

tions generally in that country. There is no doubt that a person living in one locality gets into a particular groove of working. I think that a person who has travelled and seen the various modes in which different classes of mining is carried on, if he is a practical man, will be likely to form a sound judgment, and will probably be able to discover improved methods of working our leads to better advantage than we work them at present. I think also that, along with this, he would be likely to observe the improved methods of haulage and pumping that are adopted, and the best means of ventilation in mines. He would not only see all these things on the spot where they are in full work, but he would be able to bring back plans carefully made of the improvements he had observed in America, which could be adapted to mining-work in New Zealand. He would be able to give the fullest description of the systems in use at the places he visited, and also be able to utilize the information obtained there from the most reliable persons, and from observations made by himself. I think this information, and these descriptions of what is being done in mining in America, would be most beneficial when thoroughly known in this colony, and would help the mining industry of New Zealand very much.

159. You were in Victoria some time since?—Yes.

160. Was McNeil's concentrator at work in the places you visited? I believe it had been patented before you went to Victoria, and was working at the Walhalla?—No; I did not see it.

161. It is a simple process, believed to be of great advantage when applied to some claims?—It separates the free gold from the pyrites.

162. In Melbourne they have an establishment for treating pyrites?—Not that I am aware of. There are places of that description at Sandhurst. There are two public companies there for treating pyrites. But a great many companies have pyrites works of their own. With reference to concentrating machinery, we do not pay sufficient attention to this subject. All the principal companies in Victoria use concentrating machinery, which is the means of making mines pay that otherwise would not do so. We also work the ores in too haphazard a manner. One good thing that the school of mines has done is the teaching of assaying. Every mine ought to have an assayer to test the ore and tailings, for without that you cannot tell the value of the ore nor the quantity of bullion it contains. In California and other parts of America each mine has an assayer. The manager of a mine there is supposed to bring up his return of gold to within a certain percentage of the assay. The assays generally made here are taken from picked stone or ore, and therefore of little use in determining the value of the lode. In America, where assays are made of the ore as each truck-load comes out of the mine, a sample is taken out and laid aside, and finally, when assays are to be made, the stuff is carefully mixed up. By this method the average value of the ore is ascertained. But we take a stone or two, have them crushed and assayed, and judge of the mine by that result. That is a haphazard manner of dealing with the subject, and leads to great mistakes.

163. *Mr. Cadman.*] You have been over the different parts of the Thames, Coromandel, and Ohinemuri Districts: do you think that any one method of treating the ores would do over the whole of these goldfields?—No.

164. How many different modes of treatment do you think would be required: give us the names of places?—In some places the Thames gold is in a more free state than in others. I think that on these goldfields you require two or three methods of treatment. The ores in the Waihi District and Karangahake require different treatment to the generality of the ores about Coromandel. There are some ores which you can crush wet; but where there is a large amount of sulphides present wet-crushing means simply wasting the precious metals, as the sulphur being a very light substance it floats in the water, carrying away both gold and silver with it, and where this description of ore has to be treated we will have to establish dry-crushing, roasting, and chloridizing. It then becomes a question whether it is not better to treat them by the lixiviation process or by amalgamation. This is a question which cannot be determined except by a person working on the different ores and judging for himself. I am certain that you could not with advantage adopt one method all over that large district. In some of the mines, especially at Coromandel, there is a large amount of antimony, which sickens mercury, and renders it unfit for amalgamating purposes. Some of these mines also contain metallic arsenic, having gold disseminated through it, which in its raw state is not suitable ore to be treated by amalgamation.

165. *Mr. Allen.*] You say that at the Thames three different processes will have to be used?—I think it probable you would have to use two or three different processes.

166. You have told us that some of the ores there consisted of alloys of gold and silver?—Yes.

167. Have you had any experience of galena workings in gold and silver alloys?—Yes; I know the system of extraction.

168. Do you know that the chlorination system, or a modification of it, has been successful at Mount Morgan?—As far as gold is concerned; but this system is not, in its present form, suitable for the extraction of silver.

169. How much silver is there in the Mount Morgan Mine?—There is no silver; the gold is almost pure.

170. Is it not the purest gold that has ever been discovered?—Yes.

171. Do you consider chlorination works are always a success upon alloys of gold and silver?—It depends upon what they are associated with.

172. Would it, without modification, be successful?—I do not think it would be always a success.

173. As a general rule would it be a success?—Yes, I think so.

174. If the gold were not specially fine, would it be a success?—It requires gold in a fine state to make it a success. The finer the gold the more rapidly it is dissolved by the chlorine.

175. You speak of various other methods of treating ores, such as roasting; and you say it is