

Indeed, my experience everywhere was that the longer we stayed the interest was intensifying; the more the miners knew, the more they wished to know. So much was this the case at the Thames, Karangahake, Te Aroha, Waiorongomai, and Coromandel, as well as on the West Coast and southern goldfields, that it was quite depressing to have to leave such crowds of intelligent men in place after place, all eager to get further information and practice in the methods of testing the ores.

From the Thames we all proceeded by steamer, with Warden Kenrick, to Coromandel on Saturday, the 12th December, and lectured there the same evening. Mr. Cadman, M.H.R., had been for weeks before our arrival in constant communication with Mr. Kenrick and myself about our visit, had spread among the miners information about our doings on the Thames and elsewhere, and had made all necessary arrangements for the success of the classes. The result of all this preparation was that we found on the night of our arrival a crowd of about 180—nearly all miners—awaiting us in the schoolroom. The large room was crowded to overflowing, and many could not even get standing room within the building. The testing class was at once formed, and continued under my own direction and that of Messrs. Montgomery and McLymont for two hours and a half, when at 9.30 p.m. Mr. Cadman took the chair, and I lectured till 11.30 p.m. on the formation of quartz reefs and the introduction of gold into them. Messrs. Montgomery and Fenton opened their blowpipe and assaying classes on Monday morning at 8 o'clock, and continued all day with several relays of students, the men themselves, as usual, taking a direct and active part in all the operations. Mr. McLymont had during Monday and Tuesday full charge of the testing classes until 7 p.m., when I took charge and continued for two hours with the metallic ores, following each evening with a lecture till 11.30 p.m. on some subject connected with gold-saving processes. The work done in the classes here was just a repetition of that done at Karangahake and Te Aroha, and resulted, as at these centres, in the formation of a committee to co-operate with the Thames committee.

During my stay at Coromandel I left Messrs. Montgomery, Fenton, and McLymont in charge of the classes during the day, while I, with Messrs. Cadman, Kenrick, Greenwood, Hutcheson, and Horne, paid a visit to the Tiki District, and inspected Vaughan's, Greenwood's, and Vizard's mines there. With Mr. Hutcheson, manager of Mr. Greenwood's mine, I tried some experiments with sodium amalgam on the copper plates, making the amalgam on the spot. The great trouble in these mines with the usual battery and amalgamated copper-plates system is the presence of much arsenical pyrites in the stone. This causes flouring of the mercury, and consequent loss of both mercury and gold. Our experiments were therefore directed to meet this evil, but I regret to have to say that we did not succeed in lessening the evil to any appreciable extent. I was surprised at this, as I had frequently on other goldfields got very good results from the use of the amalgam, especially when fresh made and used in moderation. Here, however, I found, on further examination, that the mine-water was slightly acid from the presence of free sulphuric acid, and to this, for want of a more probable cause, I attribute the failure of the sodium amalgam. The same mine-water contained a little sulphate of iron in solution, and to this was probably due, in part at least, the trouble with the mercury and the accumulation of green scum on the plates. On Tuesday I visited the Success Mine, on the Tokatea, and was taken through the workings by Mr. P. Reid, the manager. A striking peculiarity of this among paying mines is the narrowness of the reef. The width where I saw it varied from, I should think, a quarter of an inch up to four or five inches. It is also remarkable for the large proportion of carbonate of lime in the stone, the reef in some places being, indeed, nothing else than pure crystallized Iceland spar, of a very clean character, and containing thin plates of gold embedded in the crystals. The formation was such as I had never seen before, and the occurrence of gold in calcspar crystals I had not even heard of. Mr. Reid very kindly presented me with a very good sample of this strange occurrence. He also showed me depressions in the walls of the reef, from which he informed me large plates of gold had been taken. I have down in my note-book that the quantity of quartz from this mine that had been crushed in four or five years was only about seventeen tons, and that all the gold got during that time was got from this small quantity of stone. I also, with Messrs. Cadman, Kenrick, Greenwood, and Horne, visited the Tokatea Mine, about five miles from Coromandel. The tunnel into the mine is about 2,000 feet in length, passing partly through hard slate, to drive through which cost in some places as much as £6 per foot. In the mine—which is in one place about 850 feet under the surface—we saw large patches of splendid sparkling crystals of clear quartz, as well as some fine specimens of crystallized calcspar. All the quartz that I saw in the Coromandel District contains a good deal of arsenic, chiefly combined with iron and sulphur as arsenical pyrites, but occasionally also large pieces of the metal itself weighing several ounces. One piece of metallic arsenicum which I received from a miner weighed about two pounds. In the Thames and Reefton Districts, although there is a good deal of arsenic in the stone, antimony is, I believe, more troublesome. At Reefton the difficulty is met by crushing the stone without the use of mercury in the battery and tables, and catching the gold on the blanket-boxes.

During my whole stay in the Thames Goldfield I was either accompanied through every district by Mr. Kenrick, or moving under arrangements which he had made for my party. These arrangements were in every instance admirable, and, saving me a world of trouble and anxiety, enabled me to devote all my energy and time to my classes. Mr. Kenrick's knowledge of the mines, and of the past history and present condition of the district, and his intimate acquaintance with the miners, were of great service to me. I am under the greatest obligations to him and to Mr. Allom and many other gentlemen on the Thames, who spared no efforts to make such arrangements as would best conduce to the efficient performance of the duties for the discharge of which I had been sent to the Thames.

Leaving Mr. Montgomery alone at Coromandel to carry on the classes on the Thames Goldfield, I proceeded with Messrs. Fenton, McLymont, and Goodlet to Auckland, where, at the request of the Mayor, I delivered a lecture on the mineral wealth of the Thames, and advocated as strongly as I could the formation of a strong school of mines for that district. Mr. Fenton's engagement with