

along the harbour-face of the pier, from the inner boat-steps to a seaward termination. Jetty accommodation for berthage purposes is not, therefore, required in this design as in that which accompanied my report of February, 1879, although a solid jetty, formed so as to shelter the inner face of the pier, would be of great service during the north-east winds, and would also serve to cut off "range," which would otherwise be experienced along the quay when the seas come home directly on to the works. In the absence of a jetty of this character, some temporary inconvenience from wave "scend" and undulation will occasionally be experienced; but, seeing that a suitable work, if placed in the position of the outermost jetty, or somewhat more to the north-east and nearer the end of the pier, would require to possess considerable strength in order to adapt it for resisting the heavy seas to which it would be exposed, the provision of such a jetty would largely increase the expenditure; and I have, therefore, considered that the question of jetty-accommodation should be determined hereafter, upon completion of the pier to Y Y, when the demands of the trade may be sufficient to justify the further outlay which would be required. In the meantime any temporary inconvenience must be borne with.

The design for the pier has been arranged so that the permanent railway and the parapet can be completed, step by step, as the pier advances. It would thus be available for trade-purposes as it proceeds. The steam setting-machine, for laying the block and bags, will be adapted for travelling from the shore to the outer end, after the parapet has been formed, and over special rails laid on the pier for its accommodation. I look upon it as a matter of great importance, in a work of this magnitude, that provision be made for its utilization as it advances seaward. In order, however, that this may be accomplished, the parapet and road-surface must follow in the block-setting. The course I would propose to adopt with regard to the supply of Portland cement is that which is observed by the Crown Agents for the Colonies in similar cases, viz., to issue invitations towards the end of each year, provision being made for the testing of each cargo according to the terms and conditions of the specifications by a competent inspector before its shipment. I am confident that, by the observance of this mode of procedure, not only will the cement be delivered at a less cost, but the quality will be beyond question, a sufficient quantity will be assured at all times, and disputes with the contractor cannot arise, having regard to the provisions of the specifications. The main items of special plant required in this case are one large overhanging setting-machine, or "Hercules," to be employed for placing in position the heavy blocks from the "scar" end of the works, and constructed to meet the several conditions of this case as regards plumb, radiation, and lift; two travelling concrete-mixing-machines adapted for the block-yard, as designed; and a large traveller, or "Goliath," suited to the weight of the blocks and the span of the yard, as now determined.

The course which I unhesitatingly recommend the Board to follow for obtaining these machines, as being decidedly the best, is that competitive tenders be invited from not less than three of the firms of largest experience and highest reputations as makers of this kind of plant, the tenders being based upon drawings and specifications prepared by me for the purpose, and the lowest offer accepted. In this way the best obtainable guarantee would be secured for the supply of the most effective appliances for carrying out the work: and I need not here enlarge upon the great importance of employing only such appliances, knowing as I do, from extensive experience, how greatly economical and expeditious execution of works of this class depends upon the use of machines especially adapted to serve the object in view. The tenders for the plant should be sent by the contractors to the Agent-General for the colony if arrangements can be made, and payment might be effected through him, or by a financial agent of the Board, as may be preferred.

The course which I have here indicated is that which is invariably adopted for harbour works in the Crown colonies, and in every case experience has fully confirmed the wisdom of this course.

I have taken it for granted that, as Mr. Rees himself suggested to me, the Board will not incur the expenditure requisite for procuring the special plant until the modified designs have been submitted to and approved by the Governor in Council. In order, therefore, to save time while this is being done, I have arranged (Mr. Rees concurring in the view that this is the best course under the circumstances) that the drawings for the special plant shall in the meantime be advanced to completion, and specifications prepared ready for inviting tenders as hereinbefore indicated, immediately that your Board may write or telegraph if they decide to act upon the recommendations hereinbefore named.

I may mention that the leading features of these machines have been necessarily considered and settled in their earlier stages simultaneously with the drawings of the works to be executed by them.

*Estimate.*—I estimate the cost of the breakwater pier and root, if executed to the extent coloured red in Drawing No. 1, which corresponds with the length out to Y Y referred to in my report of February, 1879, at £285,500. If the expenditure is confined to £200,000, then the pier can for this amount be carried only to a point 1,420 feet from low-water mark of spring-tides, or 568 feet short of Y Y. The above amounts include the cost of all plant, and provide a sufficient allowance for all contingencies, sea-risk, and supervision; they are, however, exclusive of the outlay already incurred in the colony on works executed to this date, and do not cover the cost of the excavation necessary for the formation of the work-yard, as shown on Drawing No. 5, sufficient particulars in the way of levels not being available here to enable the quantities to be ascertained; neither is the preparation of the surface of the work-yard included, nor the erection of the sheds, workshops, nor the railways in the yard; the permanent line on the pier and root have, however, been provided for in the amounts named.

I have, &c.,

JOHN COODE.

The Chairman, New Plymouth Harbour Board.

Sir JOHN COODE to the CHAIRMAN of the HARBOUR BOARD, New Plymouth.

SIR,—

5, Westminster Chambers, London, S.W., 19th March, 1880.

In view of the contingency of a possible delay in the arrival of the P and O steamer which is leaving Southampton to-day, I now write by Orient line to inform you that I have sent by the former vessel, as a parcel, a case addressed to you containing the modified design for harbour works at New Plymouth, which I have prepared in accordance with your letter of the 3rd October ultimo. By the same steamer I purpose sending to you, through the post office (*via* Suez), my report on the whole question as it at present stands, together with a specification and estimate of cost of the works now recommended.

I must here ask your indulgence whilst I express my regret that Mr. Rees's report to the Board of the 28th August last should have been withheld from my knowledge for some time subsequent to his arrival in England. At the first interview with him on this business on the 8th December, I requested him to inform me "step by step of the phases which the matter had assumed from the time of the receipt of my report in the colony up to the date of his leaving," but he did not then make the slightest allusion to the fact of such a report having been made, nor of his having formally submitted to the Board an estimate of the cost of a work in concrete as compared with a rubble-mole, nor did he do so in a written statement sent me on the following day, in compliance with the above request, nor at a subsequent interview on the 16th December; and it was only on the following day (17th December) that I, quite accidentally, became aware of the existence of such a report, and of its having appeared in a colonial paper. I then wrote Mr. Rees (18th December), and received a reply from him, dated the 19th (Nos. 1, 2, and 3).

The report in question entirely ignores the recommendations contained in mine of the 28th February, 1879, to the effect that the adoption of the rubble-mound section was contingent upon the existence of stone in sufficient quantity and of proper quality being clearly established, or at least approximately ascertained. To this no allusion is made by Mr. Rees in his report, nor does he suggest a reference of the matter to me, as I consider he should have done, in view of the results of the investigations which I had recommended as to the character of the rock. Your Board, however, has evidently viewed the matter in a different light, and I recognize and fully appreciate the action taken thereon. The reticence imposed upon Mr. Rees with regard to his report of the 28th August ultimo, whilst reasonable and judicious under the circumstances so long as he remained in the colony, might and, as I venture to think, should have been removed immediately on his arrival in this country, and without his having to await here a written permission from the Board before even mentioning the matter to me.

It is very important that I should put the Board in possession of the state of the case in respect of the expenditure to be incurred in executing the work in concrete, and this is the more desirable seeing that the amount stated by Mr. Rees in his report of the 28th August ultimo is quite inadequate for the purpose: first, because, as I have informed him, the section from which his quantities were calculated is deficient in respect of stability; and, secondly, because the rate put down by