wharf. Usually there is only an insignificant disturbance, and the Harbourmaster thought that about once a month on an average it was serious; when it is so, vessels have to be removed from the wharf and fastened to buoys in the harbour.

Many otherwise first-class harbours are subject to this trouble, and it often is the case that it cannot be cured. We do not think that it can ever be entirely abolished at Timaru. However, we agree with the suggestion of your Engineer and Harbourmaster that a projecting groin, placed as shown on the plan herewith, will most probably mitigate this cause of annoyance; and by constructing and using the wharf on the opposite side of the harbour the "range" will give very little trouble. On the plan we have indicated a length of 200ft. of loose concrete-blocks thrown into the sea, which would greatly assist in destroying the "range" in the harbour, and would, in addition, have a beneficial effect in placing the entrance in smoother water. This might, however, be extended in the form of the upright-wall of the breakwater as already constructed; but in either case we think the large sum of money it would cost might be more judiciously spent in transferring the wharfage and ships' berths to the opposite side of the harbour, where the "range" will be very little felt.

We beg to be allowed this opportunity of expressing our appreciation of Timaru Harbour as now completed. Apart from the danger to which it is exposed from the travelling shingle, it appeared to us a most commodious and useful little port, the full benefit of which will be apparent when your Board shall have completed all the wharfage for which there is space within the enclosure of the breakwater, and it will then, we think, be suitable and large enough for any traffic which may reasonably be anticipated in the future from the limited district which it is meant to serve. Of course, its prospects depend entirely on your being able to cope successfully with the encroaching shingle, and to this end we may be allowed to urge your best consideration with the least possible delay.

Our thanks are due to your Engineer and Harbourmaster for the willing assistance and information which they were kind enough to give us.

We have, &c.,

ROBERT WILSON, F.R.S.C.E., M.I.C.E.
C. NAPIER BELL, M. Inst. C.E.

The Chairman, Timaru Harbour Board, Timaru.

TIMARU HARBOUR.

Estimate of Time of Working Dredge.

	Days.
One year	365
Less Sundays	52
	313
Less holidays (say)	10
Men's pay for days	303
Machine working	303
Less range days...	24
	279
" time repairing, &c. (say)	19
Working days of machine	260

Cost of Working One Week.

Men—1 captain	£3	12	0	
1 engine-driver	3	0	0	
3 deck hands at 8s.	7	4	0	
1 crane-driver	3	0	0	
2 men on staging	4	16	0	
Cost of labour per week	£21	12	0	× $\frac{303}{6}$
" per year				£1,091 0 0
Cost of machine—Coals, 13 tons at 22/6 per ton...	£14	12	0	
Waste, oil, tallow, &c. (say) ...	3	8	0	
	£18	0	0	× $\frac{260}{6}$ 780 0 0
Total yearly cost...				£1,871 0 0