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TAMIL NADU ARCHIVES

GOVERNMENT OF TAMIL NADU

P. W. DEPARTMENT

G.O. No.	1051 W P.W.D	Press.
B.P. No.		Mis.
Dated 15-4-1887 198		

SPMT

Not to be folded or roughly handled

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GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Civil Works.

READ—the following Despatch from the Right Honorable the Secretary of State for India, to His Excellency the Right Honorable the Governor in Council, Fort St. George, dated India office, London, 17th March 1887, No. 2 :—

I transmit, herewith, for your Excellency's information, a copy of a report by Mr. Parkes* on the Madras Harbour Works for the quarter ending 31st December 1886.

* Dated 14th February 1887.

ENCLOSURE.

MADRAS HARBOUR.

REPORT OF PROGRESS FOR THE QUARTER ENDING 31ST DECEMBER 1886.

From W. PARKES, Esq., M. Inst. C.E., to the Under Secretary of State for India, dated 23, Abingdon Street, 14th February 1887.

I have the honor to append hereto a plan showing the state of the Harbour Works on the 31st December last.

2. The last three months of the year are always unfavorable to progress, and the months of November and December 1886 were unusually stormy, so that it was not possible to move the titans out to recommence building work till January. The small advance shown in red was made in the early part of October before the titans were run in shore, and has been already reported.

3. The wave-breaker crane, however, is capable of being run out for a day's work on any favorable occasion and brought back at night. By this means the gap in the wave-breaker which was left at the end of September was made up in the quarter under review, and it is now continuous throughout to the end of the standing portion of the work, though probably some additional blocks may have to be deposited here and there if the sea flattens down the slope.

4. Eighteen thousand four hundred and twenty-two tons of rubble stone were deposited for base near the end of the north pier as shown in pink. This work of course was also much retarded by the weather.

5. At the south pier nothing was done except the small portion of wave-breaker deposited early in October. I have, however, been advised of the titan being now placed in position for advancing the built work, and of its having picked up some of the blocks which were overthrown from the old wall in May.

6. Four hundred and eleven blocks were made in the quarter, being 15 more than the number used in the work. The whole of the old blocks which were on hand previous to 1884 have now been used in the wave-breakers, and in special portions of the built work for which they were suitable. There are now 1,339 blocks in stock.

7. In addition to the rubble stone deposited in the base of the north pier, 11,511 tons have been used for "protective works," mainly for the shore in the angle made with the coast line by the north pier. This angle suffered rather more in the storm of last November than on previous occasions, and the existing protective works required feeding with new stone, and extending. The cost of this, so far as it is applied to the natural coast line, should not be charged to the Harbour.

Works but to the account of "Gain and loss of land," which in my report of 21st August 1884 I recommended to be opened. But I do not understand that this has yet been done, and both the expenditure in protective works and the receipts from purchased lands are debited or credited to "contingencies"—a heading, in my estimate, which was never intended to include them.

8. *New Chart.*—I would now call attention to the relative depths shown on the plan obtained by special surveys in September 1879 and September 1886. The last was made by Messrs. Thorowgood and Pogson to a scale of 200 feet to an inch and has been reduced to the scale of the plan now submitted. A similar chart was made in September 1882 by the late Mr. Beardmore also assisted by Mr. Pogson, and the depths taken from this have been shown on the plans I have submitted since that date.

9. A comparison of the chart of 1882 with that of 1879, although the severe storm of November 1881 had occurred in the interval, showed that, except in the part which was affected by the progressive accumulation to the south of the harbour, there was no appreciable change in the bottom outside the five-fathom line either within or without the harbour. The red figures greater than five therefore show substantially the depths in 1882 as well as in 1879.

10. Comparing these red figures with the blue lines, it appears that there has been a diminution of depth by the advance of the 6, 6½, 7, 7½ and 8 fathom contours seaward, immediately to the south of the harbour, and inside the harbour the 7 and 7½ contours have also advanced. A diminution in these depths has never before occurred.

11. If we now turn to the high water mark south of the harbour we also find here an exceptional result. By a reference to previous plans, especially that for March 1886, it will be seen that there has been a fairly regular annual advance of that line, its last March position being shown on the present plan; after March it would, in the ordinary course, have gone on advancing till September, and then have retreated till the next March. But in the present year there was a heavy sea in May when the high water line was washed back to the position shown which is 100 feet or more within the March line. It subsequently advanced in the ordinary way between June and September, but its most advanced position in 1886 was not beyond that of 1885. The position shown for December is due to the erosion produced by two heavy seas in November and December (since the soundings were taken) and has therefore nothing to do with the present question.

12. It is to be remarked that since the systematic records of the coast line and the sea depths were commenced some ten years ago, there has never till 1886 been a heavy sea in May; all those of any note were in November. This is, therefore, an exceptional cause, and considering that we have two exceptional... effects (1) the check in the advance of the coast line, and presumably of the shallower contours, and (2) the new feature of an advance of the deeper contours, it seems probable that there is a connection between the two.

13. It may be that this slight shoaling (which must be increased ten-fold before it can cause any practical inconvenience) may be the first indication of the action which a future generation will have to meet by supplementary works, and which has always been anticipated, but it is also quite possible that it is a temporary effect which the next survey will show to have passed away.

14. The changes of depth inside the harbour are of some interest, though not great in amount, and such as they are they took place mainly previous to 1882. It will be seen that the five-fathom line is unchanged, but in all the shallower contours there is a deepening in the northern half of the harbour and a shoaling in the 2, 2½, and to a less extent in the 3 fathom contours in the southern half. This is probably due to the waves from the south during the years 1880 and 1881 being reflected from the face of the north pier which was then pretty fully exposed to them. Since that time it has been more sheltered by the south pier, much of the outer arm of which is still standing.

15. Since 1882 there has been a slight additional shoaling about the two-fathom contour in the southern half of the harbour which may probably be due to sand percolating through the interstices between the blocks of the south pier. The result is in no way serious.

16. The high water line within the harbour is not subject to any progressive advance, but there are changes from time to time, as the sea in an apparently capricious manner makes a steeper or flatter slope. The alongshore travel of sand in directions opposite to those obtaining outside the harbour still continues, and is shown by a comparison of the lines of last March and September which intersect one another near the centre.

17. The very heavy sea of November, which was followed by one of almost equal force in December, caused a temporary erosion all along the coast. The effects of this on the portion within the harbour and to the southward are shown on the plan. It does not appear to be of permanent importance in any part.

18. *Cost of Works.*—The statements of expenditure are now made out in a form that they can be compared with the estimate, but there are some points requiring explanation in respect of some of the items included in "preliminaries" which I have not yet received. An excess of expenditure over estimate is shown which, though not large in itself, is probably due to the adoption of some different system of classification from that adopted in the estimate.

19. In respect of the main items of expenditure, however, rubble stone and concrete blocks, the following shows the relative estimated and actual costs up to the end of November 1886:—

	Executed to November 1886.	Cost.	
		Estimated.	Actual.
Rubble stone	321,188 tons.	RS. 6,36,040	RS. 6,18,883
Concrete blocks	53,234 c. yds.	4,79,106	5,34,120
Totals	...	11,15,146	11,53,003

It should be borne in mind that the actual cost includes an extra price paid since June 1885 to the South Indian Railway Company of 8½ annas per ton of stone and 9½ annas per cubic yard of concrete. This applies to nearly three-fourths of the above quantity of stone, and involved an additional payment of 1,24,551 rupees, and to one-third the quantity of concrete involving an additional payment of 19,567 rupees. If allowance is made for these additional payments which were imposed upon us since the estimate was made, it will be seen that there has been so far a material saving on the estimate.

20. The saving, however, has been on the stone alone; the cost of concrete blocks has been in excess of the estimate and if this excess were to continue it would more than neutralize the saving on the stone, for five-sixths of the latter is completed, while only about one-fifth of the concrete blocks have yet been made. But I do not think it will continue. The one-fifth already made includes a large proportion made under exceptionally costly conditions which are now at an end, and I see no reason to doubt that the future cost will be brought down to what it was in the original works, on which the estimate was based, except in regard to two items, viz., the increased haulage of stone, and the lower value of the rupee, which latter materially affects the Indian cost of cement. About one-half the cost of the concrete is for cement and the recent variations of the exchange would affect the cost of concrete to the extent of 5 per cent., or say 8 annas per cubic yard.

21. As the works proceed I shall be enabled to report more in detail as to the comparative estimated and actual cost of the length of breakwater completed, but at present this would be impossible.

ORDER—dated 15th April 1887, No. 1051 W., Public Works.

Communicated to the Chairman, Madras Harbour Trust Board, in continuation of G.O., No. 75 W., dated 8th January 1887.

(True Extract.)

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

To the Chairman, Madras Harbour Trust Board.
" Marine Department.

Exd. P. L. Pereira.
Spare Copies

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of (1887) Madras.

PUBLIC WORKS.

Dated April, 15th.

Recd.

Encl.

G.O., 15th April 1887, No. 1051 W.

APRIL.

Madras Harbour

Report by Mr. Parkes on the progress in the restoration of the — during the last quarter of 1886. — Despatch from the Secretary of State forwarding copy of a —, communicated to the Chairman, Harbour Trust Board.

457.

15 April 1887

1887

Public Works.

No. 2.

Dated 14th February 1887.

India Office.
London, 17th March 1887.

1051
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Sir,

I transmit herewith, for your Excellency's information, a copy of a report by Mr. Parkes on the Madras Harbour Works for the quarter ending 31st December 1886.

I have the honor to be,
Sir,

Your most obedient,
humble servant,

Wm.

His Excellency,

The Right Honourable,

The Governor in Council,

Fort St. George.

844 457

For Commr

Mr

Madras Harbour

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Report of Progress for the Quarter
ending 31st December 1886

23 Abingdon Street
14th February 1887

Sir,

I have the honor to append hereto a plan shewing the state of the Harbour Works on the 31st December last

2 The last three months of the year are always unfavorable to progress, and the months of November and December 1886 were unusually stormy, so that it was not possible to move the Titans out to recommence building work till January. The small advance shown in red was made in the early part of October before the Titans were run in shore, and has been already reported.

3 The warebreaker crane, however is capable of being run out for a days work on any favorable occasion and brought back at night. By this means the gaps in the warebreaker

The Under Secretary of State
for India

which was left at the end of September was made up in the Quarter under review, and it is now continuous throughout to the end of the standing portion of the work, though probably some additional blocks may have to be deposited here and there if the sea flattens down the slope

4 18.422 tons of rubble stone were deposited for base near the end of the North Pier as shown in pink. This work of course was also much retarded by the weather.

5. at the South Pier nothing was done except the small portion of wavebreaker deposited early in October. I have, however, been advised of the Titan being now placed in position for advancing the built work, and of its having picked up some of the blocks which were overthrown from the old wall in May.

6 411 blocks were made in the quarter, being 15 more than the number used in the work. The whole of the old blocks which were on hand previous to 1884 have now been used in the wavebreakers, and in special portions of the built work for which they were suitable. There are now 1339 blocks in stock.

7. In addition to the rubble stone deposited in the base of the North Pier 11511 tons have been used for "Protection works" mainly for the shore in the angle made with the coast line by the North Pier. This angle suffices rather

more in the storm of last November than on previous occasions, and the existing protective works require feeding with new stone, and extending. The cost of this so far as it is applied to the natural coast line, should not be charged to the Harbour Works but to the account of "Gain and loss of Land" which in my report of 21st August 1884 I recommended to be opened. But I do not understand that this has yet been done, and both the expenditure in protective works, and the receipts from purchased lands are debited or credited to "Contingencies" a heading in my estimate which was never intended to include them.

New Chart

8. I would now call attention to the relative depths shown on the plan obtained by special surveys in September 1879 and September 1886. The last was made by Messrs Thorowgood and Pogson to a scale of 200 feet to an inch and has been reduced to the scale of the plan now submitted. A similar chart was made in September 1882 by the late Mr Beardmore also assisted by Mr Pogson, and the depths taken from this have been shown on the plans I have submitted since that date.

9. A comparison of the chart of 1882 with that of 1879, although the severe storm of November 1881 had occurred in the interval, showed that except in the part which was

affected by the progressive accumulation to the South of the Harbour, there was no appreciable change in the bottom outside the five fathom line either within or without the Harbour. The red figures greater than five therefore show substantially the depths in 1852 as well as in 1879.

10. Comparing these red figures with the blue lines it appears that there has been a diminution of depth by the advance of the 6, 6½, 7, 7½, and 8 fathom contours seaward, immediately to the South of the Harbour, and inside the Harbour, the 7 and 7½ contours have also advanced. A diminution in these depths has never before occurred.

11. If we now turn to the High Water mark South of the Harbour we also find here an exceptional result. By a reference to previous plans, especially that for March 1886, it will be seen that there has been a fairly regular annual advance of that line, its last March position being shown on the present plan. After March it would in the ordinary course have gone on advancing till September, and then have retreated till the next March. But in the present year there was a heavy sea in May when the High Water line was washed back to the position shown which is 100 feet or more within the March line. It subsequently advanced in the ordinary way between June and September, but its most advanced position

previous to 1882. It will be seen that the five fathom line is unchanged but in all the shallower contours there is a deepening in the Northern half of the Harbour and a shoaling in the 2, 2 1/2, and to a less extent in the 3 fathom contours in the Southern half. This is probably due to the waves from the South during the years 1880 and 1881 being reflected from the face of the North Pier which was then pretty fully exposed to them. Since that time it has been more sheltered by the South Pier, much of the outer arm of which is still standing.

15 Since 1882, there has been a slight additional shoaling about the two fathom contour in the Southern half of the Harbour which may be probably be due to sand percolating through the interstices between the blocks of the South Pier. The result is in no way serious.

16. The High Water line within the Harbour is not subject to any progressive advance but there are changes from time to time as the sea in an apparently capricious manner makes a steeper or flatter slope. The alongshore travel of sand in directions opposite to those obtaining outside the Harbour still continues, and is shown by a comparison of the lines of last March and September which intersect one another near the centre.

17 The very heavy sea of November

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which was followed by one of almost equal force in December caused a temporary erosion all along the coast. The effects of this on the portion within the Harbour and to the Southward are shown on the plan. It does not appear to be of permanent importance in any part.

Cost of Works

18. The statements of expenditure are now made out in a form that they can be compared with the Estimate, but there are some points requiring explanation in respect of some of the items included in "Preliminaries" which I have not yet received. An excess of expenditure over Estimate is shown which though not large in itself is probably due to the adoption of some different system of classification from that adopted in the Estimate.

19. In respect of the main items of expenditure, however, rubble stone and concrete blocks, the following shows the relative estimated and actual costs up to the end of November 1896.

		<u>Cost</u>	
		£	
	<u>Expenditure to November 1896</u>	<u>Estimated</u>	<u>Actual</u>
Rubble Stone	321,188 tons	636,040	618,883
Concrete Blocks	53,234 c yds	479,106	534,120
	<u>Totals</u>	<u>1,115,146</u>	<u>1,153,003</u>

It should be borne in mind that the actual cost includes an extra price paid since June 1895, to the South Indian Railway Company

of $8\frac{1}{2}$ annas per ton of stone and $9\frac{1}{2}$ annas per cubic yard of concrete. This applies to nearly three fourths of the above quantity of stone and involved an additional payment of 124,551 rupees, and to one third the quantity of concrete involving an additional payment of 19,507 rupees. If allowance is made for these additional payments which were imposed upon us since the estimate was made it will be seen that there has been so far a material saving on the Estimate.

20. The saving, however, has been on the stone alone; the cost of concrete blocks has been in excess of the Estimate and if this excess were to continue it would more than neutralize the saving on the stone for five sixths of the latter is completed, while only about one fifth of the concrete blocks have yet been made. But I do not think it will continue. The one fifth already made includes a large proportion made under exceptionally costly conditions which are now at an end, and I see no reason to doubt that the future cost will be brought down to what it was in the original work, on which the estimate was based, except in regard to two items, viz the increased haulage of stone, and the lower value of the rupee which latter materially affects the Indian cost of cement. About one half the cost of the concrete is for cement and the recent variations of the exchange would affect the cost of concrete to the extent of five per cent, or say 8 annas per cubic yard

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21. as the works proceed I shall be enabled
to report more in detail as to the comparative
estimated and actual cost of the length of
Breakwater completed, but at present this
would be impossible

I have the honor to be

Sir,

Your most obedient Servant
(sd) W Parkes.

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N. 6

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Copy Report by Mr Parker
dated 14th February 1887.

in:1
PH 2926/57

Referred to in Public Works Letter
to Madras, N° 2, dated 17th March
1887

6/10 25.3.87
59/ 28.2.87
75-4 8.1.87
3099 23.11.86.
12

PWC No 2926
No 5

1051
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B & R
Surveys

Public Works
17th March 1887

A No. 1051 Wd/15 April 1887

Communicated
to the Chairman Madras
Harbour Trust Board
in continuation of
G.O. No. 75 W dated
8th January 1887.

The
Letter to Lord S. George
N. 2.

Recd. 7 April 1887

Ry 15.4.87

Jul
13/4/87

A 3099 Wd/12.11.86.
" " Wd/23.11.86. (20 packets)
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- 75 Wd/13.1.87

Chairman M. A. J. B.
Marine Dept.
25/4

Collector M. B. 1887

with order

Govt. of 1887 Madras.
PUBLIC WORKS.

original

18/4/87

Dated

Recd.

Encl.

G.O. 15 April 1887, No 105/w

Madras Harbour, ~~Madras~~

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Report by Messrs Parkes
on the progress in
the restoration of the —
during the last quarter
of 1886. Despatch
from the Secy of State
forwarding copy of
a — Comm^d to
the Chairman
Harbour Trust Board.

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