

parts here before dropping down stream to the claim was the advantage of having the blacksmith's shop and other appliances in good order at hand. (19/6/96): I again visited the dredge, and found it in full swing a few chains above where it was launched. Sufficient work had not then been done to test the value of the ground at that place. I learned from Mr. Crookson that in consequence of the small flow of water in the river there was not sufficient at the island to float the dredge to the claim. He therefore intended winning a little gold, if it is there, till the depth of water will enable him to get the dredge over the shallow part at the island, which is quite handy to his claim.

Clyde Dredging Company, Clyde.—(16/5/96): This dredge is now afloat, and in design is considered by some much in advance of all other dredges built in Otago up to date. She is 93 ft. long by 27 ft. wide over all. The bucket-ladder is 60 ft. long, and remarkably strong. The tail elevating buckets are of an improved shape, and are intended to carry away all sand and gravel washed. A second small set of elevators is to be erected to lift the grit and fine sand passing over the gold-saving tables, which fine sand will be emptied into the main elevators at the level of the deck and discharged with the coarser gravel some distance away from the tail end of the dredge. The object of the tail elevator is to give the dredge plenty of room in deep ground, or where a large quantity of loose gravel has been, or is being, deposited in the river by terrace-slucers. In order to strengthen the dredge, and prevent "hugging," she is fitted with two sets of hog-posts, 28 ft. high, four in each set, diagonally braced, and having long iron tie-rods at top from the ladder-hoisting frame at the bow to the outer end of the tailing elevator. This deck erection so high is quite a new feature in dredge-construction here, and may probably be generally adopted when deep ground is to be worked.

Manorburn Dredge, Alexandra.—(18/6/96): The Manorburn Dredge will be completed and working in about two weeks from date. The pontoons are 75 ft. long and 11 ft. wide each. The ladder-way is $4\frac{1}{2}$ ft. wide. The ladder itself weighs 4 tons, and is 53 ft. long. There are thirty-two buckets, each weighing 3 cwt. 20 lb., and capable of lifting 3 cubic feet each. The washing cylinder is 16 ft. long, which is much longer than any other in the district. The perforations in the cylinder are only $\frac{3}{8}$ in. in diameter, consequently it distributes the material over a much larger surface than others in the field do—viz., 220 square feet of gold-saving tables, from which the sand is discharged directly into the tailing buckets, which in turn cast the tailings some distance away behind the dredge, where, if necessary, they can be stacked to a height of 24 ft. above the water-level. The engine is by Marshall, of Gainsborough and London, and is 12-horse power nominal, or, say, 40-horse power if required. The dredge will be capable of dredging 90 tons per hour. The fall in the gold-saving tables is one in ten, and they are all covered with cocoanut-matting. There is to be a patent "save-all" fixed immediately under the top bucket-tumbler. There are other improvements being introduced on the tail elevator to save friction and wear.

Golden Gate Dredge, near Island Block.—(22/6/96): Dredging operations were started a few chains below the Island Block line of pipes, where some good ground was met with, but it did not prove as extensive as the shareholders wished. Since the good patch was worked out some prospecting has been done lower down the river, but up to the time of my visit no soft bottom or payable ground had been found. I think there is a probability of finding payable ground in the flat on the east side of where the ground is now being prospected. The county road, however, occupies some of the most promising part of the flat. The dredge is in good order, and is capable of doing a large amount of work. The gold-saving appliances are up to date.

Golden Bank Dredge, Glenora.—(20/7/96): This is No. 2 dredge at this place; it is working the adjoining claim to the first dredge here, and is on the lower side of the bridge. Her dimensions are as follow: 90 ft. long, 22 ft. wide (including the ladder-way), and she is capable of dredging to a depth of about 40 ft. The depth of ground at present being worked on the west side of the creek, and close to the hill side, is only 20 ft., with a hard-rock bottom. So far as the ground had been tried up to the time of my visit, the bottom was reached after passing through a body of stiff clay, similar to that found in Nelson's ground—the adjoining claim. This stiff, tough clay, although it is said to contain a small quantity of fine gold, is being put directly into the revolving cylinder, through which it rolls in lumps, and is cast away with the tailings. Some effort should be made to save this fine gold. The buckets are capable of lifting 2 cubic feet each, and the speed of travel is eleven buckets per minute. The buckets, however, are not always full, or even half-full, in consequence of the solid character of the material generally met with. The cylinder, 12 ft. by $3\frac{1}{2}$ in., is somewhat differently constructed to any others used in Otago. Instead of perforated iron plates, it is built of $1\frac{1}{2}$ in. by $\frac{3}{4}$ in. bars, spaced apart, placed lengthwise, and having at intervals of a few inches $2\frac{1}{2}$ in. square bars placed parallel with the others, thus presenting an uneven surface to the material revolving therein, and thereby assisting to some extent to reduce the clay balls on their passage to the tail end. The sluice-boxes, probably 26 ft. in length, are $2\frac{1}{2}$ ft. wide, and the gold-saving tables are 9 ft. by 9 ft. The dredge is fitted with a tailing elevator, which was not being used at the time of my visit; it is capable of depositing the tailings to a height of 12 ft. above the water-level. This dredge plant was designed and constructed by Postlethwaite, of Dunedin. It is said half a ton of Castle Hill coal is used in each eight-hours shift, at a cost of £12 per month. The engine is 12-horse power, and works the plant with three plies of rope. I instructed the manager to at once rail off the belt driving the centrifugal pump, and also to provide life-saving appliances.

Nelson's Dredge, Glenora.—(20/7/96): Since my previous visit Mr. Nelson has added to his plant two puddling-pans, which are placed on each side of, and near the head of, the sluice-boxes. The stuff, when emptied from the buckets, is about equally divided at the drop, and, with the water, passes into the pans, in which there are harrows of the old puddling pattern constantly travelling round. The stuff is being constantly discharged from the puddlers at an opening at the side level with the floor of the sluice-boxes, through which the *débris* passes out to the tailing-dump, where small balls of clay are plentiful, and it is admitted they contain fine gold. If the appliances were perfected there should be no loss of gold. Most of the gold obtained is gathered