

4. *The Chairman.*] How many such schools are established in the colony, and at what cost?—There have been twenty-four schools of mines established. The total expenditure on the whole of them has been £5,864.

5. For what period?—Three years.

6. That is less than £2,000 a year?—Yes.

7. What is your impression as to the result of their establishment so far?—I think they have done a great deal of good. When you travel over the North Island now and compare your observation with what was the case three years ago you find that everybody is now acquainted with silver ore, or ore containing silver, when they see it. Before that time miners were simply throwing away ore rich in silver as mere rubbish, because they had no knowledge that it existed in the ore, neither did they know its value; but this state of things is entirely altered now. The school of mines has been the means of prospecting being carried on to a much greater extent for the purpose of finding silver ore.

8. *Mr. Valentine.*] Do you think that by the establishment of these schools there has been less waste?—Yes; a greater amount of waste would have gone on but for the establishment of those schools of mines, as it would have continued to go on year after year.

9. Then you say that the establishment of the schools of mines has helped to save to the miners the amount of loss that would have been caused if they had not been established?—I think so.

10. *Mr. O'Connor.*] Can you give us instances, or can you state the extent of the saving?—As I look on it, you do not get the benefit of these schools the first year or two. It is some considerable time after their first establishment that you begin to see the benefits that result from them.

11. I understood you to say that such results would be obtained from them as might ordinarily be expected from technical education?—I may state that in the North Island they have been the means of directing the attention of miners and others to the fact of gold and silver existing in ores that were hitherto looked on as containing none of these metals. They have been the means of assays being made of every class of ore that is met with. Since their establishment Mr. Fraser, of Auckland, has been directing his attention more to the extraction of gold and silver from the ores met with in the Auckland District, whereby a larger percentage of the metals are now saved.

12. *Mr. Valentine.*] There was a saving of money; but might not that saving have been effected otherwise if the schools had not been established?—There has been less loss; and silver has been obtained where the miners never thought of it existing.

13. Was there a saving that would not have occurred but for the establishment of the schools?—I think so.

14. *The Chairman.*] Following that up, are you aware of any valuable result on the Southern Goldfield; did the establishment of these schools have any effect upon the method of treating plates?—Dr. Black was the means of teaching the battery-managers the use of sodium amalgam in silvering the plates, and also taught them how to manufacture it. Instead of using cyanide of potassium for this purpose, in some instances muriatic acid was used to clean the copper-plates, and care not being taken to wash off all traces of the acid before the silvering process commenced, the result was that the silver would not adhere to the plates for any length of time.

15. *Mr. Allen.*] Do you not think that any man who takes charge of a battery should have these things at his fingers' ends?—Unfortunately some of them have not.

16. Do you not think it would be better if we had less schools and more of a superior class of trained men who knew all these details?—The only difficulty is that the majority of the men following mining as an occupation belong to a class whose parents have not money sufficient to send their children from home to be educated; they must be educated near home for that reason. There is a large number of people of that class living on goldfields.

17. Would you not consider that the practical miner getting this technical education at a large school, thoroughly acquainted with all the details of ores and the best method of extracting what they contain, would be a superior man to the man who obtains his knowledge at one of these local schools?—There is no doubt about it; but men with theoretical training only are not altogether suited to take charge of batteries. They require experience in the details of working of batteries before their training is of much use.

18. *The Chairman.*] On the whole, I understand you to say, from all that has come within your own knowledge, that beneficial results have followed from the establishment of these schools of mines?—Yes.

19. *Mr. M. J. S. Mackenzie.*] Do you mean that the advantage of these schools would be of the theoretical sort?—A man having practical experience, and also possessing theoretical knowledge, knows how much of that knowledge is applicable to each particular case. I look on these schools of mines as having been established mainly for men following the occupation of mining.

20. Do you think that, to any appreciable extent, there is likely to be a reduction in the cost of the production of gold as the result of the establishment of these schools?—There may not have been such a reduction so far; but the question was the prevention of serious loss in the course of production, which had not been previously thought of. The attention which the schools of mines caused to be given to that subject has done a great deal of good.

*Mr. M. J. S. Mackenzie.* Well, it amounts nearly to the same thing.

21. *Mr. Allen.*] Could not the same result have been obtained, or rather, could not that loss have been provided against, by some less expensive means? If a thoroughly scientific person gave all the information required as to the preferable methods of treating ores, would not that be a more economical way of doing what was wanted rather than establish schools of mines for the teaching of science and chemical analysis; or is it the object to make professors for these schools all over the country?—When I called them twenty-four schools of mines, I do not think that any of them could be termed in the fullest sense schools of mines; they can only be called so in the sense that