

is very doubtful. As soon as these vats and solution-tanks are constructed, the combination-pans and settlers will be dispensed with. By adopting this mode of treatment Mr. Russell will get a good percentage of the gold from the plates and berdans, and will only have to pay royalty on the value of the gold and silver recovered by the Cassel process, the royalty being  $7\frac{1}{2}$  per cent. on the value of the bullion recovered.

There is no gainsaying the fact that the cyanide of potassium is a good re-agent for gold, and undoubtedly the best agent for extracting gold, especially where the latter is in a very finely divided state amongst the ore; but the royalty charged is prohibitive, and it will never be largely used until it is lowered. If the Cassel Company would have been content with about 2 per cent. royalty, the process would have been almost universally adopted by every company in New Zealand. In the number of the *Engineering and Mining Journal* of New York, of February the 18th of this year, there is a notice given that the Attorney-General of Transvaal has disallowed their patent in South Africa, and it is thought that the day is not far distant when steps will be taken to test its validity in the English Courts. The company is therefore standing in its own light by exacting a large royalty, as its use from that cause will be very limited; whereas if a moderate royalty were charged there would be very few crushing-plants in New Zealand but would use the process. During the year ending the 31st December last, Mr. Russell crushed from the Komata and Waitekauri Mines 2,000 tons of quartz, which yielded 6,680oz. of bullion, representing a value of £5,632; and the average number of men employed is given in as sixty.

*Lowerie Brothers' New Find.*—This is likely to prove a valuable discovery. It is situated about five miles up the Waitekauri Creek, above the Komata Company's crushing-plant, and at an elevation of about 530ft. above the store near the crushing battery at Waitekauri. It is held by a great many of the miners that prospecting will never be carried on until the country is opened out by tracks, and this is, to a great extent, correct; but the new discovery of Lowerie Brothers is an exception to this. In trying to reach the scene of their operations one cannot help admiring the pluck and energy of the men in forcing their way through a dense bush, where everything had for a long time to be carried on their backs, crossing and recrossing the Waitekauri Creek about nine times, travelling over steep spurs with dense undergrowth entwined with supplejacks, rendering swagging a very laborious undertaking.

The lode is found on both sides of the creek, or at least it shows that it is on both sides, although the main lode in the Prospector's Claim has not yet been cut on the west side. On the east side of the creek there is a large outcrop, the lode varying from 6ft. to 10ft. in thickness, the quartz being of a dull-white amorphous character, having twisted bluish veins running parallel with each other, presenting an appearance of ore which contains both silver and gold. The stone near the outcrop contains more oxide of iron than it does where it is broken out in the drive. According to average assays of samples that have been made of the heap of ore lying at the mouth of the adit, its value is said to vary from £5 to £10 per ton. This is said to be assays taken at the instigation of Dr. Scheidel, who was said to have made an offer to the prospectors to purchase the property. About 6 chains down the creek from the outcrop another lode of mullocky material was discovered, being clay and quartz intermixed with oxides of iron and manganese in large proportions until it gives the lode a blackish-brown appearance. A trial crushing of five tons was taken from this lode and sent to the Moanataiari Battery at the Thames, when it yielded by the ordinary battery process 70oz. gold, worth £2 12s. 6d. per oz.; this was at the rate of 14oz. gold to the ton, having a value of £36 15s. The ore from this lode, which is from 3ft. to 4ft. wide, does not appear to have been picked to any extent, as there was very little of it lying about broken out at the time of my visit. This manganese lode runs almost parallel with the other, or it is going in such a direction as to join the main lode at a very acute angle. The whole face of the hill on the east side of the line of the main lode is full of loose blocks of stone containing gold and silver, and the surface clay also contains in many places fair prospects of gold. The face of the terrace appears to have been a slip from the out-crop of the main lode. An adit has been constructed for 50ft. on the western side of the creek, through a soft tufaceous sandstone, with the view of intersecting the main lode; but they expected to have to go another 15ft. at the time of my visit before cutting it. This new find was discovered in September last by Messrs. Lowerie Brothers, Dickson, and Corbett.

Another auriferous lode has been discovered by Birney and party about half-way between Loweries' and Waitekauri, but this being some distance off the track a visit could not be made to it except by putting in another day at Waitekauri. It is on the same belt of country which runs from Waitekauri towards Whangamata, and contains numerous quartz lodes. There appears to be a great future for this portion of the country for mining. Scarcely any prospecting has been done, and when one sees the nature of the country that the prospector has to travel over, it is not to be wondered at. There is little or no level land, it is nothing but a series of ridges and gorges; no sooner are you over one than another stares you in the face. These, with the dense undergrowth, fallen timber, supplejacks, and lawyers (*Robus australis*), renders progress very difficult when one has a swag to carry.

#### Waihi.

Amongst all the quartz-mining districts in the colony there is not one deserving more attention than that of Waihi. Auriferous lodes were first discovered here by a prospecting party subsidised by Government, and several claims were taken up on the Martha Reef. A company was formed about twelve years ago to work this reef. A crushing-battery was erected at the side of the Ohinemuri River, worked by water-power, and a tramway was constructed to connect the mine with the crushing-battery. This company struggled on for several years, and managed to get sufficient gold to pay working-expenses, but not to return any of the capital expended to the shareholders. The stone was quarried out on the surface for a long time, no timber being required, the lode being over 60ft. in width; but in carrying on the cutting into the hill the sides appeared to be too treacherous to admit of men working with safety. Year after year passed by, and the report of the manager was