

the tunnel tail-race. When one hopper is full of tailings the water is cut off and turned into the other hopper, and while this hopper is being filled trucks are run in under the chute of the other, when the tailings fall into the truck, which is hauled up an incline by an overshot-wheel and dumped into a hopper on the top, being then carried away with water in the sluice boxes. The whole of the machinery-plant and gearing are substantially constructed, and show a good deal of ingenuity on part of the manager, Mr. Creber; still, when they come to work the deep ground which they expect to get, it is difficult to understand how the stuff is to be sluiced into these hoppers. At the present time the bottom of the wash-drift is high and allows a fall into the hoppers, and so long as this continues the arrangement may work satisfactorily.

ARAHURA DISTRICT.

Humphrey's Gully Company.—This company has a special claim of 160 acres in the vicinity of Humphrey's Gully. The face of wash-drift they are working in at present is over 200ft. high, with a little gold all through it. The ground, however, is of a poor character, and unless it can be washed away in a wholesale manner it cannot be made to pay. The supply of water the company has at present is totally inadequate for working this class of ground. They have extended their head-race time after time to collect the water from several small creeks, but they will never get a proper supply of water until the head-race is extended to the Arahura River, which is estimated to cost £20,000.

The hydraulic-sluicing operations were carried on with wages-men up to November last, but since that date the claim has been let on tribute to a party of miners, who pay the company 66 $\frac{2}{3}$ per cent. of the total yield of gold, the company supplying water and keeping the head-race in repair. The amount of gold obtained last year was 1,017oz. 8dwt., representing a value of £3,868 7s. 6d., and the value of tributes £16 8s. 6d., making the total income £3,884 16s. The expenditure of working the claim, was £2,724 11s. 1d. This left a profit of £1,160 4s. 11d., but, in addition to the actual expense of working, £785 18s. 11d. was spent in plant, &c., making the total expenditure £3,510 10s. This still leaves a profit of £374 6s., which shows that were there a good supply of water to carry on extensive sluicing operations, the ground would pay for working. However, the new arrangement made to let the mine on tribute will give the company about 50 per cent. of the total yield of gold as profit after paying the expenses of race, maintenance, and management. The company has now expended most of its available capital, and cannot at the present time extend the head-race to get a larger supply of water before the capital is either increased or the company reorganized. Unless this work is completed and a good supply of water obtained, the ground, which otherwise could be made to pay, will be of very little value to the company.

Parkes's Dredging Company.—This company has a dredging claim at the side of a small lagoon near the ocean beach, about one mile south of the mouth of the Arahura River. The plant consists of a small Wellman dredge, and embraces a centrifugal-pump with two branches of pipes at the suction end, and one pipe above the pump for discharging the dredged material and water into boxes, which are placed about 12ft. above the surface of the ground. On the ends of the suction-pipes can be placed, if required, a revolving-cutter for excavating the material, and there is a sleeve or nozzle over the end of each pipe. The object of this sleeve is to prevent the choking of the suction-pipe, when its end is down on the sand, by allowing the water to get into the pipe between the portion that is termed the sleeve and the pipe itself, the sleeve being merely a short piece of pipe about 2in. or 3in. larger in diameter than the suction-pipe, and made fast to the suction-pipe with studs and bolts. The suction-pipes have a universal joint, which admits of them being lowered, raised, or moved horizontally as the dredging proceeds. Whatever the length of the suction-pipe is, it can be made to describe a radius of about 180°. The ends of the suction-pipe are bent downwards when they are projecting horizontally, and have the appearance of huge elephants' trunks. They are held in position by light wooden derrick-cranes, which keep them suspended, and swing them about as required. The centrifugal-pump is driven by a small portable engine, 8 horse-power. The whole of the plant is erected on the surface of the ground, and, after dredging out one paddock, will have to be shifted before another can be commenced. In this respect it is not suitable for working the beach-leads in an economical manner. The whole of the machinery and plant requires to be placed on a punt, so that it can be moved about as the dredging proceeds.

The following is an extract from the *West Coast Times*, when this dredger first started work: "The gold-saving tables are 7ft. 6in. wide over all, and 24ft. long, but this is divided in three parts, forming, as it were, three tables or boxes, each 2ft. 6in. wide. The supply-pipe lands the dredged material and water into a hopper-box, which is 3ft. wide at the back end, and widens out to 7ft. 6in. at the front end, to correspond with the width of the tables. Where the tables and the hopper-box join small doors are placed in the hopper to regulate the quantity of sand put on to each table. The tables are in two sets of 12ft. each, in sheets of iron 6ft. long, the first sheets being perforated with holes $\frac{5}{8}$ in. in diameter and about 1in. apart; the second length of sheets is plain. The object of this will be more clearly shown. These sheets of iron stand about 1 $\frac{1}{2}$ in. above the bottom of the table, which is covered with baize from end to end. The material and water coming from the hopper passes over the perforated plate, the fine stuff falls through the holes, and the stones and coarse material passes onwards over the sheet-iron false bottom. The plain sheet at the end of the perforated one is for the purpose of preventing any material falling on the baize so as to disturb the gold and prevent it from being saved. The second length of tables are exactly similar to the first, but they are placed so that the false iron bottom of the second set of tables come on a level with the main bottom of the first set. By this means all the fine material and sand goes on to perforated plate of the second, and again falls on to the baize on the bottom of the table. At the end of the tables there is a box converging from 10ft. to a width of 3ft., and from this the tailings are carried some distance in boxes and deposited.