

This shows that, during the eighteen years the company have been saving and treating the pyrites, the profits from this source alone have been £70,975 17s. 3d., or an average of £3,943 1s. 1d. per annum; but, if the first year be deducted, which is only reasonable, seeing that the company was experimenting in a great measure on the treatment, and had not got into the proper method of dressing the pyrites, then the average profit for the seventeen years has been £4,175 1s. per annum; and to take the value of the pyrites plant, which cannot amount to more than £4,000, it would give over 103 per cent. on the outlay.

The average quantity of quartz crushed, according to Mr. Bland's returns of each description of stamps in twenty-four hours, is as follows: 8-cwt. stamps, 4 tons 2cwt.; and the 6-cwt. stamps, 2 tons 4cwt. 12lb; but it must be borne in mind that this is due to the rough quartz going through the stone-breaking machine before passing to the battery. Each of these stone-breaking machines is capable of reducing 70 tons per day.

It may be of interest to give a copy of Mr. Cosmo Newberry's (the Government analyst) report on an analysis of samples sent him to test from the Clunes, two assays being made of every parcel as under. These will enable comparisons to be made with any assays of New Zealand pyrites that may hereafter be made—

Sample (1).—First Assay: Raw Pyrites.—(a) 4oz. 19dwt. 23gr. per ton; (b) 4oz. 19dwt. 23gr. per ton.

Upon analysis the sand gave:—

	(a.)	(b.)
Silica ...	27.60	27.10
Oxide of Iron $e_2 O_3$...	59.90	61.40
Sulphur ...	13.57	14.48
Lime (CaO) ...	2.10	Not estimated.
Carbonic ...	Not estimated.	

The mean of the two analyses gives 24.43 per cent. of iron pyrites (FeS_2), 44.35 per cent. of oxide of iron. This is present as ferric oxide ($Fe_2 O_3$), magnetic oxide ($Fe_3 O_4$), and as carbonate ($Fe CO_3$), and some sulphate of iron.

Sample (2).—Roasted pyrites, upon assay, gives gold results equal to (a) 6oz. 17dwt. 4gr. per ton; (b) 6oz. 17dwt. 5gr. per ton.

Upon analysis it gives—

	(a.)	(b.)
Silica (slightly coloured by iron) ...	43.00	41.70
Sulphur ...	0.52	0.57
Oxide of iron ...	60.45	Undetermined.

A large portion of the iron is present as magnetic oxide.

Sample (3).—Amalgamator's overflow gave, upon assay, 16dwt. 8gr. of an alloy of silver and gold; 6dwt. 12gr. being gold or gold value of 11.14 carats.

Sample (3).—Pyrites in Quartz. The pyrites was separated, and gave upon assay gold equal to (a) 11oz. 8dwt. 16gr. per ton; (b) 11dwt. 22gr. per ton. The variation in assay is due to a little quartz retained in the pyrites grains; the value of the gold was 23.01 carats.

Sample (4).—Pyrites in quartz, gave on assay gold equal to 5oz. 4dwt. 12gr. per ton, and the value of the gold, 23.24 carats. The value of the assay yields of samples 1 and 2 was 23.31 carats.

A record has been kept for a number of years showing the percentage of gold obtained in the various stages of crushing, and the average for eighteen years was 61.67 per cent. in the stamp-boxes, 23.25 in the riffle-boxes, 8.26 on the blanket-tables, and 7.78 per cent. from the Chilian mills, the latter being the return from the pyrites.

The quartz obtained from this mine of late years has been of a poor quality, and the great depth (1,215ft.) at which they are now working, combined with the extra quantity of water there is to contend with, increases the cost of raising the quartz; and, although the average yield is equal to that in former years, it has caused a loss on the working of the mine last year of £693 2s. 5d. The manager informed me that from the depth they are at present working it would take nearly 6dwt. per ton to pay working expenses.

There is likewise adjoining this company's mine the New North Clunes Company and the South Clunes Company. The former company is only prospecting at present. The North Clunes Company's crushing plant, which is very complete, is on the same principle as the Port Phillip Company's, with the exception that the battery consists of 40 head of revolving stamps. They have one of Root's blowers for ventilating their mine, which is the best, with the exception of Baker's blowers, that I have seen; these blowers being both on the same principle may be considered about equal in their results.

The South Clunes have a battery of 60 head of revolving stamps, and have similar appliances to those of the Port Phillip for saving the gold. The manager, on being asked his opinion with regard to the use of thick copper-gratings having only 84 holes to the square inch, replied that they were by far the best and cheapest grating that he had used, and that, if the stuff was required to be crushed fine, the lower edge of the grating required to be kept a little higher than usual above the bottom of the stamp-box, or have a bar put across the lower side to prevent the tailings discharging. However, on such a field as the Thames, where the gold is much finer than on any field in Victoria, these gratings are by far too coarse; I have not the least doubt of their being cheaper than the thin iron gratings, but then they are only suitable where the character of the gold is tolerably coarse.

Ballarat.

Band of Hope and Albion Consols.—This is the principal leading quartz mine in the vicinity of Ballarat, and it is one of the oldest in the district. It was originally an alluvial mine, where rich leads of gold were discovered, and it is only a few years ago since they ceased working the alluvial