

but in places it increased to 10 feet, and in others, near the main shaft, it decreased to 2 feet. It consisted of larger blocks of quartz divided by smaller blocks of mullock, dipping southward at 50-60°, but at the south end of the workings a large block of mullock, full of small quartz veins, was struck, which, as proved by an adit at the surface, extends southward for nearly 200 feet. The quartz, especially from the lower parts of the workings, was very rich in pyrites. Touching the yields, they averaged from the upper part of the workings 7 dwts. of gold per ton; but lower down, where occasional rich patches were struck, they increased to 11 dwts., and throughout the workings south of the shaft, over 12 dwts. per ton were obtained. Stone of pretty good quality was left nearly all along under-foot. The quartziferous mullock on the south end, just noticed, would pay from 3 to 4 dwts. of gold per ton. There were formerly a crushing machine, hoisting gear, and pumps, driven by a steam engine, but these have all been removed, and the mine deserted for a long time. Mr. Hill believes that a great deal of fine gold and amalgam were lost in the tailings. From these workings northwards up the range, the reef is not very plainly exposed, but right on the top it crops out 3 feet thick; and there is a leader about 2 feet thick in the foot wall, 8 to 10 feet distant, which dipping towards the reef will join it at about 20 feet in depth. Mr. Hill, who opened these outcrops by several small shafts, thinks the stone will pay from 6 to 7 dwts. of gold per ton. On following the line of the reef from these workings down the very broken slope of the range facing Waipori, a small adit is passed which has likewise struck the reef, but no more plain outcrops are met with beyond a distance of 150 yards. However, Mr. Hill, by intelligent prospecting, found it at several places, proving it to extend right to the foot of the range, and underneath the alluvial of a gully near where this joins the Waipori Flat. And judging from the character and prospects of the reef, as disclosed at one of these places, the present company, which owns all the ground south across the range, beyond the old company's workings, has a fine chance of a prosperous future before it. This place lies in a narrow rift, a good height up the range, about 400 yards from the top workings; and the reef, which is opened by a shaft 20 feet deep, is about 8 feet wide, and shows very well defined walls, with strong bluish-grey casings. Near the surface there are only 1½ to 2 feet of quartz on the foot wall, the remainder being mullock; but towards the bottom this quartz thickens, while at the same time about 15 inches of quartz come in on the hanging wall,—in fact, there is every indication of the mullock cutting soon out in depth. As regards the character of the quartz, of which a considerable quantity is taken out of the shaft, that from the foot wall is seamy, rich in pyrites, and shows gold—some in coarse specks—freely, especially in the seams (might pay several ounces to the ton), whilst in that from the hanging wall no gold could be seen, though it is also seamy and very rich in pyrites. On first exposing the reef, Mr. Hill washed 8 oz. from one tin-dishful of stuff, and obtained a number of specimens, rich in coarse gold, besides. At the other places opened by Mr. Hill, near the foot of the range, the reef is 8 feet wide, and its walls are well defined, but it consists only of mullock, traversed by quartz-strings, which has shown but poor indications of gold; yet it certainly deserves a trial crushing. The company have very judiciously, I think, adopted the plan proposed by Mr. Hill, namely, of opening the reef in strike by a large main adit, starting in the gully, right at the foot of a steep spur of the range—about 150 yards north of, and 100 feet below, the shaft in which the good gold has been struck. According to Mr. Hill's rough traverses and estimates—for no proper survey, though highly desirable, has as yet been made of the line—this adit would strike the old workings at the southern side of the range, at a distance of 1,000 yards, and 100 feet below the bottom of the main shaft, whilst there might be about 400 feet of backs to rise upon towards the workings on the top of the range, which lie about 550 yards distant.

The crushing machinery in course of erection within about 80 feet of the mouth of the adit, with which it is connected by a tramway, consists of ten heads of revolving stamps in two batteries, with the common amalgamating tables and blanket-strakes—four for each battery—in front. I believe, however, that, according to my recommendations, deep quicksilver troughs will be used instead of the amalgamating tables, or at least be interposed between them and the batteries. The motor for the batteries is to be a turbine, supplied with the necessary water at a vertical pressure of about 100 feet from a splendid race, which is cut twenty-two miles up the Waipori Valley, and capable of carrying twenty heads of water.

Having herewith given all the particulars I collected about this reef and the O P Q Company's operations, I can only repeat what I stated above, that the company have every chance of a prosperous future. Although the quartz occurs only in blocks, dipping most probably south in strike, still these are, no doubt, very large, and have afforded payable, and even rich prospects; and it is not unlikely that the mullocky parts of the reef, or at least portions of them, might pay to work. The facilities for working are excellent, and I have no doubt it will soon pay the company to increase their plant by another ten heads of stamps, for the driving of which the turbine will have the necessary power. There is one point to which I would draw the company's special attention, and which Mr. Hill, their experienced manager, well understands—namely, to the great advisability of opening the first block of stone up well before commencing exploitation; and also, generally, of always keeping the adit going steadily ahead, in order to open up another block whilst that previously driven through is being worked out.

APPENDIX 5.

THE CONROY'S GULLY REEF, NEAR ALEXANDRA.

To this reef, which has been for a long time deserted, I was kindly conducted by Mr. Warden Simpson, Mr. Coleman, and Mr. R. Poole, of Clyde, who also afforded me all the particulars of its history. It strikes W. 23° N., and dips northward at an angle of nearly 80°, cutting very flat-bedded, nearly horizontal mica schist, strongly interlaminated with quartz. The walls appear pretty well defined. According to a description given, it averaged in the workings—now more or less fallen in—from six to eighteen inches in width, and consisted of quartz and mullock running side by side in strike, the latter frequently predominating. It has been opened and worked for over six chains in