

place again to bar the Inner Harbour. I am not clear how or why the stoppage of the shingle drift affects the ebb tide and makes its current more industriously create a sand bar out of sand drift which has considerably come so far past the Breakwater Harbour entrance. Were the engineers? Is the sand bar and the sand drift, which is the critical difficulty in front of the Inner Harbour scheme, caused by a deposit from the Tutaekuri river, or has it considerably come so far past the entrance to the Breakwater Harbour? The engineers say "no doubt," but what proofs do they adduce?

The report proceeds to emphasise the depth of the channel which Mr. Nelson's scheme proposed. Seven feet was all that had to be artificially created. Why is emphasis laid on the 33ft. depth? The use of the next expression "heaviest seas" and another "no doubt" explains why. If ships can make a narrow Breakwater entrance in the heaviest seas, why not keep a channel easily widened and in a much more sheltered position?

In the face of all these uncertainties ("no doubts"), the report goes on "we

per annum"—"the difficulty, however, etc." Whatever is the source of all these intricacies of difficulties and misfortunes in the minds of the reporting engineers? Is the wish their father?

And why is the rock in the Breakwater so comparatively soft, "that it can be easily broken" and removed and the cost calculated, whereas "before any reliable estimate could be made of the cost of excavating the basin of the Inner Harbour careful borings would have to be made over the area, as it is quite likely ("no doubt") that the limestone rock of which the Bluff is composed would be met with." Isn't it the same bluff rock in the Breakwater Harbour?

The report goes on "in the face of the fact that we have come to certain conclusions." Based on what, I ask? On "no doubts," "very likelies," "intricacies," "uncertainties," "embarrassing features," "critical features," "unprotected deep channels," "ebb current disadvantages," "sluicing advantages," and "travelling troubles."

Now, immediately we arrive at the consideration of the Breakwater Harbour the

In calculation of comparative costs, a mole and other inventions are introduced to the extent of close on £150,000 and the value of land reclaimed which may ultimately run into a million is omitted—to the disadvantage of the Inner Harbour.

In their conclusion, the reporting engineers give the whole show away, for on the one hand it is assumed that by the "leisurely methods" of the Board the construction of the Inner Harbour would be delayed, while, on the other hand, in discussing the Breakwater Harbour, the engineers say if the Board pursues an active policy how much can be done. In my mind there are no intricacies, no doubts, no uncertainties, and I pronounce the report on the Harbour a work calculated to thwart Mr. Nelson's scheme. It is not without precedent.

(To be concluded.)

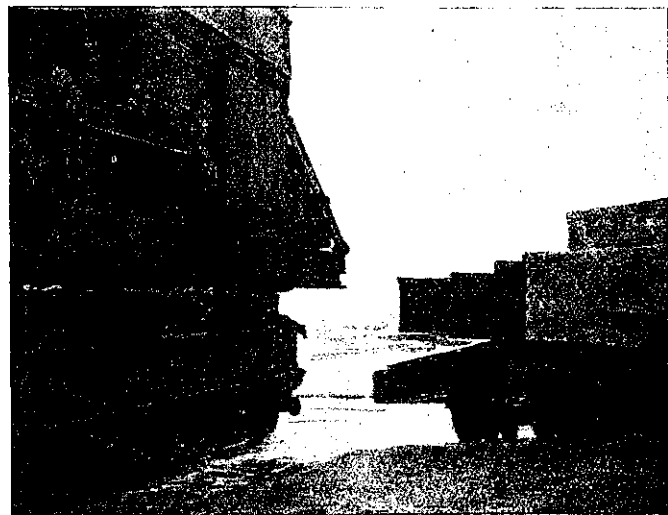
Preserving Fluid for Bodies and Plants.

Dissolve, in 300 parts of boiling water, 100 parts of alum, 25 parts common salt, 12 parts saltpetre, 60 parts potash, and 10 parts arsenious acid. Cool and filter the



3. WAVES VERSUS CONCRETE.

The above illustration shows the root of the Breakwater during a storm.



4. TWENTY-TON CONCRETE BLOCKS at the root of the Breakwater, displaced from line to echelon by the waves shown in the previous picture.

could not advise, etc." But it was the uncertainties these men were paid to set at rest! They appear to me from their expressions to have been paid to create them.

And now we get (following the report): Another breakwater to cost £120,000, which ultimately would not be treated at all considerably by that sand drift which passes by the other breakwater, but which would ultimately form another bar to this one! The engineers excel the sand drift in creating bars and embarrassing features! The silt-bearing river which is to create half a million for the State and another half a million for individuals; the weir which is to impound and minimise ebb currents; the embankment which is to carry our country road and railway to Gisborne. What embarrassments!

It has been shown by the engineers that the sluicing action of the lagoon causes the water bar to be deposited. Then why not check it and let the only overflow be a slow river filtered of its mud, and deprived of dangerous flood water by an overflow channel in another direction?

The report goes on "unfortunately there are no records to show what the amount of silting in the Inner Harbour amounts to

difficulties somehow become "greatly diminished," "slight indeed," "easily dealt with," "less liable to damage," "quite probably not required." The wind becomes of "less account," "it is practicable to hold the largest vessels against a cross wind," "the movement slight." Yet seas have been known to break right over jetty, ships and all, to smash the Breakwater clean away, and the only hint we have that there is any recollection of them still in the engineer's minds is the suggestion that the structure has been made of concrete which is not impervious. "Links that may snap!" "Intricate and far-reaching considerations," "prevailing conditions and possible results," are not allowed to enter into the engineers' minds. And although the question is raised of bringing suitable 20-ton blocks 20 miles by railway, the cost of doing so has not only been "carefully considered," but omitted altogether. There are some difficulties but "suitable arrangements could be made." "The proper and safe handling of large vessels in a small harbour" is a far reaching trouble which a travelling tug easily tackles. The same tug "easily maintains depths" before so doubtful.

solution. To 10,000 parts of this fluid, add 4,000 parts of glycerine and 1,000 parts of methyl alcohol.

Oil Fuel.

Oil as the motive power for steamers on the New Zealand coast is a probability, according to the Minister for Marine (Mr. J. A. Millar), who told a deputation from the Seamen's Conference that companies were standing off until the Taranaki oil-fields had been thoroughly proved. Once this was so, they would equip their ships to use it. The introduction of oil as a motive-power should mean that the number of firemen at present employed will be considerably reduced.

This reminds us of the announcement made by the Spreckles Company to the Postmaster-General of the Dominion of the application of oil fuel to their well-known liner "Mariposa," and of the advantages of the same. These are diminution of the ship's company by 45 men, increase of 1 knot per hour of speed, quicker working up to full power, superior steadiness, and a cleanliness absolutely unheard of in any kind of steam craft.