

SIR RODERICK MURCHISON AND THE  
AUSTRALIAN GOLD FIELDS.

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ELEVEN years ago I read a paper before this Society, which was published in the *Transactions* for 1860-61. At that period the condition of the gold reefs in Australia was not clearly understood. Great difference of opinion existed, especially with regard to following "the veinstone downward, "by deep shafts, into the body of the rock"; and Sir Roderick Murchison warned the Australian miner that in all such cases "he has either found the gold diminish in volume, "or so difficult to obtain, that the cost of extraction has "usually been greater than the value of the metal."

By all parties a great amount of credit was awarded to Sir Roderick Murchison, for having at an early period (1844) predicted "that gold would, sooner or later, be found in the great British colony." He "encouraged the unemployed "miners of Cornwall to emigrate and dig for gold as they "dug for tin in the gravel of their own district." But still there were persons in Australia who regarded Sir Roderick not as a benefactor, but as one who was throwing obstacles in the way of those miners who sought wealth by searching for gold in Australia. In reading every scientific paper produced in Australia, we find this sentiment prevails. The *Argus*, of November 8th, 1860, stated as follows:—

"Sir Roderick never believed in quartz, and any country that puts "faith in its quartz reefs would be certain to come to grief. In vain we "get gold at depths of 300 and 400 feet; *Siluria* has said it, and it is

“unknown what serious damage has been done to our gold-mining reputation because Sir Roderick refuses to be convinced, or to alter succeeding editions.”

To account for this discrepancy we must explain that all metals, except gold, tin, and the rare metals, platinum, rhodium, iridium, and osmium, are derived from lodes or reefs. But gold has been found principally in the alluvial deposits. It has, however, also been extracted from the reef, but has not thus been so profitably obtained. Sir Roderick was an advocate for seeking gold in the alluvial, but not in the reef. But stream works were operations of a very simple character, requiring neither the investment of capital, nor companies to work them. The most successful gold-seeking in Australia, that has come under my notice, was conducted by two youths, cousins, named Napier, unassisted by the capitalist, or by any other aid whatever. Such operations as these do not demand the support of the press. Mining companies, with their thousands of pounds of capital, secure the sole support of the various periodicals that have been called into existence by gold mining companies. With these Sir Roderick Murchison had no sympathy. They entertained different views; and consequently we should come to an opposite conclusion accordingly as we based our opinions on *Siluria* or on *Argus*.

Amongst those Australian geologists who supported Sir Roderick's views was Mr. Panton. Those opposed were Messrs. Thorpe and Pollard. Messrs. Selwyn and Acheson were doubtful on this subject, believing that further experience was required before this matter could be brought to a satisfactory conclusion. At the time I read my former paper I was myself doubtful. The experience of all other gold-producing countries supported Sir Roderick's views; but, on the other hand, the gold fields of Australia surpassed in richness all others on the surface of the world. Before 1859 the largest nugget of gold ever known was found in 1824 on the

Asiatic side of the Ural Mountains. It was called the "Zarevo-Alexandrofsk pepita." - This nugget, according to Sir Roderick, weighed 1152\* ounces troy; its value being about £4,600. This was regarded as a discovery so remarkable, that the Emperor Alexander visited the spot, and a pyramid was erected to commemorate the event. This nugget has not been melted, but is still exhibited in the museum of the Imperial School of Mines at St. Petersburg. This "pepita" has been far exceeded by one discovered in Australia, known by the name of the "Blanche Barkley nugget," weighing 1,743 ounces, which was melted down and realized about £6,900. This nugget was discovered by the two Napiers referred to above. Not only have the nuggets found in Australia been the largest, but the quartz from the lodes has contained larger pieces of solid gold than have been found in reefs in any other part of the world. From a lode in Victoria, quartz was extracted containing one solid mass of gold, weighing 156 ounces. This is also without parallel.

Founding their opinion on these facts, some Australian geologists believed that Australia would be found to be an exception to the general rule laid down by Sir Roderick Murchison, and that, in Australia, gold might be extracted from the reef with profit. But against this opinion it was contended by others that the high rate of wages paid in Australia would more than compensate for this advantage. The only countries where gold had been extracted from quartz with profit were those in which labour was very cheap and the matrix very soft, as was the case in the Brazils.

Our experience of gold mining in Australia, up to the present time, leads to the conclusion that although the sanguine expectations of the inhabitants of Australia, with regard to mines, properly so called, have not been realized,

\* According to the *Penny Cyclopædia*, vol. xi, p. 291, this piece of gold weighed only about 276 ounces; but I should imagine that Sir Roderick Murchison's statement is more likely to be correct.

yet the expectation of Sir Roderick Murchison has not come to pass. In no other country has gold of such value been extracted from the quartz of the reefs or lodes, nor have we examples of paying quartz raised at such depths as in Australia. At Port Philip Company, Clunes, it is worked at 690 feet.\* This, it must be remarked, is the only mine worked for twelve years by capitalists formed in the mother country that is not at present at a discount, although in 1860 some were at from £275 to £1,300 per cent. premium. Still, with regard to mines worked by Australian capitalists, there must be many that pay a good profit. It appears from official returns that, during the quarter ending the 30th September last, 181,769 ounces have been produced from quartz mines, employing 16,422 miners, and that the value of the machinery employed was £2,097,089, and that the number of square miles worked upon was 950. From these data there can be no doubt but that, to some Australian capitalists, contrary to past experience, it has been profitable "to follow "vein stone downwards, by deep shafts, into the body of the "rock." I therefore retain the opinion I expressed eleven years since, that "although a very large proportion of speculators "who superintend the outlay of their own capital, and a large "number of those who employ their own labour also, have "been eminently successful, it does not appear that there is "any encouragement, from the experiences of the past, for "adventurers in Great Britain to invest capital in Australian "gold mines."†

\* The Portuguese Company, Streiglitz, have obtained auriferous quartz at a depth of 866 feet; and Coltemann and Tacchi Company, Sandhurst, at 720 feet, but whether the gold extracted defrayed the expenses I have no data to enable me to determine.

† *Transactions*, vol. xiii, p. 31.