

(1) Number of pages 28

(2) Date of repair _____

(3) Initials of the Referencer _____

MADRAS RECORD OFFICE.

Government of Madras.

Public Works

DEPARTMENT.

G.O. No.	477 (W)	Press Mis.
Dated	12. 2.	1877.

Not to be folded or roughly handled

Read the following letters:—

No. 311. From F. N. THOROWGOOD, Esq., Superintendent, Madras Harbour Works, to Lieutenant-Colonel J. MULLINS, R.E., Secretary to Government, Public Works Department, dated Madras, 31st January 1877, No. 102 W.

I HAVE the honor to report the following amount of progress on these works since the date of my last report.

2. NORTH PIER.—The work on the North Pier has been confined to setting concrete blocks by the Titan crane, and since the 2nd January there have been 44 blocks set at the end, making a total of 75 blocks from the end of surf-bank.

This brings the total length of the Pier from the point A to 974 feet, and gives a length of 96 feet of regular concrete block work, of which 51 feet have been set this month.

The depth of water at the present end of the Pier is 8 feet 8 inches below mean sea level, but this is not sufficient for a helmet diver to work in, excepting on particularly smooth days. The blocks set during the month have therefore not had a regular bed prepared for them, and there is consequently a good deal of irregularity in their position.

On the 16th and 31st January I had a diver at work at the Pier end, and although the swell occasionally was troublesome, he was able to remove the large broken pieces of block deposited last October, which were in the way of the foundations of the Pier. I hope that in another week he will be able to work regularly on smooth days. The diving boat which I had built by contract by a native has answered very well, and is a great improvement on the masula boat hitherto used for diving purposes.

Besides the regular concrete blocks that have been set by the Titan crane, I have had four small blocks lowered over the north side of the Pier at the junction with the laterite bank to act as a foreshore.

I always shall keep a stock of blocks ready for this purpose, in case the sea should show any tendency to cut through the bank at that point.

On the 18th January an accident happened to the travelling gear of the Titan crane, which has caused a slight delay; but as the level of the top of the Pier was much too high, I took advantage of the accident to move the Titan back off the blocks, and to cut them down to very nearly their proper level; the level of the outermost block now being 6 feet 7 inches above mean sea level, whereas the proposed ultimate level is 5 feet above mean sea level. It is well, however, to keep the work up rather high, as it will probably settle down a little. This arrangement received the approval of Mr. Parkes before his departure.

All the blocks that have been set by the Titan crane have remained steadily in their positions, and beyond a slight settlement the sea has had no effect on the end of the Pier.

The sides and end of the surf-bank, where it joins the block work, remain in about the same state as last month.

3. CONCRETE BLOCKS.—The making of concrete blocks by hand labour has been carried on at the rate of four per diem. The total number now made is 387, of which 99 have been made during the month of January. Besides these there are 90 small blocks, of which 24 have been made during the month.

4. **CONCRETE BLOCK PLATFORMS.**—All the blocks at present in use are made on the north block platform, but there is now ready a length of 410 lineal feet complete of the south block platform. This platform will not be completed to its entire length for some little time, as it passes through the buildings, which are at present used as carpenter's and smith's shops.

5. **MACHINERY.**—The whole of the machinery from England for making concrete blocks and for crushing stone has been erected, but it is not yet quite ready for work, as there are some portions of the elevators which have not arrived out. There is no reason, however, why this need delay the making of the concrete blocks by machinery.

The pumping machinery for supplying water to the mixers and to the engines is not yet quite ready, as I am making it on the spot and find considerable difficulty in getting the necessary wheels and fittings.

The tanks for the water-supply are finished and erected on the top of the mixing station, and pipes are laid on to the concrete mixers. These tanks are kept filled by hand-labour pending the completion of the pumping machinery.

On the 29th January I had some of the concrete-making machinery at work, and with it made part of one of the ordinary concrete blocks in order to test the working of the arrangement.

Several alterations in detail will have to be made, after which I think that the system will answer admirably, although it will take a little time for the men to get accustomed to the work. All four of the light travellers are completed.

6. **SUPPLY OF STONE.**—Since the date of my last report I have pushed on the works at Chinnamapet as much as I could, but at the present time the contractors' men are stopped from working the sidings or from getting stone by the Tahsildar of the district. This is annoying, as I understood from the correspondence between the Collector of North Arcot and the Revenue Board (Proceedings of Revenue Board, No. 1,937, dated July 28th 1876,) that the Zemindar was ready to allow the stone to be collected for a royalty of pies 2 per ton. I have written to the Collector on the subject, so that this difficulty may be removed, as it puts the contractors to very serious inconvenience. I have, however, had four wagons (or about 36 tons) of the stone down from Chinnamapet, and it has been crushed by the machines for making concrete. The time occupied in crushing this stone was two hours.

7. **CONTRACTS.**—The Harbour Works Committee met on January 26th to consider tenders for stone for the south surf-bank, in reply to an advertisement which I had published on January 10th.

There were nineteen tenders sent in, but up to 5 P.M. on the date of this report the Committee had not yet finally determined whose tender to accept. The result, therefore, of this advertisement for tenders will either be reported in a separate report or in that for next month.

No other contracts have been entered into during the month, but timber has been purchased for the wooden bridge over Cochrane's Canal at the rate of Rupees 75 per ton.

8. **CEMENT AND STORES.**—During the month the S.S. "Duke of Devonshire" has brought out various stores, amongst others a considerable quantity of iron of sorts, which was greatly needed.

The S.S. "Navarino" also landed iron and fir planks, and the S.S. "Duke of Sutherland" has about 20 tons of iron of different sizes. This vessel is at present aground to the south of the iron pier in the line of the proposed south surf-bank.

The sailing ship "Coldingham" is in the roads with 3,264 casks of Portland cement, and with 452 light rails with fastenings.

Ten tons of General Morgan's cement have been received on the works on the 30th January, and I propose to make some more experiments with this made into concrete, using the concrete mixing machinery in the same manner as I shall use it for the English cement. The result of the experiments shall be duly reported.

9. **GENERAL MATTERS CONNECTED WITH NORTH PIER WORKS.**—Amongst smaller works that have gone on during the month I would report that the coal godown, built for the Marine Department, is nearly roofed in and ready to be handed over to that department.

The brickwork, retaining walls round the stone crushers and mixing station have been completed, and the railway sidings for receiving the Chinnamapet stone have been carried across the road to the west of the block ground, and are now in working order.

10. **SOUTH INDIAN RAILWAY EXTENSION.**—The extension of the South Indian Railway from Cochrane's Canal to the beach is being carried on as quickly as possible. A long delay was caused by the difficulty I had in obtaining a pile-driving engine, but eventually the Chief Engineer of the Madras Railway was good enough to lend me one of his. The driving of piles for the bridge across the canal is now going on, and the timber, &c., for the superstructure is on the ground being prepared.

At this date there are 1,700 lineal yards of the railway levelled and formed, 130 lineal yards of sleepers laid and rails spiked to them, and 300 lineal yards of sleepers laid with rails on them not yet spiked.

235 lineal yards of fencing have been erected through the hospital compound, and the brickwork for culverts and drains is in hand.

I have not yet interfered with the rice traffic on the beach, but it will be necessary to clear away some of the temporary sheds used for storing rice, and also to remove some of the large heaps of rice bags that are in the way of the approach to the south Pier. I am putting off doing this till it is absolutely necessary, having already sent in notice to the owners of the sheds that they will have ultimately to be removed.

11. **GENERAL OBSERVATIONS ON THE COAST, CURRENTS, &c.**—In accordance with the wishes of His Grace the Governor, as expressed in G.O., No. 3,490, dated 19th December 1876, I had two boxes or crates of laterite stone deposited carefully by a diver, one in $5\frac{1}{2}$ and one in $7\frac{1}{4}$ fathoms of water. I superintended the setting of these personally, and took accurate bearings of their position, so that I can revisit them after a time to see if any change has taken place in the state of the sand near them.

I would remark that although at the time of depositing these boxes there was a considerable current noticeable on the surface, there was absolutely none at the bottom of the sea in either of the places where the diver went down. The sections of the shore which have been repeated this month show a very slight amount of filling up since last October. The enclosed tracings show where the greatest amount of filling up has taken place, viz., in the neighbourhood of the northernmost groyne.

Proceedings of the Madras Government, Public Works Department,
12th February 1877. No. 477.

12. In conclusion I would observe that Mr. Parkes, who left Madras on January 26th, has given me full instructions as to his wishes and views regarding the future carrying on of the works.

No. 311-A. From W. S. WHITESIDE, Esq., Collector of North Arcot, to Lieutenant-Colonel J. MULLINS, R.E., Secretary to Government, Public Works Department, dated Chittoor, 8th February 1877, No. 12.

I HAVE the honor in acknowledging receipt of your memorandum No. 255, dated 6th instant, to inform you that on the 29th ultimo I received a letter* on

* No. 612. the same subject from Mr. Thorowgood, and at once communicated with the Zemindar of Carvetinugger, remonstrating with him on the hindrance offered by his subordinates to the construction of the railway sidings at Chinnamapet, and he at the same time wrote to me that he had consented to the removal of stone from his quarries at certain stipulated rates, but that no application had been made to him or arrangement effected for the transfer of the land required for the new sidings, which were, he found, being laid down on land that was actually under cultivation.

2. I at once wrote to the Zemindar to make over the required land, assuring him that full compensation would be paid for the same.

3. I will again write now and urge upon him the necessity for making over the lands at once. I regret however very much that no communication was addressed to me by any officer concerned, informing me in the usual manner of the extent of land, &c., that would be required for the sidings. Had this been done the present delay would have been obviated.

No. 312. ORDER THEREON, 12th February 1877, No. 477.

CIVIL WORKS, No. 19-A.

RECORDED.

2. When any land is required the Superintendent should place himself in communication with the Revenue Officers, in order that it may be acquired; by adoption of which course much ultimate delay will be saved.

(True Extract.)

(Signed) W. FAREWELL, Colonel,
Acting Joint Secretary to Government.

To the Superintendent, Madras Harbour Works.
„ Marine Department.
„ Revenue Department.

Exd. S. T. Austin.
Spare Copies

No. 255
The following extract from a report
by the Capt. of the Madras Harbour Works
is referred to the Collector of North Arcot
for immediate report.

By Order
J. G. Mullins & Hall R.E.
Secy to Govt. P. W. D.
6th Feby 77.

Since the date of my last report I have
pushed on the works at Chinnamapet
as much as I could; but at the present
time the contractors' men are stopped
from working the sidings or from
getting stone by the Sahibdar of the
District. This is annoying, as I under-
stood from the correspondence between
the Collector of North Arcot and the Rev.
Board (Pro: of Rev. Board No. 1937 of
July 28. 1876) that the Zemindar
was ready to allow the stone to be
collected for a royalty of pice 2 per
ton. I have written to the Collector
on

Extract
 Farewell Call

off Broadway; East
 The title of my last volume
 is "The North American
 Indian in the West," and
 the title of this is "The
 Indian in the East."
 The first volume is
 now in the hands of the
 publisher, and the second
 is in the hands of the
 printer. The first volume
 is now in the hands of the
 publisher, and the second
 is in the hands of the
 printer. The first volume
 is now in the hands of the
 publisher, and the second
 is in the hands of the
 printer.

Northbrook
Collector's Office
Boston 8th February
1877

F. Korn

W. S. Whitman & Co.
Collectors of North Beach

Lieutenant Colonel J. Bullis R.E.
 Secretary to Government.

Sir, Public Works Department,

I have the honor in acknow-
-ledging Receipt of your Memorandum
No 255 dated 6 Instant, to inform
you that on the 29th ultimo I received
a letter on the same subject from

Mr. Thoroughgood, and at once com-
municated with the Zemindar of
Caruttinigger Remonstrating with
him on the hindrance offered by
his Subordinates to the construction
of the Railway sidings at Chinnai-
marpet, and he at the same time
wrote to me that he had consented
to the removal of time from

^x
№ 612

his quarries at certain stipulated
rates, but that no application had
been made to him, or arrangement
effected for the transfer of the land
required for the new sidings which
were, he found, being laid down
on land that was actually under
cultivation.

2 I at once wrote to the Engineer
to make over the required land
assuring him that full compensation
would be paid for the same.

3 I will again write now and
urge upon him the necessity for
making over the lands at once.

I regret however very much that
no communication was addressed
to me by any officer concerned
informing me in the usual

manner of the extent of land
etc that would be required for
the sidings. Had this been done
the present delay would have
been obviated.

I have the honor to be
Sir,

Yours most obedt. Servant

B. Whitton
Collector

Letter from the Collector, North Arcot,
No 12 dated 8th February 1877.

FOR ORDERS. with original file

My dear Colonel
Ag. Joint Secretary
Better tell Mr. Thompson
that when any land
is required. he should
place himself in com.
with the Revenue Officers
in order that it may
be regularly acquired
This course will save
much ultimate delay
Yours
W. M.

P.W.D.

8 FEB 77

1372

Feb 8-2-77
Recd 8

No 12.

From the Collector
of North Arcot
to the Secretary to
Government
P. W. Dept.

Refers that the
agencies to the
Government or regarding
the land revenue officers
by his department
to the construction of
the Railway leading
at Chinnampatti.

No 311 a

1/12-2-77

Letter from the Supt. Madras Harbour
Works No. 102 W dated 31st January 1877

FOR ORDERS.

Whillemius Lt. Col. R.E.

$\frac{2}{2}$ Supt. Dy. S. W. D.

M/ 5/2

Good work, collected at and other
7791 per cent. 100 at 100

100 per cent. 100 at 100

Good work, collected at and other
7791 per cent. 100 at 100

Good work, collected at and other
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Good work, collected at and other
7791 per cent. 100 at 100

Mr. P. L. Ellis Esq.
 His Grace The Governor
 Mr. H. H. Robinson Esq.

No. 102 W

15

From

THE SUPERINTENDENT,

MADRAS HARBOUR WORKS,

To

Lieutenant Colonel J. Mullins, R. G.
 Secretary to Government
 Public Works Department
 MADRAS, January 15th 1877.

SIR,

I have the honour to report the following amount of progress on these works since the date of my last report:-

2. The work on the North Pier has been confined to setting concrete blocks by the Titan crane, and since the second of January there have been 144 blocks set at the end, making a total of 75 blocks from the end of surf-bank:-

This brings the total length of the Pier from the point A to 974 feet, and gives a length of 96 feet of regular concrete block work, of which 51 feet have been set this month:-

The depth of water at the present end of the pier is 8' 8" feet below mean sea level.

North Pier

R-09-2-77.
 Cur 2-2-77 1504-2-77

but this is not sufficient for a helmet diver to work in, excepting on particularly smooth days. - The blocks set during the month have therefore not had a regular bed prepared for them, and there is consequently a good deal of irregularity in their position. -

On the 16th and 31st January, I had a diver at work at the Pier end, and although the swell occasionally was troublesome, he was able to remove the large broken pieces of block deposited last October which were in the way of the foundations of the Pier - I hope that in another week he will be able to work regularly on smooth days. - The diving boat which I had built by contract by a native has answered very well, and is a great improvement on the Masula boat hitherto used for diving purposes. -

Besides the regular concrete blocks that have been set by the Titan crane, I have

had four small blocks lowered over the North side of the Pier at the junction with the laterite bank to act as a foreshore. -

I always shall keep a stock of blocks ready for this purpose, in case the sea should shew any tendency to cut through the bank at that point. -

On the 18th January an accident happened to the travelling gear of the Titan crane, which has caused a slight delay, but as the level of the top of the Pier was much too high, I took advantage of the accident to move the Titan back off the blocks and to cut them down to very nearly their proper level. - The level of the outermost block now being 6' 7" above mean sea level, whereas the proposed ultimate level is 5' 0" above mean sea level. It is well, however, to keep the work up rather high, as it will probably settle down a little. This arrangement received the approval of Mr. Parkes before his departure. -

All the blocks that have been set by the Titan

Titan Crane have remained steadily in their positions, and beyond a slight settlement the sea has had no effects on the end of the Pier.

The sides and end of the Surf bank where it joins the block work remain in about the same state as last month--

The making of concrete blocks by hand labour has been carried on at the rate of 4 per diem. The total number now made is 387, of which 99 have been made during the month of January. Besides these there are 90 small blocks of which 24 have been made during the month.

All the blocks at present in use are made on the North block platform, but there is now ready a length of 410 lineal feet complete of the South block platform. —

This platform will not be completed to its entire length for some little time, as it passes through the buildings which are at present used as carpenters and smiths' shops.

The

Machinery

The whole of the machinery from England for making concrete blocks and for crushing stone has been erected - but it is not yet quite ready for work as there are some portions of the elevators which have not arrived out. - There is no reason, however, why this need delay the making of the concrete blocks by machinery. -

The pumping machinery for supplying water to the mixers and to the Engines is not yet quite ready as I am making it on the spot and find considerable difficulty in getting the necessary wheels and fittings. -

The tanks for the water supply are finished and erected on the top of the mixing station, and pipes are laid on to the concrete mixers. These tanks are kept filled by hand labour pending the completion of the pumping machinery.

On the 29th January I had some of the concrete making machinery at work, and with it made part of one of the ordinary concrete blocks in order to test the working of

of the arrangement.

Several alterations in detail will have to be made, after which I think that the system will answer admirably although it will take a little time for the men to get accustomed to the work. All four of the light travellers are completed.

Since the date of my last report I have pushed on the works at Chinnampall as much as I could, but at the present time the Contractors men are stopped from working the piddings or from getting stone by the Tahildar of the District. This is annoying, as I understood from the correspondence between the Collector of North Arcot and the Revenue Board (Proceedings of Revenue Board No. 1937, dated July 28. 1876) that the Zemindar was ready to allow the stone to be collected for a royalty of Pies 2- per ton. I have written to the Collector on the subject, so that this difficulty may be removed, as it puts the Contractors to very serious inconvenience. I have, however, had four waggons (or

about

Supply of Stone

Refer to the
Revenue Board
for
report

Contracts

21 1/2
about 36 tons) of the stone down from Chinnampall and it has been crushed by the machines for making concrete. The time occupied in crushing this stone was two hours.

The Harbour Works Committee met on January 26th to consider tenders for stone for the South Surf Bank in reply to an advertisement which I had published on January 10th.

There were nineteen tenders sent in, but up to 5.0 P.M. on the date of this report the Committee had not yet finally determined whose tender to accept. The result, therefore, of this advertisement for tenders will either be reported in a separate report, or in that for next month.

No other contracts have been entered into during the month, but timber has been purchased for the wooden bridge over Lochranes' Canal at the rate of Rs 75 per ton.

Cement & Stores

During the month the S.S. Duke of Devonshire has brought out various stores, amongst others a considerable quantity of iron

iron of sorts which was greatly needed.

The S. S. "Navarino" also landed iron and fir planks, and the S. S. "Guke of Sutherland" has about 20 tons of iron of different sizes. This vessel is at present aground to the South of the iron pier in the line of the proposed South Surf Bank.

The sailing ship "Goldingham" is in the roads with 3264 casks of Portland Cement and with 452 light rails with fastenings.

Ten tons of General Morgan's Cement have been received on the works on the 30th January, and I propose to make some more experiments with this made into concrete using the concrete mixing machinery in the same manner as I shall use it for the English cement. The result of the experiments shall be duly reported.

Amongst smaller works that have gone on during the month I would report that the coal godown built for the Marine Department is nearly roofed in, and ready to be handed over to that Department.

The brickwork retaining walls round the

General matters
connected with
North Pier works

South Indian
Railway extension

stone crushers and mixing station have been completed, and the railway sidings for receiving the Chinnamapett stone have been carried across the road to the west of the block ground and are now in working order.

The extension of the South Indian Railway from Lochran's Canal to the beach is being carried on as quickly as possible. A long delay was caused by the difficulty I had in obtaining a pile driving Engine, but eventually the Chief Engineer of the Madras Railway was good enough to lend me one of his. The driving of piles for the bridge across the Canal is now going on, and the timber for the superstructure is on the ground being prepared.

At this date there are 1700 lineal yards of the railway levelled and formed, 130 lineal yards of sleepers laid and rails spiked to them, and 300 lineal yards of sleepers laid with rails on them not yet spiked.

and 335 lineal yards of fencing have been erected through the Hospital Compound and the

the brickwork for culverts and drains is in hand.

I have not yet interfered with the rice traffic on the beach, but it will be necessary to clear away some of the temporary sheds used for storing rice, and also to remove some of the large heaps of rice bags that are in the way of the approach to the South Pier. I am putting off doing this till it is absolutely necessary, having already sent in notice to the owners of the sheds that they will have ultimately to be removed.

In accordance with the wishes of His Grace the Governor as expressed in G. O. No. 3470, dated 19th December 1876, I had two boxes or crates of laterite stone deposited carefully by a diver, one in $5\frac{1}{2}$ and one in $7\frac{1}{10}$ fathoms of water. I superintended the sitting of these personally and took accurate bearings of their position, so that I can revisit them after a time to see if any change has taken place in the state of the sand near them.

I would remark that although at the time of depositing these boxes, there was a considerable

General
Observations on
the Coast currents
403

25 6
current noticeable on the surface there was absolutely none at the bottom of the sea in either of the places where the diver went down.

The sections of the shore, which have been repeated this month show a very slight amount of filling up since last October. The enclosed tracings show where the greatest amount of filling up has taken place, namely in the neighbourhood of the northernmost

In conclusion I would observe that Mr. Parkes, who left Madras on January 26th has given me full instructions as to his wishes and views regarding the future carrying on of the works.

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

J. H. Thoroughgood,
Superintendent
Madras Harbour Works

8040 3490-7-19-12-76
56-9-6-1-77

From

W.D.
2 FEB 77
No. 1078

The Superintendent
Madras Harbour Works

To The Secretary to Government
Public Works Department
Fort St George

Dated 31st January 1877

Recd

+ With Librarian

enclosure &

#102 iv

Submits report of progress
of the works for the month of
January 1877.

N^o 311-

R-29-2-77

C-2-2-77

27 8
Public Works Department.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Under date the 12th Feb 1877
Read the following:-

From

The Superintendent, Madras
Harbour Works } (H No 102 & dated 31st Jan 1877)

The Collector of North Arcot (— 12 — 8 Feb —)

Recorded

2. When any land is required,
the Superintendent should
place himself in communica-
tion with the Revenue Officer
in order that it may be
acquired - By adoption of
which course much ultimate
delay will be saved.

W.D.
10.2.77

Super Int. W.D. in ref. Dated 12-2-77
Marine Dept
Dep. Secy. A.P. Depo - 19.2.77

1578
1877
of 1877 Madras
PUBLIC WORKS.

To the *Chief Harbour Officer*
Dated
Issued
Recd. *Recd. in to P.W. 15/1/77*
Encl.

G. O. 12th Feb 1877, No. 477

Nos. 311-12

Madras Harbour Works
The progress report of the
— for the month of
January 1877, acceded
with remarks.
Butterfield