

drawings. I shall be out of town myself on that day; but my chief assistant, Mr. Matthews, will be here to see you when you call at the time named, and will then show you the drawings.

J. R. Rees, Esq., Cannon Street Hotel.

Yours faithfully,
JOHN COODE.

(No. 16).—Sir JOHN COODE to Mr. J. R. REES.

DEAR SIR,—

5, Westminster Chambers, London, S.W., 31st March, 1880.

Referring to your call here on Saturday last to look at the drawings, when you saw Mr. Matthews during my absence from town, I regret to find that you did not, at the same time, afford such verbal explanations as were asked for, to remove as far as practicable the doubts and uncertainties which now surround this business, which explanations I considered I was entitled to ask in view of my interpretation of the wishes of the Commissioners, as expressed in their letter of instructions to me. I trust, however, that you will, in course of to-morrow, reply fully to the queries in my letter of the 23rd instant, as I feel that no information ought to be withheld from me as the engineer and designer of the works; neither can I conceive it to be the wish of the Commissioners that I should be kept in the dark, as I am at present, with reference to what has been and is being done, nor what possible motive can exist for such secrecy, nor for the adoption of the anomalous and altogether unlooked-for mode of procedure which you have seen fit to adopt with regard to arranging for and ordering the whole of the special plant, without conferring with or consulting me upon a single particular.

As there was not time at the interview on Saturday for you to look through the specification and bill of quantities of the works, which I have prepared and sent forward to the Commissioners with the drawings, I enclose herewith a duplicate copy for your information.

I understand from Mr. Matthews that you intend to leave for the colony on Friday next, the 2nd April.

J. R. Rees, Esq., Cannon Street Hotel.

Yours faithfully,
JOHN COODE.

(No. 17).—Mr. J. R. REES to Sir JOHN COODE.

DEAR SIR JOHN,—

Cannon Street Hotel, London, 1st April, 1880.

I have to acknowledge and thank you for the enclosures (duplicate specification and bill of quantities) contained in your letter to me of the 31st March, 1880.

Sir John Coode, C.E., 5, Westminster Chambers, London.

Yours faithfully,
J. R. REES.

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

SIR,—

5, Westminster Chambers, London, S.W., 9th April, 1880.

Referring to my letters to you of the 19th ultimo and the 2nd instant, I have now to supplement this correspondence by sending (annexed) a copy of a letter from Mr. Rees, dated the 2nd instant, wherein he declines to furnish me with the information I had asked for, until he had first consulted the Board.

It is evident that Mr. Rees has persistently kept me in ignorance with respect to this matter of ordering the special plant, on which so much of the economical execution of the work depends, and as to which he must have known that he was acting in opposition to the views I had expressed to him, and contrary also to a distinct arrangement, stipulated for on my part in the best interest of the Board, and come to between us; for I must here repeat, what I stated in paragraph 4 of my letter to you of the 2nd instant, that no such qualification or reservation as has been stated by Mr. Rees was ever made or suggested by him to me; and I may add that Mr. Matthews, my chief assistant, who was present at my interviews with Mr. Rees when the question of the ordering of the special plant was considered, entirely corroborates this statement. I cannot for a moment suppose that the Board will sanction or approve Mr. Rees's action in this matter.

The Chairman, Harbour Board, New Plymouth.

I have, &c.,
JOHN COODE.

No. 18.—Mr. J. R. REES to Sir JOHN COODE.

DEAR SIR JOHN,—

Cannon Street Hotel, 2nd April, 1880.

In reply to your letter of the 23rd March, I have decided first to consult the Harbour Board before complying with your requests.

Sir John Coode, C.E., 5, Westminster Chambers, London.

Yours faithfully,
J. R. REES.

MR. REES'S REPORT ON THE NEW PLYMOUTH HARBOUR WORKS.

(Confidential.)

SIR,—

New Plymouth, Harbour Board Office, 28th August, 1879.

I feel that I should fail in my duty to your Board did I not record, for their information, my estimate of the cost of the proposed harbour works as designed by Sir John Coode; and, at the same time, to point out that possibly a more economical section might be adopted. I have entered upon this course with considerable diffidence, and, in consequence, have not hastily arrived at conclusions, but have accepted the figures and calculation of well-known civil engineers, whose statements have been subjected to the criticism of the Institution of Civil Engineers at their meetings of the 1st February, 1876, and the 9th November, 1875, presided over respectively by G. R. Stevenson and T. E. Harrison, Presidents of the Institution.

Having now examined Sir John Coode's plan and report since their return from Wellington, with the view of ascertaining the probable quantity of rubble-stone, &c., required for their completion, I find that to build the western mole from A to Y Y will take 545,000 cubic yards; and this quantity is arrived at in the following manner—namely, the quantity of rubble, according to Sir John Coode's report, required to complete from A to B is 800,000 cubic yards measured in the mound, and the calculated quantity from the drawings between Y Y and B is 119,000 cubic yards, thus leaving 681,000 cubic yards to complete from A to Y Y; but, as the 16 cubic feet of stone, measured in the solid, will occupy 20 feet or about when in the mound, 545,000 cubic yards will be required to complete to Y Y. I think, in forming an estimate of the probable cost of this work, labourers' wages should be calculated at not less than 7s. and quarrymen's at 7s. 6d. per diem. And at these rates, if the same economy in working be practised as was observed at Holyhead Breakwater—namely, 3s. 5d. per cubic yard for the first 2,200 feet (with labourers' wages at about 3s. per diem), as given by H. Hayter, Esq., M.I.C.E., but according to Sir John Rennie, in his Treatise on Harbours, the cost of Holyhead rubble is stated at 5s. 6d. per cubic yard—would give, according to Mr. Hayter's figures, with wages at 7s. per day, 8s. per cubic yard, allowing that the cost of staging here does not exceed the cost of that used at Holyhead, namely, 5d. per ton of stone. But I estimate the staging for the New Plymouth Breakwater will cost £40,000, or 1s. 1d. per ton, being at the rate of 1.46s. per cubic yard of stone. This item will give an additional charge against the stone of about 8d. per cubic yard, or a total cost of 8s. 8d. per cubic yard, or £236,166. The foregoing only takes into consideration the difference of between here and Holyhead wages, and cost of staging, but there are other items of expense which will show an equally wide margin of difference. Again, there is yet another item of cost to be considered. I refer to the loss and re-erection of staging and the displacement of material during heavy gales. I do not think it necessary to prove that the stone once shifted beyond the limits of the mound will be entirely lost to the work, and should this loss not exceed 5 per cent. the work may be considered fairly successful in this respect. This then will add 27,250 cubic yards, at 8s. 8d. per cubic yard, or £11,806 + £236,166 equals £247,972 as the cost of the work to Y Y, without any accommodation whatever for loading or discharging, based upon the supposition that the quarry at Paretutu will prove as easy to work as the Holyhead Mountain; but this supposition is, I fear, open to grave doubts. The quarries at Holyhead consisted of quartz compact with well-defined joints, the quarry faces having a height of about 120 feet. In the proposed quarries at Paretutu (which must form the principal source of supply) we have exactly the opposite of these conditions—namely, excessive height (exceeding 300 feet), the material shattered throughout, and not well-defined joints, with limited face and excessive stripping. In the