

constructed for some months, but the dredging-pipes with which it was fitted up were far too small to be of any use for lifting material on a large scale. New pipes, 12in. in diameter, are being fitted on to the dredger, and when this is done a start will be made.

At the time of my visit the punt and whole of the machinery had sunk in the river; but this was during a flood, the punt being anchored near the bank. When the water is low the dredger will be resting high and dry on a bank of shingle. The principle of this dredge is fully described when dealing with a dredger of similar character, erected on the ocean-beach, near Arahura, on the West Coast, the only difference being that the whole of the machinery is in this instance placed on a punt instead of being erected on land. From the description given and plans shown to me by Mr. Wellman there is little doubt but this dredge will work the bed of the river successfully—that is, if the centrifugal-pump is large enough for the 12in. dredging-pipes, and also if the engine is sufficiently powerful to work the pump.

The steam-dredge constructed by Messrs. Kincaid and McQueen, of Dunedin, is at work about a mile and a half above Alexandra, and from what I could learn the ground it is working is payable.

#### ARROW DISTRICT.

*Macetown.*—There are three quartz companies working in this district—namely, the Premier, Tipperary, and Sunrise. The latter company are working a quartz lode at Advance Peak, and have now commenced to crush some of the stone, which is believed to be payable for working.

*Premier Company.*—This company are carrying on mining operations from a winze sunk down on the lode for 90ft. below the main level. The lode is from 18in. to 4ft. in thickness, and has been proved payable for a length of 460ft. along its course. The mining operations are, however, carried on in such a manner that the proper safety of the workmen employed is disregarded, and nothing but rich stone will pay for taking out. The average yield of gold from this mine last year was 14dwt. per ton. This ought to give good returns to the shareholders if the mine was worked in a proper systematic manner; but the whole system of working is from hand to mouth; make-shifts of every description are employed; and what ought to be a good property is rendered almost valueless for want of the mine being opened out in a proper manner. This company was formed in 1880 with a capital of £6,000, of which £3,000 is declared paid up, and £3,000 has been paid in calls. During the time the company have been carrying on operations £1,800 has been paid in dividends.

*Tipperary Company.*—This company's mine is not looking so bright at present. The stone appears to get poorer as it goes down. Still, the country rock is of a soft character, and the walls of the lode are well defined. But there is some probability of another shot of gold being got at a greater depth. This company was formed in 1883, with a nominal capital of £12,000, of which £120 has actually been paid up, £13,500 having been paid in dividends. They were working at the time of my visit on the No. 7 Level, which is 330ft. below the level of the lowest drainage adit. There is a block of stone here about 90ft. long and 70ft. high yet to stope out, but when this is taken out prospecting will have to be carried on to test the lode at greater depths, or prove whether other shoots of gold exist along the course.

*Sunrise Company.*—This is a company who have opened out a quartz reef near Advance Peak, from which 200 tons of quartz was crushed last year, yielding 102oz. of gold.

There are a few parties working alluvial ground in the district and making fair wages, the season having been exceptionally good for supplying water to work the claim.

#### SKIPPER'S DISTRICT.

The quartz workings in this district do not present a hopeful aspect. For some time to come prospecting operations will have to be carried on before any future finds of large extent may be expected.

*Phoenix Company.*—This company, whose mine looked remarkably well on my former visit, has worked out the whole of the blocks of stone that were known to be payable, and are now merely prospecting. There are eight men employed in what was formerly known as the British-American ground, which is at 600ft. higher elevation than the levels on which the company have recently been working. Gold has been struck in a reef in this ground, but the large influx of water prevented a winze being sunk on the lode. An adit-level, about 60ft. below where the gold was struck, is in course of construction, and the company expects to get some payable stone from this quarter. There are also four men prospecting in the main level, with the view of cutting the northern lode to see if the gold continues in it; but no great returns may reasonably be expected from this mine for a considerable time.

During the past year 2,500 tons of quartz have been crushed, but the average yield of gold was very small; some of the quartz going as low as 3dwt. of gold per ton. This company has now all the modern appliances for working a mine systematically, and for reducing the quartz, but is still behindhand in the principle of saving the gold. This appears to occupy a secondary place in milling operations, while it really ought to be the principal.

This company has, however, succeeded in perfecting the electrical machinery to such an extent that the dynamos, when driven at a speed of 800 revolutions per minute, now register 40 amperes, whereas, at the time of my former visit they only registered 15 amperes, when the two dynamos were working conjointly, and the electro-motive force registered is now 1,200 volts. The work done by the two dynamos is as follows: They work thirty heads of stamps, ten of which are 800lb. each, and twenty are 650lb. each, lifting seventy-six times per minute, having a drop of 7in. This requires about 30-horse power. They also drive an air-compressor and stone-breaker, which are calculated to require 20-horse power. Therefore, the total power given by the dynamos is equal to 50-horse. The power required to work the dynamos is obtained from two hurdy-gurdy Pelton water-wheels, working under a head of 165ft., the nozzles supplying water to the wheels being