

working in sticky clay and sandy bottoms. The engine is a compound one, and works up to 16-horse power. Some of the gold in this claim is inclined to be of a shotty character. The owners, who are working-men, are well pleased with their returns.

*L. Gard's Steam Dredge* is the next above the Eureka, and is 90ft. long, 19ft. beam, and is capable of dredging 28ft. from the water-level; but the average depth dredged is about 20ft. The bottom in places is pipeclay, and in others white wash and yellow sandy wash. The dredge lifts on an average about 50 tons per hour, with two men on each shift. The sluicing-water is supplied by a centrifugal pump. The consumption of coal is about 3 tons in the twenty-four hours. It is working on the west side of the river. Mr. Gard says his expenditure last year on his two dredges (including a new boiler in one) was £4,000, and that his coal-bill alone was £600.

*L. Gard's No. 2 Dredge* is a current-wheeler, working in mid-stream a little higher up the river. The dredge is 78ft. long, 20ft. wide, and 5ft. deep. It is dredging to a depth of 27ft., lifts from 35 to 40 tons per hour, and employs generally one man on each shift. The sluicing-water is lifted by buckets fixed to the current-wheels. The average cost of working is £14 per week.

*The Enterprise Dredge* is the next above Gard's steam-dredge, and on the east of it and the stream, in the centre of a very large shingle-beach, where she has made a fair-sized pool to float and do her work in. This shingle-beach is covered with water when the river rises a little above the ordinary level. The part being worked is confined to a strip of probably 2 chains wide. The dredge is 80ft. long, 21ft. wide, and is capable of dredging to a depth of 30ft. At present the depth varies from 18ft. to 25ft., according to the river-level. It lifts 1 cubic yard per minute, consumes 3 tons of coal in the twenty-four hours, and employs two men in each shift, in addition to the manager, who assists on the day-shift. The engine is a compound one of 35-horse power nominal. The wash is put through a revolving screen 12ft. long by 3½ft. in diameter. In the sluice-boxes there are a few perforated plates, under which there is matting. The sluice is 30ft. long by 3ft. wide, all lined with calico, which is then covered with matting. Longitudinal iron ripples are then placed on the matting. Some of the "white wash" bottom was being scooped up at the time of my visit, and the heavy surging of the dredge at the time was a sure and favourable indication of a coarse and compact layer of stones lying on it. On this dredge is erected the first tailings-elevator, which is going to do so much for the dredges that have to work deep ground, or ground where there is a large body of loose tailings to contend with. Cutten Brothers, civil engineers, Dunedin, designed and erected the plant in this dredge, where it is now working and doing all that was claimed for it; in fact, it is claimed by the dredge managers to be a great success, and that much valuable ground could not be worked but for it. Several of the elevators have lately been ordered by the owners of other dredges on the river. The tailings-elevator consists of a ladder 34ft. long, constructed of wood 12in. in depth and 6in. in width, having a tumbler at each end. This ladder is secured to two beams of wood, 10in. deep and 6in. wide, bolted to the deck. The ends of the beams project over the stern of the dredge and carry the bottom tumbler. There are also two upright beams, 18ft. long, 8in. by 6in., bolted to the deck-beams. The ladder has two stays, of 2½in. by ½in. iron, from the top to the top of the uprights, and thence to the top of the main tumbler shaft-frame. There are also two stays of ½in. round iron from the top of the ladder to the deck. There are forty-one boxes or trays, which are carried over the tumblers at each end of the ladder. These boxes or trays are made of steel plate of ½in. thick, being coupled together with steel links rivetted to the bottom, and steel pins and bushes. This forms a belt, the same as for a conveyor. The trays are carried on four rollers, running in hard cast-iron bushes, bolted to the ladder. The lower tumbler is fitted with screws, so that it can be lowered when required to take up any slack, as the joints of the tray-belt wear. Mr. Cutten, of Dunedin, is the inventor of this elevator, which gives the greatest satisfaction, and lifts the tailings completely clear of the dredge. It is driven by shafts, with bevel-wheels and pinions from the main engine-shaft; and it is said to cost close on £300 to attach this elevator to a dredge with all appliances complete.

*The Chicago Dredge* is the next going up the river, and is working on the west side of it on a shingle beach close to the stream.

*The Clyde Dredge* is very similar to the "Enterprise" already referred to, with the difference that it has a separate engine to drive the centrifugal pump. It is capable of dredging to a depth of 20ft., but was latterly dredging 18ft. only, on a stiff clay bottom, on the north side of the stream, when some very rich ground was met with. It is said the bottom rises very quickly towards the terrace, on which rise very little gold has yet been found. The bottom dips slightly to the centre of the stream, and carries payable gold as far as tested. The owners of this dredge, after having experienced some difficulty in disposing of their tailings in the ordinary way, were so favourably impressed with the tailings-elevator, that they have ordered one of Cutten Brothers, to be made in every particular similar to the one now in use on the Enterprise dredge. This addition to their dredge will enable them to work easily the most difficult ground in their claim. The dredge manager said, "If the river was much below its present level, we could not dredge where we are now working without an elevator." The quantity dredged is about 40 cubic yards per hour, and the quantity of coal consumed in the twenty-four hours is about 3 tons. The revolving screen is 12ft. long by 3½ft. in diameter. The gold-saving tables are 10ft. wide by 12ft. long, covered with matting and netting. There are 36ft. of sluice-boxes, 2½ft. wide, with perforated plates and matting, but nearly all the gold is saved in the wide tables. There are two men employed on each shift.

There are many other dredges at work on the Clutha River, and Messrs. McGregor and party have a large dredge constructed ready for launching into the Kawarau River, about two miles from the Bannockburn Bridge. This is said to be a dredge capable of dredging to a depth of 40ft. below the surface of the water. The same party has the most of the material on the ground to construct a powerful dredge to work on the Kawarau River between the Bannockburn Bridge and Cromwell.

*Sew Hoy Company.*—This company has three dredges working on the bed of the Shotover River, between the Gorge at Arthur's Point and the head of the Gorge at the lower end of the