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MADRAS RECORD OFFICE

GOVERNMENT OF MADRAS

Revenue DEPARTMENT

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Read the following papers:—

No. 367. From Colonel F. J. MOBERLY, R.E., Superintending Engineer, Chingleput, to Colonel W. FAREWELL, Deputy Chief Engineer, Public Works Department, dated Camp at Periapaliem, 3rd August 1876, No. 1,617.

In reply to your No. T-416 of 19th ultimo, I have the honor to enclose a survey of the Ennore river near its mouth, with seven lines of soundings taken across it, as desired in G.O., No. 691, of 17th March 1876; also plans and sections of the channel as cut, &c. The soundings are reduced to an imaginary M.S.L., which is certainly wrong, but, of course, that does not affect the relative depths. The line shows, I believe, very nearly H.W.M.

- 4 Surveys and Section.
- 1 Return of payments for each day.
- 1 Bill.

2. I cannot think that you have realized the nature of the work in the requisitions which you have made for details.

3. Materials to the value of Rupees 200-9-9 were prepared and cutting to the amount of Rupees 437-5-3 executed before the bar was opened. I cannot say how many bags or stakes were used before the final cut was made, or how many were put down in strengthening, repairing the barrier, &c.

4. This was finished on the 25th January, but some coolies were employed on it during the high part of the tides of that night and next day, as the tide fell on the 26th, these people and others were employed in opening the barrier from H.W.M. at the north end to strengthen the south side and to run out the groyne which did not exist till then—see my No. 4,295½ in G.O., No. 691, of 17th March 1876.

5. At dead low water the barrier had changed its form, and from being a semi-circle was a tangent to a small part of the curve. The principal body of work-people and all the women were removed to the bank, and fifty or sixty men set to stir up the sand till the water began to flow to the sea, and scour; the efflux showed shallows in the river above our cut, and the banks were slightly eroded; the bystanders were set to cut through the shallows and to remove all obstructions; no note was taken of the several employments of all these people, and, therefore, I cannot say what was the precise cost of actually admitting the tide.

6. I should have had to keep a record of changes made over each half or even quarter of an hour during some time.

7. As any alteration occurred in the movements of the sea, which began to flow soon after the opening was made, we had to vary our proceedings; the people generally were occupied in keeping a water-way clear either in the actual bar or in the river above; others were strengthening the barrier which I considered very important as preventing any direct action of the surf, which would fill the channel up very rapidly; but I cannot say how many people were engaged on each. Lieutenant Smither, the Canal Superintendent, the contractor who furnished coolies, and myself, set people to work all over the place, and we prevented idling.

8. We had most favorable weather; a fairly strong east wind, from the direct blow of which and its consequent surf the groyne protected the mouth, while it did not hinder the free flow of tides, probably higher than ordinary. Light west wind in the day occasionally accelerated the efflux. With their aid I effected an opening contrary to my own expectation and I believe to all experience.

9. I submit that the same work might have cost very much more and have failed after all, if we had had north-east wind throwing the surf directly into the channel, or south wind blowing sand across it faster than we could remove it; and therefore I am still of opinion that the data procurable by more careful timing of the people could not have been trustworthy.

10. A return of payments for each day is enclosed in reply to your paragraph 5, but here again I would observe that the coolies came 6 or 7 miles from inland; on some occasions many were not really wanted, as wind and tide were favorable; on others we should have been glad of more.

11. The bar was cut on 26th January and there were influx and efflux till 14th February; but the action did not affect the river generally, as there was no rise and fall at Shadienkupam. This may be somewhat accounted for by the shallowness of the backwater at this part—see sections accompanying.

12. From 14th February efflux ceased, and water was admitted each day as the tide rose; this was continued till 4th April, when I left the work. It was re-opened on 21st April, at the request of the Collector in his No. 152 of 12th April, and water was admitted at each tide till 8th May, full moon, the period fixed by the Board of Revenue—see No. 1,117 of 27th April 1876.

13. I would here respectfully point out with reference to concluding paragraph of G.O. No. 1,573 of 23rd June, that I wrote instructions for the opening of the bar on each occasion *within an hour* of my receiving requisitions from the Collector on the 12th January and 12th April, and from the Board of Revenue on the 27th April, and that Lieutenant Smither acted on them *immediately*. I cannot see what greater readiness I could have shown.

14. Moreover, every requisition was carried out to the fullest extent, and I only stopped work finally when I reached the standard laid down by the Board.

15. It is far from encouraging that our efforts, productive of very great benefit to the revenue, have in no degree been recognized. I would compare our work with that of the Salt Department, and G.O. No. 1,573 with G.O. No. 76 of 13th July 1876.

16. The lock registers show that the opening of the mouth of the Ennore river had not the smallest effect on the water at its site. In January, February 1875 there was a regular ebb and flow of the tide at the lock, varying from 2' 7" to 1' 1". There was none in 1876, but there was actually more water on the sill; it was quite fresh, and was fresh to the very bar on 25th January.

17. Efforts were made to gauge the quantity of water received, but no return can be trusted; it may have been as much as 17,000 cubic yards per hour. This is Lieutenant Smither's estimate, but it is not easy to reconcile it with other points. The rise in the canal was very small and only for a short time; after that the water-level fell, but if so much water passed into the river there should have been a regular flow and ebb, and with the fine tidal basin to support us we ought to have had a deep channel, and probably should have had but for the shoals inshore of our cut.

18. I cannot understand the manner in which the water became saturated with salt as it undoubtedly was, and markedly as each flood tide passed in.

19. There has been an extraordinary mistake recorded as to the height of the lock sill at Shadienkupam. I was struck in January by Lieutenant Smither's statement supported by recorded levels, &c., that the sill was 6 feet below M.S.L.; what-

From 108 observations in January, February 1875, I make it 3,316. or its real level is, this is certainly wrong. There is no record of any tide being 6 feet on the gauge, and consequently the sill cannot be 4 feet and probably only $3\frac{1}{2}$ below M.S.L.

20. There are no records of efforts made to open the bar at any season except the rainy. I hear that Mr. Fraser was on the point of abandoning his attempt in March 1868 when a freshet in the river forced the bar. I have myself seen fail various attempts to prevent the bar closing. When the bar has shut, I believe that invariably a cut has been made when the rains threatened to assist a flood in its outflow. Such work has been done by the Canal Establishment and been charged to the ordinary maintenance allowance; there is no standard of height. The European residents at Ennore have, I believe, no particular interest in the matter; there is plenty of water for their wants.

21. The salt-pans require to be relieved, and there are several square miles of low country under cultivation, the holders of which are glad to get rid of flood early; the fishermen and villagers find it easier to catch fish in the backwater if the bar is open, as nobody wishes to keep it closed; its early breaching is encouraged.

22. As regards your paragraph 2, I beg to point out that in paragraph 23 of my No. 4,295 $\frac{1}{2}$ I have anticipated your suggestion, and have proposed revetting the south side of the channel with stone. On the survey are shown the lines of cutting lately made. Mine, the southernmost, was prematurely opened and closed by the sea; but the river flood carried all away, and the right bank was south of my cut.

23. In fact, the natural bank of the river is close to the salt platform, and if we make a new channel north of it, we narrow the outlet and lose much of the effective action of a flood, besides depriving the channel of the protection from blown sand afforded by the salt platform, its trees, &c.

24. The bar of the Cocanada river was repeatedly cut before 1853. I believe it has never closed since I opened it in 1853, though the bay itself has silted up very much in the time.

25. The best way now perhaps would be to collect the necessary stone and torevet the river channel when it is fairly opened by a flood.

26. I am only afraid lest the cut already made to the north should be the weakest part of the bar in October, November next, and that the mouth will close again immediately after the passage of a flood.

27. I trust that, in the interest of the salt-revenue next year, the subject will meet with early consideration.

28. I enclose also the bill for work executed, as desired, in G.O., No. 1,473, dated 13th June.

No. 336-A. From Colonel W. FAREWELL, Officiating Deputy Chief Engineer, Public Works Department, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Fort St. George, 17th August 1876.

With reference to G.Os., No. 1,106 and No. 1,572, dated 4th May and 23rd June 1876, I have the honor to submit a bill and report from Colonel Moberly, R.E., Superin-

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tending Engineer of the Chingleput District, in regard to the expenditure incurred in opening the Ennore bar.

2. The Superintending Engineer points out he is unable to supply further details than those given; and the information contained in his report is insufficient to admit of any reliable data for future use or guidance being arrived at.

3. With the above papers Colonel Moberly submits a survey of the Ennore bar and backwater, with cross sections, &c.; and in reply to a memorandum from me, a copy of which is enclosed, also forwards a sketch plan showing the position of the various cuts that have, from time to time, been made in opening the bar, together with a plan and section of the cutting lately made under his orders, &c., all which accompany this letter.

4. Pending the orders of Government as to whether it is determined that attempts shall be made to keep the Ennore bar permanently open or not, it appears to me to be unnecessary that I should make any further remarks on the subject.

No. 368. ORDER THEREON, 21st September 1876, No. 2,534.

CIVIL WORKS, No. 23.

THE Superintending Engineer, Chingleput, was in G.O., No. 1,106, of 4th May, desired to submit a bill for the work

of opening the Ennore bar under his superintendence, with an explanation detailing the cost of each separate re-opening; the object being to afford data for future similar operations. The bill now submitted is that returned to him in accordance with G.O. No. 1,473 of 13th June; but it has not been recast, nor does the report now made enable the Government to realize distinctly what was done.

2. From paragraphs 11 and 12 it would appear as if the bar was continuously open from the 26th January to the 14th February; from which date to the 4th April water was admitted daily as the tide rose. The charges up to that date are stated in Colonel Moberly's No. 38 of 5th April, recorded with G.O. No. 1,106 of 4th May, to have been nearly Rupees 2,750; and it is presumed that the difference between that sum and Rupees 4,255, or Rupees 1,505, is the cost of re-opening the bar on the 21st April, and admitting the water of each tide up to the 8th May. But the Government should not be left to guess at results in this manner, and all information called for should have been supplied in a more distinct form.

3. Spread over a period of 88 days, during which fresh water was discharged to a considerable extent, and replaced with salt water so as to enable the manufacture of salt to be successfully carried out, the outlay of Rupees 4,255, which is at the average rate of less than Rupees 50 a day, may be said to have been incurred to great advantage; and the manner in which the operations were conducted are creditable to the officers of the Public Works Department under Colonel Moberly's direction. And in future, should it be necessary to open the bar for salt manufacture, for a period of about 100 days, the maximum estimate of cost may be reckoned at Rupees 5,000.

4. The necessity for carrying out such operations appears, however, only to arise in exceptional years when the bar closes prematurely. In ordinary years it would appear that the bar does not require to be opened for salt manufacture, but only to relieve floods; when no extra outlay is called for, relief being afforded by the ordinary

Canal Establishment. Under these circumstances, no case appears to have been made out for attempting to keep open the bar permanently, nor does Colonel Moberly appear to have decided upon a definite plan of operations or estimate of cost, with that view.

(True Extract.)

Colonel,
Offg. Under Secy. to Govt., P.W.D.

To the Superintending Engineer, Chingleput.
" Revenue Department.

no 1876 Dep

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Govt. of 1876 Madras.

PUBLIC WORKS.

To
The SUPERINTENDING ENGINEER,
CHINGLEPUT,
&c. &c. &c.

Dated September 21st.

Signed

Recd 12 Oct 76

Encl.

G. G. 31st September 1876, No. 2534.

SEPTEMBER.

Nos. 367-368.

Encls Bar. - Passing orders on letter from the Deputy Chief Engineer, Public Works Department, submitting a bill and report from the Superintending Engineer, Chingleput, in regard to the expenditure incurred in opening the - 62 20h/

Communicated to the

Rev.

10 October 1876

14 To the Deputy Secy to Govt
Office only