

.....துறை
குறிப்பிட்டவர் பொறுப்பிலிருக்கும் பதிவுக் கட்டினின்றும் எடுக்கப்பட்ட தாள்.

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$$\left. \begin{array}{l} 21 \frac{1}{2} \text{ ft} \\ 1.15 \text{ m (3.77 ft)} \\ 3.11 \text{ m (10.20 ft)} \end{array} \right\} \text{ at } 551 \dots\dots\dots$$

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GCP-201-1 [P 3-1]

(1) Number of pages 18
(2) Date of repair 3/12/86
(3) Initials of the Referencer lwp

TAMIL NADU ARCHIVES

GOVERNMENT OF TAMIL NADU

Public works

DEPARTMENT

<u>G.O. No.</u>	1661 W	<u>Press.</u>
<u>B.P. No.</u>		<u>Mis.</u>
<u>Dated</u>	14-7-1880	<u>197</u>

V. C. B.

Not to be folded or roughly handled

1601
GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

14th July 1880, No. 1,661 W.

Buildings and Roads.

Civil Works.

Read the following paper :—

No. 61. From F. N. THOROWGOOD, Esq., M. Inst. C. E., Superintendent, Madras Harbour Works, to the Secretary to Government, Public Works Department, Buildings and Roads, dated Madras, 3rd July 1880, No. 29 W.

I HAVE the honor to submit the following report of the progress on these works during the past month of June, and am glad to be able to state that, although the sea during the latter part of the month interfered seriously with diving operations, the advance made with the two piers is satisfactory.

2. NORTH PIER, SUPERSTRUCTURE.—During the early part of the month heavy excavation had to be carried on in the laterite base which had been accidentally tipped rather too high for a distance of 20 feet; this interfered with rapid progress up to the 16th of June after which date the advance was more satisfactory, although a heavy ground swell repeatedly hindered diving operations to a serious extent. The number of blocks set in June was 272, advancing the pier by a length of 157 feet, and making the total length from the point B on June 30th, 3,025 lineal feet.

3. The curved work is completed, and the titan now advances on a straight line to the proposed pier head, the commencement of which as at present designed by Mr. Parkes is at a distance of 685 feet from the termination of the pier at this date (July 3rd).

4. The construction of the curved work of the north pier gave me from the commencement some anxiety as it has never been attempted before under similar conditions. It is satisfactory to be able to report its completion without one single mishap and with a deviation of only 8 inches at its extreme end (637 feet from the tangent point) from the exact spot where theoretically it should terminate, notwithstanding the great and varying settlement of the blocks as the titan passed over them.

5. NORTH PIER, RUBBLE BASE.—Not much work has been done at the north pier base, the two steamers having chiefly been occupied at the south pier. The total quantity tipped during June was only 8,558 tons, of which the steamers carried 4,155 tons. There were 330 tons of good hard stone taken from a ship as ballast and placed in the north pier base. The quantity of rubble in advance of the north pier is now about 57,100 tons, and it extends for a distance of 600 feet beyond the block-work, being fully made up for 450 feet of that distance.

6. CONCRETE BLOCK-MAKING.—The making of concrete blocks was carried on as rapidly as possible during June, but in the earlier part of the month the full number could not be turned out every day until the curved work of the north pier was completed, thereby allowing of rectangular blocks being removed from one platform which was completely filled up. The number of blocks made during the month was 408, of which 291 are for the curved work of the south pier.

7. In the six months between January 1st and June 30th, 1880, there have been made 2,405 blocks, equivalent to 61,380 tons of concrete.

8. QUARRIES.—I regret to be unable to report favorably on the working of the quarries, and specially of the threatened failure of Ambatūr. The laterite now quarried is of an inferior quality and not sufficient in quantity, but a careful examination of the whole area during the past month has convinced me that there is nothing to be done but to make the best of it. To extend the railway lines further would not be desirable or advantageous, so I can only make the contractor excavate deeper

at a slightly increased cost. The amount of laterite sent down in June was 17,443 tons, of which a large quantity was used as gravel and ballast.

9. At Pallavaram the work is improving but is not yet satisfactory altogether. The quality of the stone is most excellent, but the quantity that can be loaded up at present is only enough for four trains a-day, whereas five trains are required. The amount sent from Pallavaram to the works in June was 15,492 tons, making the total quantity from both quarries during the month 32,935 tons. Dynamite is constantly used now at Pallavaram with very satisfactory results.

10. SOUTH PIER, SUPERSTRUCTURE.—The progress at the south pier has been greatly hindered by ground swells and troublesome sea from the south-east which put an end to all diving on many occasions. During June there were 224 blocks set, advancing the pier by a length of 129 feet, and making the total length 2,401 feet from the point E. On the 25th June the straight portion of the pier was completed at a distance of 2,387 feet from the commencement of the block work, and at this present date the curved work is being as rapidly proceeded with as the state of the sea will permit.

11. SOUTH PIER, RUBBLE BASE.—The rubble base of the south pier has been added to during June by 14,690 tons, of which 8,979 tons were brought by the two steamers, and the remainder was tipped from cargo boats. There were also 500 tons of very good stone taken from a ship in the roads and deposited in the base. Great difficulty is met with now in marking out the curve of the south pier base owing to the swell from the south-east. At the north pier last year this difficulty was lessened by reason of the existence of the south pier which diverted both waves and current seaward, but now the site of the south pier curve receives the full force of waves and currents, and to mark out the stations with buoys or to take accurate soundings for cross sections is work requiring much patience.

12. The south pier base now extends about 390 feet in advance of the block-work, and is fairly made up for the whole of that distance.

13. PROTECTIVE WORKS TO BEACH.—I have still kept on supplying boulders to the revetment along the North Beach Road so as to obtain a good slope towards the sea, although, as I reported on June 7th, the top width will now suffice for forming a road. It seems to me to be very desirable the repairs and protective works should be made as unquestionably secure as is possible with the means at disposal and a long flat slope to seaward is rendered absolutely necessary. To assist in forming this 1,906 tons of granite boulders were used in June. I am inclined to carry on the revetment on a smaller scale as far as the Police tannah, as there have been signs of encroachment during the last three weeks at the south corner of this building. The tannah is denoted by a letter A in red on the accompanying plan.

14. INTERCEPTING SEWER ON BEACH.—The work of constructing an intercepting sewer has been pushed on as rapidly as the flooding with water would allow, and by means of a centrifugal pump and steam engine the excavation has been kept sufficiently dry to work in. The concrete foundation below the invert is being built of special concrete blocks which can be rapidly set in the proper position, and are then grouted together with neat cement. All the cement used for this work is made by General Morgan. The length of drain completed in June is 620 lineal feet, which is shown in red on the plan.

15. STORES RECEIVED ON THE WORKS.—The following vessels have brought stores from England during June:—

Ship	Casks.	
<i>Rajah of Cochin</i>	3,524	Portland Cement.
<i>Barque Bride</i>	1,120	do.
<i>Do. Lincelles</i>	1,100	do.
Total	5,744	

S.S. *Merkara* with 48 truck wheels.

There have also been received 300 tons of Welsh coal for general purposes, but especially for the two steam barges.

16. PLANS, &c.—The accompanying plan shows the extent of progress on the two piers in red. The high water line is also shown in a red single line, that of May 31st being in blue. It will be observed that at the south inner corner of the harbour the sea has receded, while to the north of the iron pier it has slightly encroached. I have very little doubt that the cause of this change is due to the reflected waves thrown off the inside of the north pier, which are seen to sweep round the inner northern corner of the harbour in a way that would naturally cause sand to accumulate at the south pier. Detailed soundings will be taken to investigate more closely when the weather is more favorable. The deepening of the harbour at the point where the railway line from the beach runs on to the north pier at point B is however very marked, and the bank carrying the railway has had to be strengthened as a protective measure. The deepening at this place must be followed by accumulation at some other spot; and hence the somewhat remarkable advance of the shore at the inside of the south pier.

17. EXPENDITURE.—The expenditure on the works up to June 30th has been about Rs. 41,01,601.

18. RATE OF PROGRESS.—I would remark that the progress of each pier during the six months ending June 30th, 1880, has been greater than the progress in any previous corresponding six months since the first block was set, as this table will show:—

	North Pier.	South Pier.	Total.
	FEET.	FEET.	
January 1st to June 30th, 1877, advance	228	...	228
Do. do. 1878, "	420	381	801
Do. do. 1879, "	356	627	983
Do. do. 1880, "	663	688	1,341

No. 62. ORDER THEREON, 14th July 1880, No. 1,661 W.

ORDERED to be recorded.

(True Extract.)

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

To the Superintendent, Madras Harbour Works.
" Secretary, Harbour Works Committee.
" Marine Department.
To General Morgan.

Exd. W. J. Lewis.
Spare Copies

BUILDINGS AND ROADS.
CIVIL WORKS.

Gobt. of (1880) Madras
PUBLIC WORKS.

To
The SUPERINTENDENT, MADRAS
HARBOUR WORKS.
Sd. &c. &c.

Dated July, 14th.

Issued

Recd.

Encl.

G. O., 14th July 1880, No. 1,361 W.

JULY.
Nos. 61-62.

Madras Harbour Works.—Progress report
of the — for the month of June 1880,
recorded.

No. 79 W

1661
3

From

THE SUPERINTENDENT,
MADRAS HARBOUR WORKS.

To

Colonel R. H. Sankey, L. B. & Co.
Secretary to Government P. W. Dept.
Buildings & Roads
Madras, 3 July 1880.

SIR,

I have the honor to submit the following
report of the progress on these works during the
past month of June, and am glad to be able
to state that although the sea during the latter
part of the month interfered seriously with
diving operations the advance made with the
two piers is satisfactory.

North Pier
Superstructure

2. During the early part of the month heavy
vacation had to be carried on in the lateral base
which had been accidentally tipped rather
too high for a distance of 20 feet. This inter-
fered with rapid progress up to the 16th of June
after which date the advance was more satis-
factory although a heavy ground swell repeatedly
hindered diving operations to a serious extent.
The number of blocks set in June was 272 ad-
vancing the pier by a length of 157 feet and
making the total length from the point B on
June 30th 3025 linear feet.

3. The curved work is completed and the Tiltam now advances on a straight line to the proposed Pier Head, the commencement of which as at present designed by Mr. Parkes is at a distance of 685 feet from the termination of the pier at this date (July 3rd). -

4. The construction of the curved work of the North Pier gave me from the commencement some anxiety as it has never been attempted before under similar conditions. It is satisfactory to be able to report its completion without one single mishap and with a deviation of only 8 inches at its extreme end (637 feet from the tangent point) from the exact spot where theoretically it should terminate, notwithstanding the great and varying settlement of the blocks as the Tiltam passed over them.

5. Not much work has been done at the North Pier base the two steamers having chiefly been occupied at the South Pier. The total quantity tipped during June was only 5558 tons of which the steamers carried 4155 tons. There were 330 tons of good hard stone taken from a ship as ballast and placed in the North pier base. The quantity of rubble in advance of the North pier is now about 54100 tons and it extends for a distance of 600 feet

North Pier
Rubble Base

Concrete Block-making

beyond the blockwork, being fully made up for 1,500 feet of that distance. -

6. The making of concrete blocks was carried on as rapidly as possible during June, but in the earlier part of the month the full number could not be turned out every day until the curved work of the North Pier was completed, thereby allowing of rectangular blocks being removed from one platform which was completely filled up. The number of blocks made during the month was 400 of which 298 are for the curved work of the South Pier.

7. In the six months between January 1st and June 30th 1880 there have been made 2405 blocks equivalent to 61,380 tons of concrete. -

Quarries

8. I regret to be unable to report favourably on the working of the quarries, and specially of the threatened failure of Ambathoor. The laterite now quarried is of an inferior quality and not sufficient in quantity, but a careful examination of the whole area during the past month has convinced me that there is nothing to be done but to make the best of it. To extend the railway lines further would not be desirable or advantageous, so I can only make the contractor as comfortable as possible at a slightly increased cost. The amount of laterite sent down

in

3. in June was 17,443 tons, of which a large quantity
was used as gravel & ballast.
9. At Pallavaram the work is improving,
but is not yet satisfactory altogether. The
quality of the stone is most excellent but the
quantity that can be loaded up at present is
only enough for 4 trains a day, whereas 5 trains
are required. The amount sent from Pallavaram
to the works in June was 15,492 tons, making
the total quantity from both quarries during
the month 32,435 tons. Dynamite is constantly
used now at Pallavaram with very satisfactory
results.

10. The progress at the South Pier has been
greatly hindered by ground swell and troublesome
sea from the South East which has caused to
all diving on many occasions. During June
there were 224 blocks set, covering the pier
by a length of 129 feet, and making the
total length 2401 feet from the point. On
the 25th June the straight portion of the pier
was completed at a distance of 2357 feet
from the commencement of the block work
and at this present date the curved work
is being as rapidly proceeded with as the state
of the sea will permit.

South Pier
Superstructure

South Pier
Rubble Base

11. The rubble base of the South Pier has been
added to during June by cubic tons, of which
8979 tons were brought by the two steamers and
the remainder was tipped from cargo boats. There
were also 500 tons of very good stone taken from
a ship in the roads and deposited in the base.
Great difficulty is met with now in marking
out the curve of the South Pier base owing to
the swell from the South East. At the South
Pier last year this difficulty was lessened by
reason of the existence of the South Pier which
diverted both waves and current seaward, but
now the side of the South Pier curve receives
the full force of waves and currents and to
mark out the stations with bungs or to take
accurate soundings for cross sections is work
requiring much patience.

12. The South Pier base now extends about
390 feet in advance of the block work, and is
fairly made up for the whole of that distance.

Protective Works
to Beach

13. I have still kept on supplying boulders
to the retainer along the North Beach Road
so as to obtain a good slope towards the sea,
although as I reported on June 7th the top
width will now suffice for forming a road.
It seems to me to be very desirable the repairs
and protective works should be made as
unquestionably secure as is possible with
the

the means at disposal and a long flat slope to seaward is rendered absolutely necessary. It consisted in forming this type of granite concrete and used in June. I am inclined to carry on the work on a smaller scale as far as the Police Lammie as there have been signs of encroachment during the last three weeks at the South corner of this building. The lammie is denoted by a letter A in red on the accompanying plan.

14. The work of constructing an intercepting sewer has been pushed on as rapidly as the flooding with water would allow, and by means of a centrifugal pump and steam engine the excavation has been kept sufficiently dry to work in. The concrete foundation below the sewer is being built of special concrete blocks which can be rapidly set in the proper position, and are then grouted together with neat cement. All the cement used for this work is made by General Morgan. The length of drain completed in June is 620 lineal feet, which is shown in red on the plan.

15. The following vessels have brought stores from England during June.

Ship	Rank	Port of Origin
Ship Rajah of Cochin	3526	Portland Canal
Barge Bride	1120	do
Lincolns	1000	do
Total Rank 5546		
as at present with 45 tons of stores		

Intercepting
Sewer on black

Stores received
on the 1st inst.

Plans &c

There have also been received 300 tons of Welsh coal for general purposes but especially for the two steam barges.

16. The accompanying plan shows the extent of progress on the two piers in red. The high water line is also shown in a red single line, that of May 31st being in blue. It will be observed that at the South inner corner of the Harbour the sea has receded, while to the North of the Pier it has slightly encroached. I have very little doubt that the cause of this change is due to the reflected waves thrown off the inside of the North pier, which are seen to sweep round the inner or near there corner of the harbour in a way that would naturally cause sand to accumulate at the South pier. Detailed soundings will be taken to investigate more closely when the weather is more favourable. The deepening of the Harbour at the point where the railway line from the beach runs on to the North Pier at point B is however very marked, and the bank carrying the railway has had to be strengthened as a protective measure. The deepening at this place must be followed by accumulation at some other spot, and hence the somewhat remarkable advance of the shore at the inside of the South pier.

Expenditure

17. The expenditure on the works up to June 30th has been about £41,01,601-

18. I would remark that the progress of each pier during the six months ending June 30th 1880 has been greater than the progress in any previous corresponding six months since the first block was set, as this table will show:

Rate of Progress

			North Pier	South Pier	Total
			Feet	Feet	
Nov 1 to June 30, 1877.	Advance		228	—	228
do	1878	"	1120	381	1501
do	1879	"	336	627	963
do	1880	"	653	688	1341

Where the pier is to be

Sir,

Your most obedient servant

Edw. M. Rogers, Jr.
Superintendent
Hart's Harbor Works

G. O. 16 June 1888 No 1408-77

Buildings & Roads

From The Superintendent
Madras Harbour Works

P.W.D.

60180

NR

No 2911

Dated 3rd July 1880

No of Enclosures 3

+ 1 Plan of the works

X file to Librarian

16-8-80

Progress Report

Submitted - for June 1880

Cir 7.7.80. Dtd 12.7.80.
O.S. 7.80

13/10/80 No 1661-77

PUBLIC WORKS DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Under date the 11th July 80

Read the following:—

From

The Capt. Madras

Harbour Works

(No. 1661-77 of 23 July 80)

Submitted to the

Secretary

207

Capt. M. V. R. R. R.

Large Harbour Works Committee

Major in Charge

Public Works

1661-77

D. S.

See 4.7.80. Rtd 12.7.80.
2.5.7.80

4258

Gob. of 1880. Madras.

PUBLIC WORKS.

151

10th July 1880

10th July

Madras. Public Works
Progress report of the
for the month of June 1880,
presented.