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TAMIL NADU ARCHIVES

GOVERNMENT OF TAMIL NADU

p.r.v. D. DEPARTMENT

G.O. No.	<i>196-rv.</i>	Press.
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Dated	<i>26.1.1880</i>	<i>197.</i>

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GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

26th January 1880, No. 196 W.

Buildings and Roads.
Civil Works.

Read the following paper :—

No. 36. Despatch from the Right Honorable the Secretary of State for India.

Public Works.
No. 32.

INDIA OFFICE, LONDON,
24th December 1879.

MY LORD DUKE,—Herewith is forwarded for your Grace's information copy of a report which has been furnished to me

Dated 13th November 1879. by Mr. Parkes, C.E., on the progress made in the Madras Harbour Works during the quarter ended 30th September 1879.

I have, &c.,

His Excellency the Most Noble
The Governor in Council, Fort St. George.

(Signed) CRANBROOK.

From W. PARKES, Esq., M. INST. C.E., to the Under Secretary of State for India, dated London, 13th November 1879.

Madras Harbour—Report of progress in the quarter ending 30th September 1879.

I HAVE the honor to submit herewith a plan showing the state of the Harbour Works on the 30th September last and a photograph taken on the 8th October.

2. Since the 30th June the north pier has advanced 496 feet, and the south pier 263 feet in the concrete block work, and 56,332 tons of rubble stone have been deposited in the line of the north pier, carrying the base to 550 feet beyond the end of the superstructure, and 41,324 tons in the line of the south pier, carrying that base to 800 feet beyond the superstructure.

3. Out of the total of 97,650 tons 40,433 were deposited by the steam hopper barges, 52,875 by cargo boats, and 4,348 were thrown in from the ends or sides of the piers themselves. The steam barges were sent to Cocanada for shelter during the cyclone season, on the 27th September. I hope this will not be necessary again as the piers now give good shelter, which will be still more effective six months hence.

4. The amount of work done at the north pier is beyond question the greatest ever accomplished in three consecutive months by one setting machine, and it covers an area of foundation prepared by divers greater than ever accomplished before in the same time, though it was nearly approached at Kurrachee in 1872-73. What makes it the more noteworthy is that the whole of the 27-ton blocks, 836 in number, had to be conveyed by locomotives along the narrow top of the pier (24 feet wide) which was also used as a loading place for the greater portion of the rubble stone at the rate of 800 tons per day. This is carried by gangs of coolies from the railway wagons to the steamers and boats which lie alongside the pier.

5. It will be easily understood that these operations require much careful organisation and European superintendence, which must severely tax the energies of the local staff in a temperature of 100° in the shade, and I submit that the result reflects great credit upon them.

6. The work at the south pier was considerably less, not for want of an equally efficient organisation, but for want of materials, the delay in the delivery of the cement which I mentioned in my last report as likely to interrupt progress having had the anticipated effect.

A sufficiently rapid supply, however, is now arranged for, and I hope good progress will be made for the future at both piers. Some delay from weather in the current quarter must however be anticipated.

7. Three-quarters of a mile of breakwater have now been completed, and I do not think that such a length has ever before been constructed in deep water off an exposed coast with so little damage from the waves. It has had some severe trials, and its immunity from disaster under these trials must, I think, be taken as a proof of the correctness of the principle of construction. But it must be borne in mind that as we advance, though we are free of some difficulties, we are possibly entering upon others. In the month of October the curve of the north pier was commenced, and this involves in more than one way a diminution of the margin of safety hitherto possessed as the direction of the breakwater changes, its broadside will be more exposed to the sea and the waves will rush round the end with greater fury, exposing the last blocks to a greater disturbing force than hitherto. Again, the curve will prevent the Titan from being run back so far from the end on the threatening of bad weather, and it will therefore be nearer to danger. If a first-class cyclone should come upon us while we are in this position it will be a more severe trial than we have yet had. Some extra precautions can be and will be taken, and I hope they will prove sufficient, but the next six months is certainly the most critical stage of the work.

8. The only contingent works carried on during the quarter were the formation of a new groyne for the protection of the beach some distance northward of the Harbour, and the maintenance of other works for the protection of the shore. The intercepting drain has remained in suspension in the absence of orders from Government on some questions raised by the Superintendent.

9. Having on the 6th instant reported fully to you on the sand question in a separate communication, it is unnecessary to say more on the present occasion than that no difficulty has been experienced during the late south-west monsoon. The monsoon has no doubt been a moderate one, but there has been no indication of any movement that on a larger scale would have given us any trouble. The erosion of the shore to the northward has been less than last year.

10. The following is an abstract of the expenditure to the 30th September compared with the estimate for the corresponding portions of the work:—

	Total Estimate.	Estimate of portion Completed.	Expenditure to 30th September.	Excess.	Saving.
	RS.	RS.	RS.	RS.	RS.
Plant and preliminaries ...	8,00,000	8,00,000	9,07,857	1,07,857	...
North Pier Rubble Base in advance.	20,56,860	(11,38,602 a 80,000	11,05,264 80,000	...	33,338
South Pier Rubble Base in advance.	20,56,860	(8,12,634 b 86,000	6,63,932 86,000	...	1,48,702
Blocks in stock, materials on hand.	Will be transferred to piers as the works proceed.	(79,680 c 1,03,712	73,932 1,03,712	...	5,748
Total...	49,13,720	31,00,628	...	...	...
Contingencies 10 per cent.	4,91,372	3,10,063	1,07,548	...	2,02,515
Establishment 5 per cent...	2,45,686	1,55,031	2,20,310	65,279	...
	56,50,778	35,65,722	33,48,555	...	...

NOTE.—In the cases a, b, c, the actual expenditure is given under the head of estimate because the proportion of the original estimate cannot be determined.

11. The total amount here given is 1,09,000 rupees in excess of that given in the official returns for the same date. This sum represents the aggregate of the several charges debitable to the work, but not yet carried to account. When I prepared the statement given in my last report of the expenditure to 30th April, I was under the belief that a similar correction had then been made in compliance with my request to that effect, but it appears it had not been done, and consequently that statement gives rather too favorable a view of the comparison of estimate and expenditure. The total of outstanding accounts must however have been considerably smaller on that occasion than now.

12. The most important items in the statement are the piers, which show an aggregate saving of Rs. 1,82,040. I must however remind you that a sum of about Rs. 2,00,000 was

actually saved in the earlier stages of the work, owing to the cost of overcoming the sand difficulty being less than was estimated. Taking this into account there is an excess upon the pier works proper of Rs. 18,000 over the estimate of about Rs. 17,00,000. The cost of making concrete blocks and setting them continues to show a saving upon the estimate, but there is an excess in the item of rubble base. The proportion of this item will increase as we get into deeper water, and in some other respects the cost will tend to increase, but, on the other hand, savings may be expected in other directions. I cannot say which will preponderate in the end, but the whole of the arrangements are being very carefully watched with the view of keeping down the cost.

13. I ought to mention that some of the excess heretofore incurred was caused by the deposit of an excessive quantity of stone. This is almost unav avoidable in the early stages of the work while the persons employed are inexperienced, but latterly there has been a great improvement in this respect, and the deposits are now made with great precision.

14. I would beg to call attention to the item of establishment. Up to the 30th April the cost of establishment was Rs. 1,95,445 on a proportion of the total estimate of Rs. 25,69,112, or 7.6 per cent. Now it is Rs. 2,20,310 on a proportion of Rs. 31,00,628, or 7.1 per cent. The five months' work representing an estimated expenditure of Rs. 5,31,556 cost Rs. 24,865 for supervision, or 4.67 per cent. Even during these five months however there has been much detention of the works. A few months of really uninterrupted progress would do much to reduce the excess of expenditure under this head.

15. In respect of one item of future expenditure there will be some excess over my estimate. In recommending the modified form of entrance which the Government of Madras has since adopted, I stated that it would not involve extra cost as the length of pier would not be increased. Further consideration of the matter has satisfied me, however, that the simple pier heads intended for the straight sea face of the original design would be insufficient for the projecting entrance. A glance at the plan will show that a swell from the south, or from the north-east, would enter the harbour and run along the inner face of the pier to an extent which I think would render the berths in the north-east, or the south-east, corner of the Harbour unquiet.

16. To meet this evil I propose to return the heads of the piers, as shown, for a length of 100 feet, and this will involve additional cost. I cannot at present give the exact amount, as I wish to consult with the nautical authorities before submitting a detailed plan, but I expect it will amount to from £3,000 to £4,000 additional for each pier. I do not think, however, this will be considered to outweigh the superior nautical advantages of the modified form of entrance.

No. 37. ORDER THEREON, 26th January 1880, No. 196 W.

RECORDED.

2. The detailed plan of the modification mentioned in paragraphs 15 and 16 of the report will be awaited.

(True Extract.)

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

To the Superintendent, Madras Harbour Works.
„ Mr. Parkes, through India Office.
„ the Secretary, Harbour Works Committee.

Exd. S. T. Austin.
Spare Copies

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of (1880) Madras.
PUBLIC WORKS.

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

Dated January 26th.

Issued

Recd.

Encl.

G. O., 26th January 1880, No. 196 W.

JANUARY.
Nos. 36-37.

Mr. Parkes' Report on the progress made
with the Madras Harbour Works.—Despatch
from the Secretary of State forwarding—
for the quarter ended 30th September 1879,
recorded with remarks.

Public Works.
N^o 32

dated 13th Nov 1879

MA

His Excellency
The most Noble
The Governor in Council
Fort St George

India Office.
London 24th December 1879.

19th / 27

My Lord Duke,

Herewith is
forwarded for your
Grace's information copy
of a report which has
been furnished to me
by Mr Parkes, C.E. on the
progress made in the
Madras Harbour works
during the quarter ended
30th September 1879.

I have the honor to be,
My Lord,

Your Lordship's most obedient
humble servant,

Crawford

24.10.77 to 26.7.0 W

P.W.D.

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Public Works

24th Decr 1879

The
Letter to Lord St. George
32

Oct. 23/1/80

Proc. of Govt. 4/26 Jan/80. No 176 W

Back No. 3 f

D.O. 2592

Madras Harbour

Report of progress in the Quarter ending 30th September 1879

23 Abingdon Street

13 November 1879

Sir

I have the honour to submit herewith a plan showing the state of the Harbour Works on the 30th September last and a photograph taken on the 8th October

2 Since the 30 June the North Pier has advanced 496 feet, and the South Pier 263 feet in the concrete block work, and 56,332 tons of rubble stone have been deposited in the line of the North Pier carrying the base to 550 feet beyond the end of the superstructure, and 41,324 tons in the line of the South pier carrying that base to 500 feet beyond the superstructure.

3 Out of the total of 97,650 tons 40,400 were deposited by the steam hopper barge, 52,873 by cargo boats, and 4485 were thrown in from the ends or sides of the piers themselves. The steam barges were sent to Coconada for shelter during the cyclone season, on the 27 September. I hope this will not be necessary again as the pier now give good shelter, which will be still more effective 6 months hence.

4 The amount of work done at the North pier is beyond question the greatest ever accomplished in these consecutive months by one setting machine and it covers an area of foundation prepared by divers greater than ever accomplished before in the same time, though it was nearly approached at Rangoon in 1872-3. What makes it the more noteworthy is that the whole of the 2,700 blocks, 528 in number had to be conveyed by locomotives along the ^{narrow} top of the pier (24 feet wide) which was also used as a loading place for the greater portion of the rubble stone at the rate of 800 tons per day. This is carried by gangs of coolies from the railway waggons to the steamers and boats, which lie alongside the pier.

5 It will be easily understood that these operations require much careful organization and European superintendence which must wisely tax the energies of the local staff in a temperature of 100° in the shade, and I submit that the result reflects great credit upon them.

6 The work at the South pier was considerably less, not for want of an equally efficient organization, but for want of materials. The delay in the delivery of the cement which I mentioned in my last report as likely to interrupt progress having had the anticipated effect. A sufficiently rapid supply — however ^{now} arranged for — and I hope good progress will be made for the future at both piers. Some delay from want of water in the current quarter must however be anticipated.

7 Three quarters of a mile of breakwater have now been completed, and I do not think that such a length has ever before been constructed in deep water off an exposed coast with so little damage from the waves. It has had some severe trials and its immunity from disaster under these trials must I think be taken as a proof of the correctness of the principal of construction. But it must be borne in mind that as we advance, though we are free of some difficulties we are possibly entering upon others. In the month of October the curve of the North Pier was commenced, and this involves in more than one way a diminution of the margin of safety hitherto possessed in the direction of the breakwater change, its broadside will be more exposed to the sea, and the waves

The Under Secretary of State

will not round the end with greater force exposing the last blocks to a greater disturbing force than hitherto. Again the above will prevent the jet from being run back so far from the end in the event of bad weather and it will therefore be nearer to danger. If a first class cyclone should come upon us while we are in this position it will be a more severe trial than we have yet had - Some extra precautions can be and will be taken, and I hope they will prove sufficient, but the next 6 months is certainly the most critical stage of the work.

8 The only contingent works carried on during the quarter were the formation of a new groyne for the protection of the beach some distance northward of the harbour, and the maintenance of other works for the protection of the shore. The intercepting drain has remained in suspension in the absence of orders from government on some questions raised by the Superintendent.

9 Having on the 6th instant reported fully to you on the Sand question in a separate communication it was unnecessary to say more on the present occasion than that no difficulty has been experienced during the late S.W. Monsoon. The Monsoon has no doubt been a moderate one, but there has been no indication of any movement that on a larger scale would have given us any trouble. - The erosion of the shore to the northward has been less than last year.

10 The following is an abstract of the expenditure to the 30th September compared with the estimate for the corresponding portion of the work.

	Total Estimate	Estimate of portion Completed	Expenditure to 30 th September	Excess	Saving
Plant & Preliminaries	800,000	800,000	907,857	107,857	-
North Pier rubble work in advance	2,036,660	1,138,002	1,105,264	-	33,338
South Pier rubble work in advance	2,056,860	812,034	663,932	-	143,702
Blocks in stock materials on hand		79,688	79,932	-	5748
		103,712	103,712	-	-
Total	4,953,720	3,100,628			
Contingencies 10 per cent	495,372	310,063	107,548	-	402,515
Establishments 5 per cent	247,686	155,031	220,310	65,279	-
Total	5,696,778	3,565,722	3,248,555		

Notes in the cases A, B, C the actual expenditure is given under the head of Estimate because the proportion of the original estimate cannot be determined.

11 The total amount here given is 109,000 rupees, in excess of that given in the official returns for the same date. This sum represents the aggregate of the several charges debitable to the work but not yet earned to account. When I prepared the statement given in my last report of the expenditure to 30 April, I was under the belief that a similar correction had then been made in compliance with my request to that effect, but it appears it had not been done, and consequently that statement gives rather too favourable a view of the comparison of estimate and expenditure. The total of out-

occasion than now.

12 The most important items in the statement are the pier which shows an aggregate saving of Rupees 182,040. I must however remind you that a sum of about Rupees 200,000 was actually saved in the earlier stages of the work, owing to the cost of overcoming the sand difficulty being less than was estimated. Taking this into account there is an excess upon the pier works proper of Rupees 18,000 over the estimate of Rupees 17,00,000. The cost of making concrete blocks and securing them continues to show a saving upon the estimate, but there is an excess in the sum of rubble base. The proportion of this item will increase as we get into deeper water, and in some other respects the cost will tend to increase, but on the other hand savings may be expected in other directions - I cannot say which will preponderate in the end, but the whole of the arrangements are being very carefully watched with the view of keeping down the cost.

13 I ought to mention that some of the excess heretofore incurred was caused by the deposit of an excessive quantity of stone. This is almost unavoidable in the early stage of the work while the persons employed are inexperienced, but latterly there has been a great improvement in this respect, and the deposits are now made with great precision.

14 I would beg to call attention to the item of Establishment. Up to the 30 April excess of Establishment was Rupees 193,445 on a proportion of the total estimate of Rupees 2,569,112 or 7.6 per cent. Now it is Rupees 220,310 on a proportion of 22,310,028 or 7.1 per cent. The first months work representing an estimated expenditure of Rupees 53,556 cost Rs 24,865 for supervision or 4.67 per cent. even during these five months however there has been much detention of the works a few months of really uninterrupted progress would do much to reduce the excess of expenditure under this head.

15 In respect of one item of future expenditure there will be some excess over my estimate - In recommending the modified form of entrance which the Government of Madras has since adopted, I stated that it would not involve extra cost as the length of pier would not be increased. Further consideration of the matter has satisfied me however that the simple pier heads intended for the straight side face of the original design would be insufficient for the projecting entrance, a glance at the plan will show that a wall from the South, or from the North East, would enter the Harbour and run along the inner face of the pier to an extent which I think would render the work in the North East, or the South East corner of the Harbour ineffectual.

16 To meet this cost I propose to return the heads of the pier as shown on a length of 100 feet and this will involve additional cost. I cannot at present give the exact amount, as I wish to consult with the nautical authorities before submitting a detailed plan but I expect it will amount to from Rs 500 to Rs 1,000 additional for each Pier. I do not think however this will be considered as outweighing the superior nautical advantages of the modified form of entrance.

Referred to in Public Works Sec
to Madras 8.32 d/24. Sec/

Read the following:—

Despatch from
the Secy. of State
for India } HC No. 32 of 24th December/79

Recorded.

2. The detailed plan of the modifications mentioned in paras 15 and 16 of the report will be avoided.

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To the Sup^t of Madras Harbour Works.
Mr Pankes, Thos.
Put in Office given to Home Despatches.
Secy. Harbour Committee, ^{Wicks} J.P.
13/1

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568
Govt. of (1880) Madras.

PUBLIC WORKS.

To

Dated

Issued

Recd.

Encl.

27-1-80
G. O., 26 Janry. 1880, No. 196 W

Nos. 36 to 37

Mr. Parker's Report on the
Progress Made with the
Madras Harbour Works.

Despatch from the Secretary
of Public Works -
for the Quarter ended
30th Sept 1879, recorded
with remarks.