places, and consequently there was a good margin of block work on each side of each Titan (the span of which is 20 feet only) ; I therefore judged that, as in November 1879 and 1880 these machines had stood well in heavy seas on a narrower pier and shallower foundation, I was not incurring any unwise risk in firmly securing them at the commencement of the pier heads. And in this position they were made fast in every way possible.

3. POSITION OF THE "HOBART" AND "SALISBURY."—Similarly with the steamers *Hobart* and *Salisbury*, I had moved them from the south to the north of the harbour, and they were moored by three anchors and a stern fast in absolutely the best berth in the whole harbour during a north-east sea.

4. THE STORM.—The sea rose in the night of the 11th and by 9 A.M. of the 12th was running very high, and making a clean sweep of the north pier and the Titan at the end. It was also attacking the outer portion from the curve of the south pier with great violence. The wind was not high, nor was there very much white water out to sea, but the waves were very much heavier than any I have seen here

before. At times a sea would strike nearly the whole length of the outer portion of the north pier at the same moment, then shoot up in the air and fall in a powerful cascade over the inner row of blocks. This is noteworthy, as will be seen when I describe the nature of the damage.

5. FORCE OF THE WAVES.—With regard to the force or height of the waves I have no good record. I have seen much heavier seas in the German Ocean, but I have not seen any equal to it during my five and a quarter years experience of Madras. I may mention that Mr. R. F. Chisholm, whose judgment in such a matter must be admitted to be very sound, informs me that he considered the seas of 12th November were much higher than those which accompanied the storm of 1872. I think this should be taken much into consideration, as there is a prevailing impression that, because there was not much wind, there could not be a very heavy sea.

6. LOSS OF THE TITAN CRANES.—At about 10 A.M. on the 12th the south Titan went over into the harbour suddenly, and much of the outer portion of the block work was destroyed. At 12 noon the north Titan subsided gently down behind, paused a little, and then was likewise overturned on its side. There it lay for some hours. The north pier was seen to be badly breached also, but the sea was now so very violent that nothing could be made out with certainty.

7. LOSS OF THE STEAMERS.—The steamers *Hobart* and *Salisbury* were all this time lying quietly at their moorings, and Mr. Boteler, the Mooring Foreman, who had gone on board in the morning remained there all day. As the vessels were lying quite steady, and no message was sent ashore from them hinting that they were not holding well I had no anxiety about them. At about 4 P.M., however, the hawser which answered as a stern fast broke, and almost at the same time the wind got more easterly. Shortly afterwards the fastenings which connected the two vessels gave way and they parted company and were then in danger of sinking. But now it was found impossible to get a boat or catamaran out, and the distance (300 yards) was too great for the rocket apparatus to be used, and hence ensued the lamentable loss of life by the foundering of the vessels already reported. Mr. Boteler, who went on board that morning, by a miraculous escape got ashore with a life buoy after being for a long time in the surf. Six of the crew were also saved by their own endeavours and exertions.

8. DAMAGE TO NORTH PIER.—I will now proceed to describe the damage sustained by the two piers commencing with the north. The bank of laterite rubble at the commencement of the pier known as the "surf-bank," which was completed in October 1876, is much knocked about by the waves on the north side, and a clean breach through was made just in the rear of the first concrete block, set in December 1876. Measuring from this point, the first 400 feet of pier is hardly affected at all. Beyond this distance the rails and sleepers have been torn off, and there are signs of the centre joint of the blocks having slightly opened for a length of 2,050 from the commencement. From 2,050 to 2,240 the centre joint has opened 5 or 6 inches, the opening being caused by the north row of blocks moving outwards. Never before has this result appeared with work founded at a depth of 19 feet below low water, but we have on other occasions invariably noticed that the result of a heavy sea has been to close the centre joint, even to grinding together of the blocks. On examining the rubble base on the outside of the wall along this part (2,100 to 2,300 about), I find that it has been scoured away for a depth of 5 and 6 feet, slightly undermining the blocks. The surface of the rubble is left now at a depth of 22 feet below low water. It formerly was heaped up well over the bottom course, but now the under side of that course is exposed. The slope of the base has been flattened, and what is swept from the top has been drawn out over the toe of the slope.

9. At a distance of 2,240 feet the ruin commences. There now follows nearly 100 feet of pier in which the outer or north row of blocks has been swept away, having fallen in the direction of the waves that struck it; the inner or south row of blocks however remain stationary up to 2,340 feet. From 2,400 to 2,800, all of which is on the curve, the destruction has been very severe, and for 100 feet in this length the blocks are moved to the very bottom, the blocks in the lowest course being in some places broken, and the upper blocks have fallen outward in such confusion

as to render it difficult to identify them. Some have fallen over the edge of the rubble bank. At places here we find the rubble lowered as much as 7 feet, and the blocks undermined, fallen over and broken.

10. From 2,800 outward (the curve terminates at 2,937 feet) for 200 feet the bottom blocks remain sound, but are slightly undermined on the north side, the rubble base having been scoured away for a width of 6 feet from the blocks. The upper blocks have here (and from here to the end) been knocked over into the harbour, and have not fallen towards the north.

11. From 3,000 feet to the actual end 3,870 feet, the lower courses remain in fair order, but a sort of hollow or ditch has been scoured in the rubble base in many places at a distance of 3 to 6 feet from the blocks, and in many spots the lowest block is undermined. The action of the waves against the wall has without doubt been felt at a depth of 24 feet below low water.

12. At the extreme end, which is founded at a depth of 25 to 26 feet below low water, the quadrant or corner block has stood well, but has settled down $2\frac{3}{4}$ feet.

(2·96)

Also twenty-one rows of blocks at the back of the quadrant remain in fair regularity on the outer side. On the inner or harbour side the top courses, and often the second and third courses, have been sent flying into the harbour. The rubble base at the very end was, before the storm, piled up 4 feet above the bottom of the blocks, and it is now scoured out to 4 inches below the blocks in one spot.

13. THE PIER HEAD.—The pier head, by which I mean the last 150 feet of the pier, has stood the sea fairly well, and has failed by sheer force of blows. It is true that only the northern half of it remains, but that remains with much regularity. This is the deepest founded part of the pier, it is the widest section, and on a wider rubble base than the rest. These add to its security. But another reason may be given besides, viz., that Mr. Parkes sanctioned the use of a greater quantity of cement per block in this part of the work, and as a consequence the blocks have not broken so much as in the other portions of the ruined wall.

14. The ruin of blocks along the inner or harbour wall of the pier has prevented my getting many observations of the bottom, but where Mr. Beardmore has sounded at present it seems that the rubble base has not been disturbed. This is clearly the case at the place where the north row of blocks have fallen over northward.

15. NORTH TITAN.—The Titan crane went completely over during the 12th November, and is now buried by the blocks of the pier head. It is useless to speculate on how it came to fall, but I fancy that first the hind wheels gave way and it then capsized, afterwards to tumble over in the general ruin.

16. SOUTH PIER DAMAGE.—There remains a greater length of the south pier intact than of the north, which no doubt is due to the protection given by the latter. The wall stands quite secure to 2,550 feet from the commencement, and there has been no opening of the centre joint as at the north pier. Up to nearly 2,800 from 2,550 there remains the inner or north row of blocks standing secure, but the outer row has been knocked over outwards. There then follows a gap of about 200 feet where the blocks have fallen southward in such confusion that at present I cannot say what has occurred, nor whether the bottom blocks remain in position.

17. Following the foundation outwards we next come to 100 feet where there appears to be no variation in the lower blocks which are the same as when set. But from this point (3,100) outward there is much undermining of the rubble on the outer wall, the depth of scour being in some places as much as 3 feet below the bottom of the lowest block. Throughout the remainder of the pier where damage has occurred the blocks have fallen inwards. From 3,100 to 3,140 there is much scour and undermining of rubble, whereas from 3,140 to 3,200 the rubble is heaped up against the blocks. There does not appear to be any place where the bottom blocks have actually disappeared, but the amount of sinking is most remarkable.

18. SOUTH PIER HEAD.—The actual end of the south pier has suffered severely, although founded at a depth of 26 feet below low water. The lower blocks alone

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of {1881} Madras.

PUBLIC WORKS.

To

THE SUPERINTENDENT OF THE
MADRAS HARBOUR WORKS,

&c., &c., &c.

Dated November, 23rd.

Issued

Rect.

G.O., 23rd November 1881, No. 2927 W.

NOVEMBER.

Nos. 105-106.

Madras Harbour Works.—Report from Mr. Thorowgood regarding the damage to the —, recorded with remarks.

PUBLIC WORKS DEPARTMENT.

No. $\frac{74.}{2928}$ W.

TO THE MOST HONORABLE THE MARQUIS OF HARTINGTON,
SECRETARY OF STATE FOR INDIA.

My Lord Marquis,—In continuation of our Despatch No. $\frac{71}{2855}$ W., dated 15th November 1881, we have now the honor to forward a report from the Superintendent of the Madras Harbour Works giving such information in regard to the damage to the works by the recent storm as he is at present in a position to afford. Mr. Thorowgood is actively engaged on a survey and soundings, and on completion of these the full extent and nature of the damage will be reported, and illustrative plans and sections submitted. Meanwhile, and pending Mr. Parkes' arrival in this country next month, we have decided that the restoration of the Harbour Works shall be suspended.

2. The accompanying photographs will give an idea of the present appearance of the works.

We have the honor to be,
My Lord Marquis,
Your Lordship's most obedient, humble servants,

(Signed) M. E. GRANT DUFF.
(„) W. HUDLESTON.
(„) DAVID F. CARMICHAEL.

Fort St. George,
23rd November 1881.

Exd. E. C. Shunker.

FORT ST. GEORGE.

PUBLIC WORKS DEPARTMENT.

Letter to the Most Honorable the Secretary of State for India.

Dated 23rd November.

No. $\frac{74.}{2928}$ W. *of* 1881.

FORWARDING a report from Mr. Thorowgood regarding the damage to the Madras Harbour Works by the recent storm.

P. W. Department.

Copy Telegram sent to the Governor, Madras

on the 24th Nov. 1881.

Repeat damage to Harbour.

Parker leaves England 9th December.

(True Copy).

Danvers.

Secretary,

Public Works Department.

INDIA OFFICE,

25th Nov. 1881.

Encl.

E 148. 300.—2/78. I. 646.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

6th January 1882, No. 28 W.

Buildings and Roads.
Civil Works.

Read the following paper :—

No. 23. Despatch from the Most Honorable the Secretary of State for India.

Public Works.

No. 37.

India Office, London,
30th Nov. 1881.

Dated 15th November 1881.

Sir,—I forward herewith, for the information of your Excellency's Government, copy of a Report by Mr. Parkes on the progress of the Madras Harbour Works for the quarter ended 30th September 1881.

2. The interest of this report has been of course much lessened by the damage which has occurred to the works since it was written, but there are points dealt with in it, in respect to the shore movements caused by the construction of the harbour, which may probably prove of use to your Excellency's Government.

3. It was with much concern that I heard, by your telegrams of the 12th and 15th instant, of the serious damage which had been done to the harbour on the 12th November from the effects of a severe cyclone and of the loss of life which occurred on the occasion. I am now awaiting full particulars regarding the disaster, and shall be anxious to learn the extent of the injury and the proposals that may be made in consequence.

4. You will have learnt by my telegram of the 24th instant that Mr. Parkes is proceeding to Madras on the 9th December in order to investigate matters personally, and to report on the means necessary to replace the piers and remedy any defects in their construction.

5. I have allowed Mr. Parkes to proceed on the usual terms, viz., payment of his actual travelling and personal expenses with a salary of £160 per mensem during his absence, and I have complied with his request for an advance of £300 to be made to him before he leaves England on the 9th December next.

I have, &c.,

(Signed) HARTINGTON.

His Excellency the Right Honorable
The Governor in Council, Fort St. George.

MADRAS HARBOUR.

Report of Progress for the Quarter ending 30th September 1881.

23, Abingdon Street, 15th November 1881.

Sir,—Appended is a plan showing the state of the above Harbour Works on the 30th September, and I enclose a photograph taken on the 8th October.

2. The progress shown is very much less than in the corresponding quarters of the previous two years. This is mainly owing to the exceptionally rough weather which has prevailed. The operation of block-setting was also rather more complicated than hitherto, owing to the blocks being arranged for the widening of the heads, and therefore of special form, and sometimes requiring special fitting.

3. The number of blocks set in the south pier was 342. In the corresponding quarter of 1880 the number was 1,008. There was, however, in this pier no special cause of delay or difficulty other than those I have mentioned. The piers are now both advanced to their extreme lengths, but the returns inwards cannot be erected till after the rough weather of the north-east monsoon, now due. The Titan cranes require to be turned round, and this is an operation requiring some time. It would be difficult to run them back to places of safety on settled portions of the piers from their new positions. Mr. Thorowgood, therefore, determined to defer this operation till he has sufficient fine weather in prospect to finish the work and bring the cranes back.

4. There remain to be set, however, only 150 blocks at the north pier, and 240 at the south pier, so that there is little danger of their not being both completed by March.

5. There has been a further cause of delay at the north pier, to which I alluded in my last quarterly report, and which has been the subject of some correspondence since. Certain blocks, 15 in number, had to be taken up and reset in a different form, involving special preparation on shore, which occupied some weeks. The time, however, would not have been otherwise uninterruptedly occupied in sea work owing to the weather. The blocks have since been reset in a manner satisfactory both to myself and Mr. Thorowgood.

6. The fixing of the moorings has not made so much progress as I had hoped, owing also to the rough weather. The system of screwing into the ground is the same as was adopted with perfect success at Calcutta, but even in ordinary fine weather at Madras there is an amount of rise and fall of the wave which is extremely inconvenient. The plan may be modified, so as to obviate the difficulties due to this cause, and render the progress more certain on the whole, though less rapid under favorable circumstances. Mr. Thorowgood will no doubt consider the propriety of making the modification in the apparatus during the rough weather of the present month, when the actual screwing work will be necessarily in abeyance. Up to the present time 11 screws have been fixed in the ground, giving seven small moorings, and one large one.

7. The works for the improvement of the beach are progressing. The raising and levelling is almost completed, and one half of the new surface metalled. Of the two stone banks which are to form the approaches to the new jetties, one is complete, and the other about half complete. The jetties themselves are not commenced.

8. The advance of the shore line to the south of the harbour continues much as before, but the tendency seems to be to extend the widening of the beach to the southward, rather than to advance along the line of the pier. This is no doubt owing to the wave reflected from the pier, counteracting the alongshore movement of the direct wave.

9. The changes within the harbour are of much interest in connection with the results of a complete survey of the interior of the harbour, made by Messrs. Thorowgood and Beardmore in September. The depths found by them are shown on the plan by black figures. Those of their previous survey of September 1879 are shown by blue lines.

10. On comparing the two, it will be seen that though at both dates the outer contours show some irregularities, which may reasonably be attributed to the disturbances caused by ships' anchors and cables, there is no general increase or decrease of depth. On the 5-fathom line, however, there is a tendency to increased depth, the figures being more uniformly to shoreward of the line. In the shallower contours of 4, 3, and 2 fathoms, as well as in the half fathoms, the northern half of the harbour has uniformly deepened, and the southern generally so, though with some exceptions. On the whole, between 5 fathoms and 2 fathoms there is an average deepening of about 8 inches.

11. The exceptions to the general rule of deepening which are found in the south-west corner of the harbour may be easily accounted for. During the last two years the north pier has been in advance of the south, and consequently the harbour has been more exposed to the southerly seas. These, while causing a general deepening, produce at the same time an alongshore beach movement from north to south.

12. The destination of the sand which has been washed up from the bed of the harbour is obvious in the advanced shore line. I have not received the levels of the beach above water in the same detail as the soundings, but there is certainly an approximate balance in the amounts of loss and gain above and below water. There is an apparent inconsistency in the high water line of June, but I think this may be accounted for by the excavation of sand for the beach reclamation. This, if within the wash of the surf, might temporarily affect the position of the high-water line, but the persistent action of the wave on the slope below water ultimately restores it to its normal position.

13. I think these results ought finally to set at rest the vague apprehensions which are still from time to time expressed of the silting up of the harbour. Probably this is the last action of the perfectly free ocean wave upon the area of the harbour, and it has been a deepening rather than a shoaling one.

14. There is, however, one point to which my attention has been privately drawn, though I do not think it has been officially reported, viz., the passage of sand through the interstices between the blocks of the south pier. Water heavily charged with sand is driven through these

interstices, and the sand is dropped inside. The rubble stone foreshore, for a length of 400 or 500 feet abreast of the belt of surf outside, is covered with sand to a depth of 2 or 3 feet, and it has been suggested, in ignorance of the deepening of the harbour itself, that it is from this source that sand has been brought to cause the advance of the beach line between the piers.

15. I think any apprehensions in this respect are quite groundless. The sand which finds its way through the pier is insignificant in quantity at present, and must become less as the accumulation inside rises and itself forms an obstruction to the entrance of more. There is absolutely no transporting power which can carry it away in any direction, so that it must lie where it falls, and will simply form a perfectly harmless heap.

16. The erosion of the shore beyond the revetment north of the harbour has been greater than in the last two years, and some rubble stone has been deposited with the view of retarding the erosive action beyond the limit of the present completed revetment.

17. As the question of the propriety of making a considerable extension of the protective works has lately been raised, I think it may be desirable to offer some explanation of the present state of the case. On the 25th January last I submitted to the Government of Madras a report on the subject based on a careful comparison of all the previous surveys, in which I showed that the shore line was subject to very considerable changes for which the harbour works were in no way responsible. There was evidence that before the line of shore was interfered with by the harbour piers, changes had taken place on as large a scale as any that had taken place since. At the same time some of the recent changes were undoubtedly attributable to the influence of the works, and it was only fair that compensation for the damage so caused should be borne by the harbour works funds.

18. All the protective works hitherto executed have been carried on under the harbour works staff, and the cost charged to the head of "Contingencies" in the accounts. The shore is now completely protected to a distance of 3,460 feet from the north pier, and the question now under consideration is as to the treatment of the shore to the northward of this. For this I think a different mode of treatment may be required, but there is no question as to the incidence of such charges as it may be necessary to incur being the same as before.

19. The question as regards future treatment is this:—Within the limits of the present protective works the property abutting on the shore is of such value, both intrinsically and in regard to public interests, that there could be no doubt as to the necessity of protecting it at all cost. In the part now subject to encroachment, however, the case is different. The land is of much less value, and if the present owners were equitably compensated, the sea might be allowed to encroach without any public interests being affected. The question is mainly one of cost, that is, of a comparison between the cost of protecting the shore, and of compensating the owners of the land. There are other points to be taken into consideration in the final adjustment of the balance, but they are secondary to that of cost. First, a certain amount of land has already been washed away and can hardly be regained. Second, the land has always been held subject to liability to erosion by the sea by causes independent of the harbour works. Third, a frontage of rubble stone revetment is incompatible with the purposes to which much of the shore has hitherto been devoted, the landing of timber and beaching of boats. Considerations based upon these points tend rather to limiting than extending the principle of protection.

20. A valuation of the land and other property threatened with erosion has lately been made by the Collector of Madras, but the details have not yet reached me. This will probably give sufficient materials for forming an estimate of how far it will be desirable to extend the physical protection. But in the meantime there are materials to show that the question is one which should not be decided on insufficient data.

21. The only mode of protecting the shore is by means of a longitudinal revetment, and this would cost about Rs. 35 per lineal foot. A piece of land about 300 yards north of the present termination of the revetment was purchased by the Government two years ago at the rate of $\frac{14}{100}$th of a rupee per square foot. If this be assumed as the value of the adjoining land, 250 feet of it would have to be washed away before the cost of the revetment would be reached. The actual erosion in five years has been about 150 feet. At this point then it may be said that the relative costs of protection and compensation are, roughly speaking, balanced.

22. If, however, we go northward to near the present limit of erosion, we find land worth $\frac{1}{100}$th of a rupee per square foot. Here, therefore, 3,500 feet would have to be washed away before the cost of the revetment be reached. Such an amount of erosion need not be contemplated, and the cost of the revetment would, in my opinion, be in no way justified.

23. It is, of course, impossible to predict precisely what will be the limits of erosion, but I think if a plan be made showing the line of shore for some distance north and south, the amount of erosion which has already taken place, and the strip of land which has a value equal to the cost of a revetment, the proper termination of the protective works will be indicated within very narrow limits.

24. In the meantime, I submit that the Government cannot do wrong in acquiring all the land abutting on the shore, whether it is to be ultimately protected or not. If this is not done, I believe the legal difficulties will be far more formidable than the physical ones.

25. The outgoings in respect of this tendency to erosion, whether taking the form of protective works, or of compensation or purchase of land, are not without an equivalent on the other side the account. The land gained on the south of the harbour is at present of rather larger area than that lost on the north. This is already partially utilized, and it will, no doubt, be more so. The proceeds in some form should be placed to the credit of the harbour funds. I think, considering the value of the southern side, it is quite possible that the ultimate result of the transfer of land from north to south may be a substantial profit.

26. With respect to the effect of the sheltering piers, now that they are virtually completed, I am collecting what evidence I can from the commanders of ships and others, and, so far, I have met with nothing but a full acknowledgment of the great facilities afforded by the harbour in the landing and shipping of passengers and goods. No difficulties have been suggested which cannot be met by modifications in the internal arrangements which are within the discretion of the harbour authorities or the commanders themselves. Of course there is a large field for suggestions of further improvement, and these are not wanting from various quarters, but though no doubt much may be done to develope the advantages of the harbour, I think more time is required to determine in what direction the next steps should be taken. In the meantime there is no doubt that the harbour ought to be earning a substantial revenue, and that without any burden on the trade, if the dues were imposed in an equitable manner. In confirmation of this I may quote the authority of Captain Taylor, the Master Attendant, who, in a letter to a local newspaper says, "It has already become a success so far as great convenience to the trade is concerned, and the interest of the capital sum is clearly leviable."

27. I have not yet received the statement of expenditure to the 30th September; when I have done so, I will prepare and submit the usual abstract.

I have, &c.,
(Signed) W. PARKES.

The Under Secretary of State for India.

P.S.—Since writing the above I have received the following telegrams, dated 12th and 14th November :—

"Heavy sea, both Titans gone, much damage to piers.

"North intact to twenty-three, thirty destroyed beyond except quadrant south right to twenty-eight hundred badly breached beyond, hoppers sunk, Berlie and half crew lost, six buoys broken away, storm passed away."

I am preparing a special communication to you on the subject. W. P.

No. 24. ORDER THEREON, 6th January 1882, No. 28 W.

ORDERED to be recorded.

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

To the Superintendent of the Madras Harbour Works.
" Master Attendant.
" Marine Department.
" Examiner of Public Works Accounts.

Exd. S. T. Austin.
Spare Copies.

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of (1882) Madras.

PUBLIC WORKS.

To

THE SUPERINTENDENT OF MADRAS
HARBOUR WORKS,
&c, &c., &c.

Dated January 6th.

Issued

Recd. *Encl.*

G.O., 6th January 1882, No. 28 W.

JANUARY.
Nos. 23-24.

Madras Harbour Works.—Despatch from the Secretary of State fowarding copy of a report by Mr. Parkes on the progress of the —— for the quarter ended 30th September 1881. Recorded.

FROM THE EXAMINER P.W.ACCOUNTS,

MADRAS.

TO THE SECRETARY TO GOVERNMENT,

PUBLIC WORKS DEPARTMENT.

NO. 1184 W MADRAS, 11th OCTOBER 1882.

SIR,

WITH REFERENCE TO THE ORDERS OF THE SECRETARY OF STATE COMMUNICATED WITH G.O.NO.28 W.OF 6TH.JANUARY 1882, I HAVE THE HONOR TO STATE THAT A CLAIM FOR RS.6,863 HAS BEEN PREFERRED IN THE TRAVELLING ALLOWANCE BILL OF THE MADRAS HARBOR WORKS ON ACCOUNT OF THE EXPENSES ETC.INCURRED BY MR.PARKES ENGINEER-IN-CHIEF ON HIS TOUR OF INSPECTION OF THE MADRAS HARBOR WORKS IN CONSEQUENCE OF THE LATE CYCLONE IN NOVEMBER LAST. NO PROVISION TO MEET THE CHARGE HAS BEEN MADE IN THE BUDGET OF THE HARBOR WORKS FOR 1882-83.

I HAVE THE HONOR TO BE,

SIR,

YOUR MOST OBEDIENT SERVANT.

D.C. Condon

EXAMINER P.W.ACCOUNTS.

8/7. 1184

A Leg 2854 dr - 15-11-81

Dep - 71/2855 dr 15 -

Au 2942 dr 23 -

Des - 71/2928 dr - 23 -

B - 2960 dr - 25-11-4
2981 dr - 6-11-82

T -

No 2767 W of 24-10-82

The Examiner of S. W. Accounts is authorised to admit the charge subject to the usual audit against the current year's grant to the Madras Harbour Works.

2. A report should be made by the Examiner later in the year as to how far expenditure is likely to be in excess of the grant, when additional C. funds will be applied for.

16.10.82

FROM THE EXAMINER P.W.ACCOUNTS,

MADRAS.

TO THE SECRETARY TO GOVERNMENT,

P.W.DEPARTMENT.

No. 118/W

No 2767 W of 24 October 1882.

DATED 11 OCTOBER 1882.

MR. PARKES ENGINEER-IN-CHIEF
MADRAS HARBOR WORKS---REGARDING
THE ALLOWANCES OF----

With order

Desptd 24/10/82

Examiner P.W. Accts

ord 22.10 Re 23/10
ord 16/10 Cir: 18/10

GOVERNMENT OF MADRAS.

MILITARY DEPARTMENT.

11th October 1882, No. 5425.

Transport—Officers.

Read the following:—

No. 195. *Proceedings of the Government of India, Military Department, dated Simla, 30th September* 1882, *No. 942-S.C.*

Transport—Officers.

From Colonel G. CHESNEY, Secretary to the Government of India, Military Department, to the Quartermaster-General in India, dated Simla, 30th September 1882, No. 942-S.C.

In reply to your letter, No. 3555-A. (Transport Sea—Inland), dated the 22nd September 1882, I am directed to refer you to the letter from this Department, No. 542, of the 19th August 1872, in which it was left to the Commander-in-Chief to grant passages in the Indian troopships to non-effective general officers, and to state that you are correct in understanding that, in the event of His Excellency being unable to provide him and his family with troopship passages, Major-General Gray, Royal (late Indian) Artillery, on retirement under paragraph 32 of the Secretary of State's despatch published in G.G.O. No. 10 of 1882, will be entitled to the port of embarkation for himself and family and to contract passage by sea for himself only.

2. With regard to the period for which that officer will be allowed to retain a claim to passage, I am to say the case will be governed by Military Department, No. 802-C., of the 10th March 1879, in which the period was limited to six months from the date of an officer ceasing to be employed, which in the case of General Gray may be taken to mean six months from the date of his retirement.

Copy of the above forwarded to the Secretary to Government, Madras, Military Department, for the information of the Governor in Council in continuation of No. 360-C., dated 2nd March 1882.

(By Order.)

(Signed) A. KENNEY-HERBERT, Major,
Offg. Asst. Secy. to the Govt. of India.

No. 196. ORDER THEREON, 11th October 1882, No. 5425.

Communicated to His Excellency the Commander-in-Chief and the Controller of Military Accounts in continuation of Proceedings of Government, No. 1241, dated 16th March 1882.

(True Extract.)

For *Ag. Secretary to Government,*
Mily. Dept.

To the Quartermaster-General.
„ Controller of Military Accounts.
„ Adjutant-General, for information.
„ Public Works Department.

Exd. A. Grubert

No 2769 W of 24 October 82
B

Recorded in
Continuation of Sp.
No 800 W of 24 March
1882.
Ch 20.10.82

Govt. of {1882} Madras.

MILITARY.

To

THE QUARTERMASTER-GENERAL,
&c., &c., &c.

Dated October, 11th.

Issued

Recd. 20/10/82 *Encl.*

G.O., 11th October 1882, No. 5425.

No 2769 W of 24-10-82

OCTOBER.
Nos. 195-196.

CH 24/10

Transport—Officers.

Non-effective General Officers.—Decision of Government of India regarding the grant of passages in the Indian troopships to —.

To Col. R.H. Sankey, C.R.E.
for information
Dept. 25/10/82. Le

Sd. in Receipt Regr.

NOTES.

P. W. D. Madras.