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Government of Madras

Public Works DEPARTMENT

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(4)

MADRAS HARBOUR.

FROM

WILLIAM PARKES, Esq., M. INST. C. E.,

Engineer-in-Chief of the Madras Harbour Works,

TO

Major-General G. W. WALKER, R.E.,

Secretary to Government, Public Works Department.

Report on the progress and present state of the Works.

SIR,—I think I shall best introduce the subject of the following report by giving a short sketch of the proceedings in connection with these works since they received the sanction of the Secretary of State in March 1875. So much of these proceedings as took place in England has not I believe as yet been laid before the Government of Madras in view of its connection with the works which have been carried on on the spot.

2. At the time the final sanction was given I was myself abroad, but before my departure from England, two months previously, I had recommended Mr. James May to the Secretary of State as Superintendent, and upon this recommendation he was appointed from the 1st April 1875.

3. I myself spent a week in Madras on my way home from the East, and arranged some further details as to the works, and the organization for their superintendence, and I returned to England on the 26th April.

4. Mr. May met me in London on the following day, and we spent between two and three weeks in discussing the details of every department of the work. I may here state that there is no truth whatever in the suggestion that Mr. May held some views about the works and the mode of carrying them on different from mine. Before he accepted the appointment he satisfied himself of the design being not only practicable, but the best that could be made under the circumstances, and he was further well aware that it was competent to him to suggest to me, and, if necessary, to carry out on his own authority, any modifications that his increasing local information might indicate. It was not his business to criticize or to answer criticisms to others, but it would have been a grave fault in him to be silent to me in respect to any part of the work which he did not approve. He committed no such fault.

5. I need scarcely remind you that, with the exception of the first stages, this work is intended to be carried on by means of machinery of special construction. This machinery had for the most part to be manufactured in England, and it was therefore arranged that while Mr. May proceeded at Madras with those preliminary works which required no special appliances, I should apply to the Secretary of State to depart from the usual course of ordering plant and machinery only on indent from Madras, and,

under the peculiar circumstances of the case, to anticipate the more urgent requirements of the work on my recommendation.

6. Mr. May and myself therefore arranged the details of the work both in England and at Madras in such a manner that we might act in concert, and our conclusions were embodied in a memorandum of instructions for the Superintendent, and in various plans showing the intended new works in detail, which he brought out with him.

7. The points to which his first attention was to be directed were—

- I.—The opening of the laterite quarries at Ambatoor.
- II.—The formation of the approach to the north pier (surf bank).
- III.—The preparation of the concrete-mixing station and the block ground.

8. Mr. May left London on the 12th May and arrived in Madras on the 9th June.

9. In the mean time I submitted on the 21st May to the Secretary of State an application for the following:—

- (1.) Twenty light tipping trucks.
- (2.) Two hundred and fifty tons rails (50 lbs. to the yard) with ten sets of points and crossings and all fastenings.
- (3.) A tank locomotive engine.
- (4.) Five Blackie's stone breakers.
- (5.) Twelve concrete-mixers with the necessary engines and gearing for working them and the stone breakers.

10. This application was sanctioned by the Secretary of State on the 11th June, and authority given for the purchase of the several articles.

11. About the same time I applied to several shipbuilding firms in London, Liverpool and the Clyde to furnish me with plans and estimates of the cost of two steam hopper barges suitable for depositing the rubble bases of the piers. After much discussion and consideration of the various plans, I recommended the Secretary of State on the 15th July to give the order to Messrs. Thomas Wingate and Co. of Glasgow.

12. The last special application which I made for plant was on September 13th, when I asked that tenders might be invited for the construction of four light overhead "Trinity" travellers intended to facilitate the placing of the fresh mixed concrete in the block moulds. The tender of Messrs. Stothert and Pitt for these was ultimately accepted.

13. It will be easily understood how materially the work was advanced by the Secretary of State taking the initiative in respect of the above articles instead of waiting for the ordinary routine of an indent from the Government of Madras. Such an indent must in any case have been prepared by myself in England, as Mr. May would not at that time have had the local knowledge nor the familiarity with the various details of the work, some of which were new to him, necessary to enable him to prepare it.

14. By the arrangement actually adopted, I undertook the whole of the organization so far as it depended on special plant and machinery, while Mr. May was left free to carry out the preliminary local operations, and prepare the ground for the reception of the machinery, of the exact nature and purposes of which he was fully informed. He was at the same time advised that my initiative would be absolutely limited to the list of articles just enumerated, and that any further requirements must

be made the subject of a regular indent to be submitted to the Madras Government in the usual manner.

15. The cost of the articles thus furnished by direct authority of the Secretary of State has been as under—

	£	s.	d.	£	s.	d.
Twenty light tipping trucks	340	0	0			
Freight	135	0	0	475	0	0
Rails, 50 lbs. to the yard, 257 tons 13 cwt.						
1 qr. 23 lbs.	1,996	19	3			
Fishes and fastenings	393	15	1			
Points and crossings, ten sets	240	0	0			
Freight	646	14	11	3,277	9	3
Stone breakers, No. 5	1,063	8	4			
Freight	151	1	3	1,214	9	7
Tank, locomotive, with duplicate parts	1,745	10	0			
Freight	98	0	0	1,843	10	0
Two Steam Hopper Barges...	10,400	5	6			
Navigating expenses	1,633	2	11	12,033	8	5
Concrete-making machinery	4,128	0	6			
Freight	723	16	10	4,851	17	4
Overhead travellers, No. 4	1,884	9	0			
Freight	251	0	9	2,135	9	9
Total ...				25,821	4	4

16. The first of the above articles were shipped in September 1875, and the last in April 1876; the whole are now on the ground, some being in actual use, and the remainder being prepared for use. They comprise, with the exception of some small articles procured or procurable on the spot, the whole of the plant necessary for the formation of the surf banks and the rubble stone bases of the piers, and for the formation of concrete blocks for the superstructure of the piers.

17. The plant and machinery for lifting, transporting, and setting the blocks of the north pier have been transferred from Kurrachee, while that for the south pier is being manufactured in England in compliance with regular indents furnished from Madras.

18. The above brief sketch will show that the operations in connection with the Madras Harbour were by no means confined to the somewhat crude and uninteresting local labor of forming a bank of laterite rubble through the surf. It was indeed fortunate that this preliminary work was of so simple a character and required so few special appliances. Had it been necessary to provide rolling stock or quarry machinery, as much time and money would have been expended upon their provision as has sufficed for the actual construction of the bank.

19. The first works which Mr. May had to carry out were then of a very ordinary character, nothing more in fact than to make a bank of rubble stone on the sand, but about this no time was lost. He arrived in Madras on the 9th June. On the

sufficient for the same purpose. More than this it would not be right to say at present.

41. I have now to deal with the question whether the large accumulation of sand which has formed to the southward of the surf bank is so great as to suggest any modification of the conclusion adopted by the Government two years ago, that the future deterioration of the Harbour is so distant that it need not be taken into consideration.

42. To make my reply clear it is desirable that I should remind you of the nature of the conclusion which I submitted in my Report of 1873. I pointed to the fact that while short piers and groynes had been repeatedly buried by the sand or shingle-driven alongshore, long piers had always been successful in arresting it, showing that as a general rule the alongshore movement was within the limits of engineering control. With regard to the particular case of Madras, I said that I saw no reason why it should prove an exception to the general rule; that the local materials were insufficient for a definite conclusion, but so far as they went, they led to one quite consistent with that general rule.

43. Now, it will be observed that the primary part of the proposition here enunciated is one which is open to be contested by persons who have no local knowledge of Madras, and it was therefore open to a wide field of criticism. Nor were opportunities of criticism wanting. The scheme passed the authorities of Madras with the single voice of the late Master Attendant in opposition, but it was evidently subjected to a searching criticism at Calcutta, and it is well known that it met with a vigorous opposition from influential persons in London. Altogether it was under pretty constant discussion in one quarter or another for upwards of twelve months, yet no denial of this vitally important and, if incorrect most assailable, proposition was attempted. As a last measure the Secretary of State referred this and two other questions to Mr. Bateman, a Civil Engineer of great eminence and experience, and he quite confirmed my view.

44. The argument from analogy therefore must be considered as far stronger now than it was in 1873-74, and if it is to be met by arguments based on local considerations, these must be of a very definite and conclusive character.

45. What then are the new facts? There has been a large and formidable looking triangular accumulation of sand to the southward of the surf bank, advancing the shore line 550 feet at the bank and reaching alongshore about three-quarters of a mile. Now, if this accumulation had all remained, and we assumed that an equal quantity was liable to be added every year, it would have required between fifty and sixty years for sufficient to accumulate for it to pass the end of the pier and begin to shoal the entrance.* But as a matter of fact one-half of this accumulation has since been removed, so that the time required for the injury to the Harbour to commence is extended beyond the century, while if we take into further account that this has been a most exceptional season in the long continuance of southerly winds, and the paucity of northerly winds, it would really seem within the scope of reasonable expectation that the north and south movements will ultimately balance one another, and a line of shore be established, permanent within certain limits, and those limits well within the line to which the Harbour will project.

* This calculation is based on the following data:—The 4-fathom line remains unaltered at present, but it is assumed that future accumulations would advance the 4-fathom line equally with the shore line, and by successive annual increments of equal cubical contents it would at last reach the bend of the piers and allow of a north and south movement along their eastern face and across the entrance.

46. This conclusion is met by the plausible supposition that the quantity of sand arrested by the surf bank does not represent the whole quantity set in motion. It is suggested that some has passed the end of the bank which would have been intercepted by a still longer bank, and this of course would affect the calculation of the number of years required for the total accumulation. I admit that some sand may have passed the end of the bank; the outer line of surf broke outside it, and the current would carry the sand lifted by the surf to the northward, but it is so certain that the great preponderance of the movement is close inshore where the breaking wave itself drives the particles of sand before it that the omission is not of importance. Moreover, if there had been any such passage of sand at all commensurate with the quantity arrested, it must have shown itself by an obvious deposit in the eddy on the north side of the pier, and there was a little such deposit, but so small as to show how inconsiderable was the action which caused it.

47. I believe that much misconception is prevalent upon this subject by the loose manner in which the movement of sand alongshore is attributed to the currents. A very little consideration will show that the accumulations and erosions are effected mainly by wave action. A current by itself could not deposit sand 4 or 5 feet above the level of the water, and the accumulation would be found on the other side of the groynes, on the down-stream rather than the up-stream side, as is the case on the Madras beach. Moreover, the investigations which have been made into the movements of shingle beach, which are precisely similar to the movements of sand at Madras and elsewhere, show clearly that the wave alone striking the shore obliquely is the real transporting agency, for current could have no effect on shingle, and the effect is produced where no current exists. The currents at Madras no doubt do their share of the work, but it is small compared with that of the wave, and the examinations that have been made of the bottom at a distance from shore show conclusively that the current has little or no effect there. The movement of sand, whether alongshore or at right angles to the shore, is undoubtedly greatest near the shore and diminishes as the depth increases. We may not be able to draw a precise line at which it entirely stops, but for all practical purposes it is within the outer line of the Harbour in 7 fathoms.

48. On the whole, therefore, I submit that the new data obtained during the past season are confirmatory of the conclusion that no practical deterioration of the Harbour is to be anticipated from the arrest of the sand by the piers.

I have the honor to be,

Sir,

Your most obedient servant,

W. PARKES, M. INST. C.E.,

Engineer-in-Chief, Madras Harbour Works.

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12th July he started a native quarryman to get stone at Ambatoor, and on the 3rd August the first train of laterite was deposited in the surf bank of the north pier.

20. As the event proved, this commencement of the local work was rather premature. In consequence of the absence of the responsible officers of the Government from Madras one obstacle to the progress of the work as commenced had been overlooked. It was not till after some progress had been made that it was suggested that the outfall of the Royapooram sewer must be provided for clear of the Harbour, and the result of this new requirement was that the work done between the 3rd August and the 7th December had to be temporarily abandoned to avoid closing the mouth of the sewer.

21. Then followed the visit of His Royal Highness the Prince of Wales, and the preparations for this diverted for a time attention from all other subjects. So soon however as that event was passed, preparations were made for making a fresh start with the surf bank to the southward of the sewer, so as to leave the outfall free.

22. In the meantime the tipping wagons and railway materials, ordered on my recommendation by the Secretary of State, had arrived, and the new work was started with every prospect of rapid execution. But to make this fresh start some considerable length of new railway had to be laid, and it was not till the 28th January that the surf bank was recommenced in the present line.

23. But now a new obstacle to the satisfactory progress of the work as a whole unfortunately arose. Mr. May's health began to fail, and in this circumstance is, I believe, to be found the origin of that feeling of dissatisfaction on the part of the public, and of some distrust on the part of Government, which have been only too apparent for the last few months.

24. Mr. May having been not only the head of the local staff, but the first on the ground, had naturally taken the initiative in everything. He was ably seconded, but the circumstances were such that no assistants could supply what might be wanting in the chief. He evidently so struggled against his failing powers that his loss of energy was not apparent to others at the time, and possibly he was almost unconscious of it himself, but the result was undoubted. From the commencement of this year works already started were carried on with some vigor, but *nothing new was started*.

25. It will be remembered that three points were especially recommended to Mr. May's attention on his arrival at Madras—

- (1.) The opening of the laterite quarries at Ambatoor.
- (2.) The formation of the north surf bank.
- (3.) The preparation of the concrete-mixing station and the block ground.

26. The first two of these were satisfactorily carried out, but the last was unfortunately neglected. It was necessarily delayed pending the settlement of the question of the sewer, but that was settled in December, and after the Prince of Wales' departure these works should have been undertaken *at once*. They were not however commenced till after Mr. May gave up charge of the works in April, though I believe that during his illness he expressed a desire that they should be commenced.

27. Had the concrete-making machinery been ready for work at the end of July instead of the end of November, it would have been at least another element in the question of how to deal with the exposed end of the surf bank which was then becom-

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ing a source of some anxiety, but it is useless to speculate upon what might have been done. I prefer to think, and there is good reason for doing so, that after the building work of the piers shall have been fairly started, this delay of four months in one department of the works will not be looked upon as having had any seriously damaging effect on their general progress.

28. I believe, however, that a greater activity in this and in some other departments of the work in the early part of the year would have done much to avert the evil from which the undertaking is now temporarily suffering, viz., a want of confidence in it on the part of the public. While the only evidence of the progress of the Harbour Works was a miserable rubble stone bank scattered in every direction by the waves as fast or faster than it was made, and of which the only apparent result was the accumulation of a large body of sand to the serious present injury of the business of the port and threatening still worse evils; while this was all that the outside public could see, I do not wonder that confidence was withheld. It is not surprising that at the same time a host of amateurs, utterly ignorant of the real intentions of the designers of the work, should put forward criticisms based on no better foundation than their own imagination of what was beyond their actual view, and it is only natural that the public should have given some credence to such criticisms.

29. I cannot but think, however, that if there had been evidence that the Harbour Works consisted of something more than the surf bank; if the modern appliances of engineering had been obvious in the rapid manufacture of large concrete blocks ready to be placed in position by the Titan crane as soon as a favorable opportunity occurred for a commencement of the real construction of the pier, the surf bank and its troubles real, apparent, and imaginary would have taken their proper place in the mind of an unprejudiced observer, and some credit would have been given to the Engineers for seeing their way to a more substantial description of work. The surf bank would have appeared in its true light as a rough and ready expedient for getting over a rough difficulty—the surf. Ordinary common sense would have easily apprehended even if it had not suggested, that on such a work detailed design, nice calculations, and modern appliances would be alike thrown away.

30. The great misfortune of the Madras Harbour Works has hitherto been that they have exposed their worst face to the comment and criticism of the public and of the Government. If the criticism had taken a wider view, it would have been more favorable. If it had been prominently before the Government that preparations for the permanent building of the piers were in full activity, I venture to think that less might have been said in Government Orders about the insufficient quantity of stone deposited in the surf bank, or the quantity dispersed by the last heavy surf. Had 700 or 800 large concrete blocks been on the ground, as ought to have been the case, the petty and temporary difficulties of the surf bank would have had less prominence, and the question of the readiest mode of protecting it would have had an obvious solution.

31. It must not be concluded, however, that I admit the surf bank to be in any sense a failure. I only ask that it shall be looked upon as a preliminary work rather than as a specimen of the system on which the whole works are to be carried out. In itself, it is a success. Its sole object was to get through the surf, and that it has done. The estimate of its cost was at best a very rough one; for though the price of stone per ton was definite enough, the number of tons required was dependent on

conditions which it was absolutely impossible to anticipate. Rough as the estimate was, however, it has proved to have been more than sufficient, for only two-thirds of it has been expended, and the bank is at its intended termination. Such further expenditure as may remain to be debited to it will still leave a large balance of the estimate untouched. Crude then as the design may have appeared, and clumsy as the mode of execution might seem, I submit the conclusion that both design and execution have been more suitable to the circumstances than would have been a system of work involving more imposing mechanical appliances, for the preparation of which time and money more than an equivalent for their value would have been required.

32. From this time forward a different system of construction will be adopted. The washed down surf bank will form a good foundation on which large concrete blocks, too heavy for an ordinary sea to disturb, will be built up in as regular a form as possible by the Titan. These will be afterwards further protected by flanking blocks on either side. The building cannot be quite regular till a sufficient depth of water is attained for divers to work in to level the bottom for the foundation blocks, and at first the pier will take the form of a random pile rather than of a regular wall, but the principle will be to use large blocks rather than loose rubble as hitherto. This is quite in accordance with the original intentions of the design, though the details have to be adapted to existing circumstances. There will only be rather a longer length than was originally contemplated of a system of work transitional between the rubble and the regular built work.

33. The present state of the undertaking then is as follows:—

a. The north surf bank is carried out to its intended extent. Its sides are for the present efficiently protected, but some further protection of a more permanent character will become necessary, as the laterite exposed to the action of the waves wears away. Its end, hitherto the most vulnerable point, will be efficiently protected by the advance of the concrete block building.

b. About 200 blocks, mostly of twenty-seven tons each, have been made by hand-labor ready to be built into the work, and this work is proceeding at the rate of four per day.

c. The machinery for making concrete blocks at the rate of thirty-six large blocks per day is on the point of completion.

d. The whole of the machinery for transporting and setting the blocks of the north pier is on the ground and in working order, and that for the south pier is contracted for in England.

e. One-third of the whole quantity of Portland cement required for the works is contracted for and is being delivered. The last shipments under existing contracts will be made in January next, after which the supply will be for a time suspended until the progress of the works requires a fresh supply.

34. The above results represent an expenditure of about £1,17,000 of which one-third has been local. It may be divided as under —

	£
Surf bank	16,000
Plant and preliminaries	71,000
Cement	30,000
Total ...	1,17,000

Each of these heads compares favorably with the estimate. The estimate for the surf bank was £23,700. That for plant and preliminaries was £80,000, and the unexpended

£9,000 will be sufficient to complete this item. At my estimated rate of 90/per ton the cement would have cost £32,400.

35. For the future the great bulk of the expenditure will of course be local. I will only say, in anticipation of it, that arrangements calculated to effect important savings upon my estimate have already been made, of which the most important is the substitution of Chinnamapett for Tritany as a source of supply of stone for concrete. It is possible however that other modifications, having an opposite tendency, may become desirable, but not to a serious extent. Of course the Superintendent will duly report to the Government on such points as they may arise.

36. Passing now to the subject of the immediate future, the following are the works requiring to be at once undertaken:—

1. The south surf bank.
2. The building of the north pier.
3. The arrangements for depositing rubble stone from the hopper barges.

37. With respect to the south surf bank, I shall be glad if the suggested arrangements for the use of the South Indian Railway can be carried out. It will avoid the passage of stone trains along the beach in its present crowded state. It will avoid possible interference with the work by the still more urgent famine traffic of the Madras Railway, and it will furnish a better material for the purpose than laterite. These advantages will justify some increase of cost if such be necessary.

38. With respect to the other two works, I would say that the details of the mode of carrying them out must be to some extent tentative. Where nature is working by the agency of waves and currents as well as ourselves we must accommodate our proceedings to hers. General principles, based on past experience, may be and have been laid down, but precise plans or instructions would be useless. The work is in the hands of intelligent and experienced persons who thoroughly understand the requirements. There are no doubt questions connected with both these works which cannot be immediately solved, but there are no formidable difficulties, and the few weeks at least of quiet weather which we may now anticipate will, with the appliances now on the ground, suffice to put the work into a much more systematic form, and present a very different appearance from the present.

39. With respect to the rate of progress past and future, I would refer to paragraph 69 of my Report of 4th November 1873. It runs as follows:—

“The first operation would of course be the formation of the curved approaches. These might be commenced immediately, and while they are in progress the necessary plant and machinery could be collected. The actual building of the piers could be completed in three years, or, say, four years from the time of the approaches being commenced.”

Now, when this anticipation of a year for preliminary works, local and English, is compared with the present state of things, and allowance made for the unlooked for delays caused by the “false start,” the Prince of Wales’ visit, and the subsequent lamentable incapacity from illness and death of the first Superintendent, I do not think that the result is unfavorable to the actual work.

40. With regard to the future rate I can only add to what I said in 1873, that all the appliances furnished under my superintendence are calculated for that rate of work, and that it appears that the supplies of local labor and materials will be amply

sufficient for the same purpose. More than this it would not be right to say at present.

41. I have now to deal with the question whether the large accumulation of sand which has formed to the southward of the surf bank is so great as to suggest any modification of the conclusion adopted by the Government two years ago, that the future deterioration of the Harbour is so distant that it need not be taken into consideration.

42. To make my reply clear it is desirable that I should remind you of the nature of the conclusion which I submitted in my Report of 1873. I pointed to the fact that while short piers and groynes had been repeatedly buried by the sand or shingle-driven alongshore, long piers had always been successful in arresting it, showing that as a general rule the alongshore movement was within the limits of engineering control. With regard to the particular case of Madras, I said that I saw no reason why it should prove an exception to the general rule; that the local materials were insufficient for a definite conclusion, but so far as they went, they led to one quite consistent with that general rule.

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47. I believe that much misconception is prevalent upon this subject by the loose manner in which the movement of sand alongshore is attributed to the currents. A very little consideration will show that the accumulations and erosions are effected mainly by wave action. A current by itself could not deposit sand 4 or 5 feet above the level of the water, and the accumulation would be found on the other side of the groynes, on the down-stream rather than the up-stream side, as is the case on the Madras beach. Moreover, the investigations which have been made into the movements of shingle beach, which are precisely similar to the movements of sand at Madras and elsewhere, show clearly that the wave alone striking the shore obliquely is the real transporting agency, for current could have no effect on shingle, and the effect is produced where no current exists. The currents at Madras no doubt do their share of the work, but it is small compared with that of the wave, and the examinations that have been made of the bottom at a distance from shore show conclusively that the current has little or no effect there. The movement of sand, whether alongshore or at right angles to the shore, is undoubtedly greatest near the shore and diminishes as the depth increases. We may not be able to draw a precise line at which it entirely stops, but for all practical purposes it is within the outer line of the Harbour in 7 fathoms.

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I have the honor to be,

Sir,

Your most obedient servant,

W. PARKES, M. INST. C.E.,

Engineer-in-Chief, Madras Harbour Works.

The important part of
this report is contained
in paras 45. 46. 47. The
lack of accumulation is
our main source of anxiety
and I confess to feeling nervous
further experiments as regards
the preponderance of the
movements are very necessary
& it seems to me almost
essential that these should
be carried out in the future
J. W. Parkes — M.L.

Mr. Parkes

Mr. Parkes having
been supplied with
my copy of the
Order on his Home
Report, has
requested the Secre-
tary to peruse
his Draft reply -
and to arrange
if possible, so that
it may stop at
para 6, by con-
-cellation of the
portion of para
20 of his Report
marked in red
pencil in the

Prof Sheet; and
of para 1. of the
Govt. Order passed
thereon, at which
he feels rather
aggrieved -

There would ap-
pear to be no ob-
jection to this
arrangement, wh.
would give Mr.
Parker great sa-
tisfaction -

Amruthes Mysorend
Secy to Govt D.P.W. }

11.12.76.

Memorandum.

Paras 6 to 16.

Is not being
as accurate as the
A. Engineer as to the
ultimate effect of said
accumulation

It strikes the Chief
Engineer as a great omis-
-sion on the part of the
Home Authorities that no
information whatever
was sent to the Madras
Government of what
they had authorized
Mr. Parker to do in
England. And Mr.
Parker, or his repre-
-sentative Mr. May,
might have been
expected to commu-
-nicate to the Madras
Government the plan
of operations on which
they

they had agreed - Failing
which the Government
were unable to detect
Mr. May's shortcomings
in the matter of the
Concrete mixing station
and Block ground
(See Paras 24 - 27)

It is not clear how Paras 20. 18th
the fact, that the existence
of the Royapooram
outfall sewer was
overlooked, is attri-
-butable to the absence
of the responsible of-
-ficers of Government
from Madras. From
the correspondence it
is evident that Mr. May,
who

(17) 7
who only arrived in Madras
on 9th June 1875, was aware
of this Drain before the
middle of July; when
he addressed the Pre-
-sident of the Municipi-
-pality about it. But
Mr. Parker himself was
aware of its existence,
when he approved of
the site selected by the
Chief Engineer for a
Block ground, when
he was at Madras
in March 1875, Major
General Walker can
testify. The Drain
existed when he planned
his Harbour so as to
include it, and other
lesser

lesser drains; and the
drain will continue to
exist as an outfall
for storm waters, even
if Mr. Clarke's Drainage
scheme is carried out.
Mr. Parker is therefore
primarily answerable
for including it within
his works at all; and
for whatever loss of
money or time was
incurred by construc-
tion of the abandoned
portion of Surf bank.

His object undoubtedly
was that stated in
para 2 of Mr. May's letter
recorded with L.C. No.
3326 of 22^d November 1876,
viz

19⁸
viz direct communication
with the terminus of
the Madras Railway at
Royapuram. But such
communication has
been quite as well
realized by the present
connection through the
Block ground. And
as that connection
would have had to
be made at any rate,
the Chief Engineer can-
not but think it
an omission on Mr.
Parker's part, when he
accepted the Block
ground site, not to
have abandoned the
other

other line altogether; and
not to have remained
at Madras till he had
personally settled with
the Railway authorities
all details relating to
the Block ground siding.

N 213 Memo
The Chief Engineer
is of opinion that in
this Report Mr. Parker
has not touched the
only grounds on which
the Government or the
Public have real cause
for dissatisfaction. Very
shortly after his return
from England, in a
Memorandum of 11th
September recorded
in

21
in L. C. No. 2910 of 12th
October 1875. Major General
Walker urged the neces-
sity of starting the
Southern Pier in suf-
ficient time to obviate
deposit of sand within
Harbour limits. The
Harbour Superintendent
took no action on this
warning; neglect of
which has led to the
results which have so
shaken the confidence
of the Government
and of the Public in
the scheme. To the present
day no sign has been
given of commencement
of

of the Beach Railway,
which was essential
for construction of the
Southern Surf Pier
before the extension
of the South Indian
Railway was thought
of. Mr. Parker has now
been authorized to
proceed with the latter.

The Chief Engineer
sees no reason to be-
lieve that the deposit
of sand in any one
monsoon, taking into
consideration what
is scoured away by the
opposite monsoon, will
ever be so great as to
get round the Harbour
Pier.

Parasol 1/8

(23) 19
Pier 1200 yards in
length and cause a
deposit in front
of the Harbour mouth.
A mistake has been
made in allowing
any deposit to occur
within Harbour limits.
But the Government
is now committed to
the project; and the
practical points
which should now
be insisted on are,
the commencement
of the Southern Surf
bank without more
delay, and the building
of

of the North Pier.

Mr. Parker has fully
recognized the primary
importance of these
works. And he is
understood to have
given all necessary
instructions regarding
them to his Executive
Staff.

Chas. Walker Major Genl. U.S.A.
Chief Engineer
P.D.D.

Memo on 11/12/76
Harbour Report

Mr. Parker's Report on
Madras Harbour
11/12/76

11/12/76

11/12/76
Mr. Parker's Report on
Madras Harbour
11/12/76

Mr. Parker's Report on Madras Harbour

Of course all is ready
to push on, and I believe the
successful construction of the
piers quite possible; but the
main difficulty seems to be
by the Report. I have anxiously
sought assurance as regards
the disastrous accumulation
of sand from Paras 41 to the
End of Mr. Parker's letter, and
confess that I fail to find it.

Analogies & anticipations
have, I fear, alike been unexpectedly
traversed

11/12/76 11/12/76

become solid between
two wing walls.

If I saw my way
to keeping the inside
of the Harbour clear
even till we can close
it (the Entrance excepted)
I should not be afraid
of the shoaling of the
Entrance; as it is I
cannot feel assured
that we shall under
the promised course
of gradual extinction
have ^{even} 50 years use of
our Harbour. The
reclamation will be
terribly costly at the
end of that period.

1/12 1862

Per 8/12

Vide letter from May
8th November 175. 1862

Vide Proceedings. Fin. Dep.
29th July —

In Parker's report

The document is very
unsatisfactory —

it throws blame on Mr
Guthrie in June 20. on its
officer for overlooking the
difficulty of the Singapore
sewer — while the facts are
that Mr May himself noticed
the drain immediately on his
arrival in June.

The Municipal Com^{rs} were
in correspondence with Mr
May in July —

Thence they commenced
works on 3rd August with
full knowledge on the subject.

The matter was fully before
him & was not overlooked
and on the 12th October further
orders were issued at the same time.

Paragraph 20 & the question
in 2^d & 3^d sentences thereof
are untrue —

In paragraph 31. it is
said that the San Francisco
Bank has got through the
Surf it has not done so

I think an ~~an~~ acknowledgment
of the document. it must
be pointed out that facts
having reference to the
proceedings noted. I find
that the statement that
the Survey had been
overlooked &c —
is entirely unfounded &c
that we may commence
work with full knowledge
of the circumstances and
the objections — &c

that the statement ~~which~~
is ~~untrue~~ of the officers
concerned has doubtless been
made in error of the Parks
from not having had
reference to the ~~fact~~
the ~~importance~~ —

That with regard to the
progress of the works. it is
satisfactory to know that
what has been done has
been done within the estimate
set — and that the
plan to learn that the
machinery necessary
for making &c
is so well advanced —

With respect to the progress
of the H. Surf. I have
as described in para 31 —
The fact are small & admit
that it has as yet been
carried through the Surf.

Although they doubt not that
the efforts now made to
carry it forward with
Concrete blocks until the
^{intended} shipment of regular
block comes as originally
planned is cracked
will speedily effect the
object.

The Govt. considers that
in the present state of
the matter it is to Parker
inoperative duty to remain
until the result of this
change of system is
seen to be successful or
until by doing or other
means it is clearly
ascertained that there
is no such quantity of

quantity of
material

(35).
sand in suspension in
the water - or in movement
on the bottom at the rate
of intended haulman
month - as to know it
why that an accumulation
should at once form there

which would if it were
why does ^{it} occur, necessitate
a reconsideration of the
proposed form of month.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

other papers - copy of each, and copy of memo -
 UNDER date the *4th Dec 1876.*
 Read the following:
From W. Parker Esq. M.C.C. P.D. D.
Memo: from the Chief Engineer P.D. D.
7 December 1876

His Grace the Governor
 in Council having
 referred to the Proceedings
 of Government margin-
 ally noted is of opinion
 that the statement made
 by Mr. Parker that the
 Rangapooram Sewer had
 been overlooked in
 consequence of the absence
 of the responsible officers
 of Government is entirely
 unfounded. There can
 be no doubt whatever
 that

Encl. De partt. No. 1562 - 27 July 1875
P.D. D. No. 2407. 27.23. 1875
" " 29/10 - 12th Dec 75
" " 3326 - 22. Dec 75
Para 8 of Suplt's letter.

CP 9/12/76 R 3343

8/12 11/1

with Concrete blocks,
until the intended
abutment of regular
block courses originally
planned is reached,
will speedily effect
the object.

3. In conclusion His
Grace in Council con-
sidered that in the
present state of the
works it is Mr Parker's
imperative duty to
remain at Madras until
the result of this change
of system is seen to
be successful, and
until, by diving, or by
some other means, it

is clearly ascertained
that there is no such
quantity of sand in
suspension in the
water, or in movement
on the bottom, at the
site of the intended
harbour mouth, as to
render it likely that
an accumulation should
at once form there.
A likelihood of which
occurrence would pro-
bably necessitate
reconsideration of the
proposed form of
mouth.

25 copies of the Report
furnished to Mr Parker.
13-12-76

W. Parker Esq. M. Inst. C.E. ✓ 26
Supt. M. Works. ✓ 3

W.M.
9.12

13-12-76

Part *413*
Govt. of 1876 Madras.
PUBLIC WORKS.

To

Mr. Parke

Dated

Issued

Recd.

Encl.

17-12-76
11 Dec.
17-12-76
1876, No. 3343

Nos. 212/14

Madras Harbour Works

Resolving the matter in the

Provincial Council on the basis

of the present state of

the _____

17-12-76