

ordinary steam plant. The pump, main shaft, and counter-shafts are driven by 5 in. rope bands, and have proved to be durable, efficient, and especially adapted to the work of the dredge.

"The dredge is 90 ft. long and 20 ft. wide, and is constructed entirely of steel; all the buckets, pins, links, and other parts exposed to wear and rough usage are of the same material. The bucket-ladder is designed so as to bottom, if found necessary, 22 ft., and to discharge a ton per minute. It is, however, seldom that the dredge works near the maximum limit of either the depth or discharge. Originally the whole of the upper deck was devoted to gold-saving appliances, consisting of a revolving screen which delivered the rougher material into a chatte laid with longitudinal ripples. The finer material was delivered out of the screen and run over two cocoa-matting tables, one on each side of the screen, the tailings being conveyed aft by means of a side chute.

"By the present arrangement the wash-dirt is discharged from the buckets into a short chute overlaid with heavy steel plates; from thence it drops into the head of the main chute or dummy. The water for washing purposes is pumped into a tank behind the first chute, and carries the material through the chutes. Tailings are discharged 30 ft. astern. The head of the main chute is 16 ft. long by 3 ft. 6 in. wide, the remainder being 40 ft. long and 2 ft. wide. The ripples are quite a novelty in that line, and are made from steel tram-rails; they are of various shapes, and arranged in different positions in the chutes. The portions used in the dummy are bent at angles found most suitable. Owing to the rough nature of the gold the space between each ripple ranges from 1 in. to 2 in. The peculiar manner in which the ripples are arranged causes the wash-dirt to be spread evenly over the whole width of the chute, thus insuring thorough washing before it is discharged. The ripples are laid on strips of wood 1 in. thick, and set in opposite directions to them, and under these is laid cocoanut-matting. The set and section of the bars make the ripples an excellent catch for coarse or fine gold. An important feature in the working of the ripples is they do not fill and become hard. The ripples are easily made, handled, laid, and lifted, there being no bars or bolts connected with them. A section is kept in its place by means of angle irons laid along the sides of the chutes. The ripples should stand an enormous amount of wear, and can be laid in various ways to suit different conditions of work. Mr. White has had some months' experience in the working of the new gold-saving gear, and he claims for it many advantages over the old style. He informs me that all the evidence of its working goes to prove that practically all the gold is saved. The whole of the gold is got from the dummy, which is washed once a week; the remainder of the chute is washed down once a month, and the result barely pays for the time it costs. In the old style of gold-saving the tables had to be washed every shift, which meant a stoppage of nearly an hour, and an extra hand required two days a week to stream down the accumulated washings of the tables. This meant at least fourteen hours a week stoppage. Under the new arrangement all the stoppage required for washing up is three hours per week.

"The screen and parts were exposed to much wear-and-tear, and took a considerable amount of power to drive them. Since the alterations have been carried out Mr. White informs me that he has reduced the necessary power by 9-horse power. This alone—during the past year at least—is an immense gain, as, owing to the extremely dry season, the dredge would not have been able to work under the old conditions during the last month for want of water.

"The dredge is lighted by two Brush arc lamps of 2,500-candle power each. The lamps obtain the necessary current from the power circuit, and the splendid light given is a great convenience to the work at night. The lamps have been in use over five years, and have given every satisfaction."

Shotover River, Queenstown.

The Sew Hoy Big Beach Gold-mining Company (Limited) hold 167 acres 3 roods 7 perches on the Shotover River, near Queenstown, and work with two dredges portions of the year, twenty-nine wages-men being employed. The gold won for the past year was 2,040 oz. 8 dwt. 22 gr.; value, £7,904 8s. 2d. The company own three dredges, 32-horse power each.

Victoria Bridge, Kawarau River.

The Golden Beach Dredging Company have a lease of 31 acres at the Victoria Bridge, on the Kawarau River, and a company which has been formed in London intend placing a first-class steam dredge upon it, as it is considered that the gold obtained in the "sixties" on the beaches of the river and the terraces abutting, as well as the success which has attended the dredge at present working, proves the Kawarau to be richly laden with the precious metal; but, unfortunately, it is for the most part confined to rocky gorges, and is generally on that account too rough for working with present appliances. The river at the Victoria Bridge is, however, comparatively smooth and free from rocks, so that there are fairly good prospects of working it to advantage.

Kawarau—Cromwell.

The Electric Gold-dredging Company hold three claims, comprising about 150 acres, at the Kawarau River, near Cromwell, and have two dredges at work—one capable of dredging to a depth of 40 ft., and lifting 70 cubic yards per hour; and the other dredging 53 ft. deep, and putting through 90 cubic yards per hour. The cost of running the dredges is £100 per week, and the amount spent in building them was £9,000. There are thirteen men employed on the dredges; the engines are 12-horse power and the boilers 14-horse power nominal. During the past two years the Electric Gold-dredging Company have opened up the Kawarau, which is one of the most difficult rivers in Otago to work. Their operations have so far proved successful, and as they are continually improving their plant, so as to overcome difficulties, they hope to be more successful in future. The whole of the gold in their claims is contained in 6 in. of the bottom, and to get at that 40 ft. of tailings, which will not run 3 oz. per week, have to be lifted. During the season, when the river is in flood, operations are suspended altogether, as the dredges are unable to cope with the drift.