

Mr Wakefield has done the best which could be done with the diamond rock-boring machine, which, for various reasons, is by no means an easy matter to manage. In last year's report it was stated that this machine was on its way to Hokitika, to the order of the Westland County Council, and in due course a bore-hole of upwards of 400 feet was put down at Kanieri, at a site selected by the Council. This was effected under considerable difficulties on account of the loose nature of the strata passed through, and upon striking a heavy drift of small pebbles the engineer was obliged to discontinue operations. The machine was next sent to Kamo, Whangarei, to the order of Mr Joseph Bennett, and a bore-hole of upwards of 100 feet has been successfully put down, fire-clay, coal, slate, and scoria being met with, the two last of the hardest description, specimens of which can be seen in Mr Wakefield's office. Unfortunately some of the diamonds from the bit were lost by coming in contact with the coarse honey-combed scoria, and boring has since been very slowly proceeded with, awaiting a further supply of bort diamonds from Melbourne or Sydney.

The Inangahua County Council has recently offered to purchase the boring-machine at the full price, payment to extend over twelve months, and correspondence upon this subject has taken place with the Council, but the negotiations cannot be continued until the present engagement for hire has been completed. The County Council has been moved to this by one of their number, Mr Caples, who has recently made the tour of the Victorian gold fields. He was much impressed with what he saw there of the powerful aids the quartz-mining industry has in the application of machinery, notably the efficiency of the diamond drill as a prospector, and of the rock-drill, driven by compressed air, as an unwearied miner "that can reduce the working expenses *one-half* and time *one-fourth*, as compared with the ordinary hammer-and-drill labour"

In New Zealand, where we have so much water-power running to waste, the application of this power to compressing air and driving rock-drills would seem to be the prelude to a new era in quartz mining. It is true, as was noted in last year's report, the rock-drill has been at work at the Thames for some time, but its efficiency is not so well known as it is desirable it should be. And as Mr Caples has favoured the public with a concise account of rock-drills and their latest improvements in a paper, which is one of a series, in the *Inangahua Times*, of the 8th June, 1881, it will be to the public advantage that the opinions and observations of one so experienced and trustworthy as he is, should be made further known on a matter so important, and with that view his remarks are given in full, as follows:—

"Within the last few years great improvements have been made in the portability and efficiency of rock-boring drills, specially adapted for the opening and working of quartz mines. They are now widely distributed throughout the principal mining claims in Victoria, and no well-established mining company is without one or more of these effective machines. Those having the control and management of quartz mines cannot fail to see an easy, rapid, and economic system of mining within their reach, that can reduce the working expenses *one-half* and time *one-fourth*, as compared with the ordinary hammer-and-drill labour. Rock-drills, as a rule, create labour, for some mines are now being worked by rock-drills that would not otherwise pay. In ordinary tunnel-work, if the power-drill is constantly employed, two men are required to work it, and one man to remove the stuff and prepare to timber up. Driving at this rate would entirely depend upon the nature of the ground, whether 40, 60, or more feet be driven for a week's work. It is not so easy to calculate, with any degree of certainty, the amount of benefit derived to workmen employed in a mine where a rock-drill is at work, by the constant supply of pure dry air circulating through the mine. This dry air removes powder smoke, counteracts dampness, and draughts of damp air can be closed up—all which so readily attack the strongest constitution. An ordinary observer, seeing these little giants at work, boring drill-holes at a rate of 800 strokes per minute, and each stroke a quarter of a ton, would naturally say man was never intended to use up his puny strength battering up a drill-head. A person interested in a speedy method to develop or work a quartz mine, seeing the amount of work performed by a power-drill, cannot fail to notice the wonderful difference, when compared with the present slow system of manual labour. The same remarks can be applied by introducing the diamond drill, as a prospector and explorer, with a percussive drill—a host of miners in itself—to follow any discovery made by its fellow-worker with the diamond crown. This plan has been successfully followed at Stawell. Another success can from there be recorded in favour of the rock-drill, now working a mine with profit, that was before then closed on account of the stone being so poor it would not pay the ordinary expenses of raising and crushing. At the Great Northern Mine, Stawell, we (Messrs. Potts, Butler, and Collins), went down the shaft to see the rock-drill at work. The drill was working on the flat-reef stope, boring through a very solid mass of quartz. It was taken down and again fixed for another box, the time in doing so not being more than a few minutes. The time taken to bore 3 feet was *twenty* minutes, not including two minutes for changing drills. One drill being used on all occa-