

process is concerned, it is an absolute success. Nothing will clean quicksilver like electricity. But I am told that it is not a financial success; but I do not know that.

192. Then, as to the lixiviation process, do you think that a man going from here, unless he possesses a very large amount of chemical knowledge and very large experience as well, would gain any good from seeing that process in America?—I think he would gain a knowledge of the principles adopted in the lixiviation process. Of course, a man would have to understand chemistry; but a person need not know every branch of it. I do not think a knowledge of organic chemistry is required.

193. With regard to pan-amalgamation that is used in America, do you think it would succeed at the Thames?—I question it very much; at any rate, it would be so much gained to see the application of using chemicals in amalgamating in America, and whether any others are used besides sulphate of copper, salt, and iron. They use these in the amalgamating process according to the class of ores they have to deal with.

194. It is about these chemicals that I wish to ask you. Do you think he would gain any knowledge of chemical reactions in America?—I do not know that he would gain any knowledge about the reactions, for any one that knows chemistry would have considerable knowledge of chemical reactions. What is wanted by sending a man to America is to get a knowledge of how certain things are done on a large scale. We may be right in the method of extracting gold from ores upon a small scale, but it would be so costly to apply these methods on a large scale that the result would be utterly valueless. We want to know how to apply methods on a large scale, which in America are found to pay.

195. What is the result of your reading in regard to pan-amalgamation—as to the use of chemicals in that process: does it affect the amount of extract at all?—In some cases it does.

196. Do you think there is a consensus of opinion in America upon the subject?—Yes, I think it is very general. According to the American papers which I have read on the subject there is great discussion as to whether these chemicals are not used too extensively; that is to say, whether the employment of less chemicals might not have a more beneficial effect.

197. Have you read the Transactions of the American Institute of Mining Engineers?—Yes; I belong to that institution.

198. Have you read of the hyposulphite process?—Yes; the leaching process both with sodium hyposulphite and with calcium hyposulphite.

199. The chlorination process?—Yes.

200. The double hyposulphite process?—Yes.

201. Then you really think that a man going from here would pick up some useful information which we have not, and more than a man coming from there would bring us?—Yes; because a man may be educated as an engineer, and yet, after finishing his education, he is only beginning to learn his business. We might get a man from there who had plenty of theory but not sufficient practice.

202. What is meant, then, is a man who should be well established both in theory and in practice?—Even then a man might have practice in dealing with a certain class of ores, but when he came here he would find a totally different class. We want information, not merely on ores or classes of ores, we want a good deal of other information as well on other subjects connected with mining.

203. *Mr. Larnach.*] I think that, some years ago, you went to Australia on an errand of this kind?—Yes.

204. How long were you there?—Nearly four months.

205. You saw most of the mining districts?—Yes; I went through nearly all the mining districts of Victoria and New South Wales. I did not go to Queensland.

206. Did your visit do any good?—I think it was effective towards some good.

207. From ocular demonstration, did you educate yourself in anything practical?—As far as I was concerned I got a good deal of information. I had to open my eyes when I found that I was rather in a groove about things that I did not believe in before.

208. You made a valuable report?—Yes, I made a report.

209. Do I understand that, in your opinion, you cannot master a subject by seeing a description of it without any practical acquaintance with it so well as you could having a practical knowledge, and then seeing it for yourself?—You can understand any subject far better by witnessing a practical demonstration of it. You can master a description of it, but not so well as seeing the thing itself. If you have a practical knowledge of the subject, you can master its application more fully by seeing the process in actual operation. There may be many details which you cannot see if you only have a description of a thing.

210. Why do you think that a man coming from America with full knowledge of the various processes would not give as good information as a practical man sent from here to that country?—If you get a man acquainted with all the different systems he could give you that information; but the great difficulty is to get a man of that description.

211. My drift in asking the question is to ascertain from you whether, in your opinion, a man coming here, even with experience of the various processes resorted to in America, would be as useful in affording information as the man similarly educated in this colony, and acquainted with the various processes adopted here, who would go to America for the purpose of seeing what information he could get of the American processes that might be made available in New Zealand; or, putting it briefly, which would be the most use, the practical man who went from here to America for his knowledge or the practical man who came from America to this colony to show us what they were doing there?—If you get a man acquainted with all the various processes of treating ores in America, and a man with a similar knowledge of the ores going from here to America, these two men would, as far as the treatment of the ores are concerned, be on the same basis; but I