

appliances. If such a company as the Shamrock, at Addison's, requires tables having a width of 100ft., and even this width is fully little enough to deal with the quantity of material that is lifted, it can easily be understood that to put the same quantity over tables of one-quarter of the width the greater portion of the gold would be carried away. The width of the tables has more to do with gold-saving than their length, as the whole of the sand requires to be evenly distributed in a very thin film over the surface, or, at least, it ought to pass over the tables in a fine coating along with a small stream of water, so that every particle can roll down on the surface of the blanketing or cocoanut-matting with which the tables are covered.

On the introduction of any new machine, it can hardly be expected that all the working details will be so nicely arranged that every part of it will give entire satisfaction; neither can it be expected that the same description of washing appliance which is used for saving gold in the alluvial drifts will answer for working the material found on the ocean-beach. If a miner were to use a long sluice-box and ripples for washing the sand found on the ocean-beach, similar to that used for hydraulic sluicing, little or no gold would be saved, and the result would necessarily cause the ground to be abandoned as valueless.

From my personal knowledge of the quantity of gold in the material on the Five-mile Beach below Okarito and Gillespie's Beach, were a dredge constructed with tables of capacity sufficient for washing the sand fairly, not only would it be a payable venture, but if, say, 75 per cent. of the gold could be saved, the returns of gold obtained would be so great as to cause a new era in many places on the West Coast. The majority of the dredges yet used for gold-working are in Otago, and a large number is on the Clutha River.

As my other duties did not permit me to visit many places on the Otago goldfields during the past year, a description of the working of the dredges in this part of the colony has been taken from the report by Mr. J. Gow, the Inspector of Mines for that district, and from information received from other sources.

OTAGO.

Waipori.

The two dredges that were formerly at work here have suspended operations for a considerable time, owing to the settlers in the vicinity of Berwick obtaining an injunction from the Supreme Court stopping all dredging operations; but it is understood that an arrangement has now been come to with the farmers whereby dredging operations can be continued on the construction of dams to hold all the dredged material, and prevent the muddy water from getting into the river. Both these dredging companies—the Waipori and the Jutland Flat—were formerly working on ground that will give a fair return for dredging operations. During last year, however, no gold has been obtained from these dredging claims, and the expenses in litigation will absorb the profits for some time to come.

Glenore.

J. Nelson and Company's Dredge.—This dredge is situated at Glenore, and commenced work nearly twelve months ago, during which time it has dredged from the Glenore Bridge about 6 chains up the stream by about 3 chains in width. The depth worked runs from 20ft. to 35ft., but no solid bottom has yet been touched. The lowest depth reached consists of very stiff yellow clay, in which it is thought a small quantity of gold exists, and, of course, is at present being left behind. It is, however, intended at an early date to sink a prospecting shaft to the rock-bottom a short distance below the bridge, in order to arrive at the value of the subsoil and yellow clay to the rock, and with a view also of opening another claim in that locality. The system of working this claim, should the prospects be favourable, have not yet been decided on. The present dredge is supposed to be lifting about 12 yards per hour, but, in consequence of some very large stones being met with from time to time, and the stiff tenacious clay to be gouged up, it is difficult to estimate the average quantity put through. The sluicing-water is lifted about 8ft. by a centrifugal pump, having an 11in. discharge-pipe and 18in. vanes; it is worked at a speed so as to discharge about 2,000 gallons per minute. There are three sluice-boxes side by side, each 3ft. wide, and having a gradient of 18in. to 12ft. The centre-box receives all the water and the *débris* from the buckets. The *débris* first passes over 6ft. of ripples and then alternately over perforated plates and ripples to the end of the boxes. From the perforated plates the fine material is allowed to flow through gauged side apertures into the boxes on each side, which are lined with matting only. Most of the gold, though very fine, is found in the first 12ft. in the centre-box. Mr. J. Nelson, the manager, is of opinion that a less fall to the box would probably suit better were it not for the many large stones which have to be assisted down the box from the drop to where they can be lifted out by hand and rolled overboard. Of course more water could be put through to carry the stones to the end of the sluice, but this might result in a loss of some fine gold now being saved. There is a considerable quantity of clay all through the stuff now being dredged up, and much of it passes out in lumps at the tail of the sluice-box, and, no doubt, these carry gold with them. The steel nose-plates on the buckets last about twelve months, and the bucket-pins have to be renewed every three months. The dredge is floating in a pool of still water, 10 chains long by 1 to 2 chains wide, dammed off from the creek water, on the same level, with fascines and fine gravel filled in between, so that any water passing through to the creek is more or less filtered. It is estimated to take six years to work the flat to the top boundary. The claim extends 40 chains down the stream from the present working, all of which has been previously worked to a depth of about 16ft. over thirty years ago. There are in all eight men employed on and about the dredge, which is kept going the twenty-four hours from month's end to month's end, and consumes 16cwt. of coal during every eight-hour shift. My impression is, from information obtained from the manager, that the shareholders have been making fair wages after paying all expenses. The creek-bed immediately adjoining the top end of Nelson's ground has lately been applied for as a claim, and the application is to be dealt with in about ten days; it is said a dredge is to be put on it.