system at the Phoenix Mine opens up new possiblities in the way of driving crushing machinery in situations where steam cannot be raised for want of fuel and where water-power is available. Here the water-power is two or three miles from the battery, and, it may be, at a lower level. The current is carried from the generating dynamos to the battery by a thin copper wire, supported, like an ordinary telegraph-wire, on poles, and at the battery the electric current is reconverted into the moving power which turns the wheel that drives the stampers. The dynamo plant and all the connections were supplied and erected by Mr. Prince, and are, I understand, giving great satisfaction.

On leaving the Phœnix I visited Mr. Aspinal's and Mr. Johnstone's claims at Skipper's Point, and lectured in the Athenæum Hall there to a most attentive audience of about seventy miners. Many of the men had come some distance and by very precipitous tracks. I opened the lecture on reefs and the chemistry of gold at 7 p.m., and brought it to a close about half-past 12. The night being moonless, many of the men had resolved to remain at the Point all night. There was, therefore, no necessity for shortening the lecture, as great interest was taken in the subject, and it was the only opportunity I had of renewing my acquaintance with the intelligent diggers of this most romantic, precipitous, and out-of-the-way diggings.

After visiting the Criffel diggings, at an altitude of over 4,000 feet, and Pembroke, at the foot of Lake Wanaka, where my assistant Goodlet, and Hawkins, one of Professor Bickerton's assistants, showed and explained the tests for the most important ores, I proceeded to Cromwell and Bannockburn, at each of which places I conducted classes and lectured for two days to most attentive audiences, numbering at Bannockburn over ninety miners. At Bannockburn all the arrangements for the lectures had been made by a very energetic committee of the local school of mines. The school had been formed during my previous visit, and had forwarded an order to London for an assortment of crucibles, chemicals, and other appliances for the purposes of the school. The teaching at Cromwell and Bannockburn was of the same general character as on the North Island, but somewhat more advanced in some particulars owing to the progress made by some of the students during the previous course. While staying at Bannockburn I took occasion to cross over the Carrick range, with Mr. McKersie and another gentleman, to the Nevis diggings, where, after visiting some of the claims, we had an important discussion on the force of the discharge of water from the nozzles and its dependence on the vertical height of the water in the hose or feeding-pipe. I found about two-fifths of the miners sound on this question, but the remaining three-fifths considered my views on the subject absurdly unsound; and after four hours' discussion of the subject I felt that I did not succeed in convincing one of the majority that their theory was bad. Their contention was that they could, by the use of wide pipes and 80ft. vertical height of water in the pipes, get as much pressure from a 3in. nozzle as they could get from the same nozzle when fixed to a narrower pipe, but with, say, 200ft. vertical height of water—it being understood, of course, that the pipes are kept quite full of water, and that the narrower pipe is still wide enough, say a foot in diameter, to carry efficiently the quantity of water required for size of nozzle indicated. I fruitlessly tried to convince them that the pressure of water issuing from the nozzle depends only on the vertical height of the column, and not on the width of the column. I brought every argument I could think of, with diagrams and every other available consideration, to bear, but had to leave them in the same state of mind on the subject as that in which I found them. I am satisfied, however, that the question will be discussed on the Nevis till the correct theory will be apprehended by all concerned. In the meantime it is lamentable to see, in a party of five men working a claim, that three of them, the majority, are able to override the sound convictions of the other two who are better informed,, and to put the whole party to the needless expense of procuring pipes much wider than they require, and for the purpose of getting a pressure which no pipe however wide will give them in the absence of the necessary fall.

From Bannockburn I visited and delivered one lecture at each of the following places: Clyde, Alexandra, Black's, Tinker's, and St. Bathan's, in each case to a most attentive audience, many of whom had come a long distance to see the tests.

I also, while in this district, visited White's reef on the Old Man, where the proprietors were erecting a five-stamper battery. The stone here is very mullocky, and did not quite realize the very sanguine expectations entertained of it, although it is, I believe, sufficiently encouraging to justify the owners in proceeding energetically with the work. I also saw Green's reef at Black's, and paid a visit to the old deep-lead workings in the Ida Valley, but was not able to form any definite opinion as to the paying prospects of either. From St. Bathan's, where a local chemistry club has been formed, I proceeded to Naseby, where I delivered two lectures and showed the tests for the more important ores.

Since my visit to Naseby a local school of mines has been formed, and a laboratory is being fitted up for the use of the classes. Before leaving the Naseby District I visited the Otago Central reef at the Rough Ridge, and found the five-head battery in good order and the mine very fairly opened up, and giving encouraging prospects to the shareholders. Owing to the urgent demands of other districts I was not only unable to prolong my stay in any one of these localities, but was compelled to pass over altogether Cambrian's, Vinegar Hill, Serpentine, the Burster, Kyeburn, Hamilton's, Hyde, and other centres which I had promised to include in the programme. My inability to carry out the whole programme was due, as already explained, to the absence of Mr. Montgomery, and the consequent necessity of sending Mr. McLymont to the Coast, instead of retaining him, as I had intended, to co-operate with myself on the Otago Goldfields.

From Naseby I returned by coach and train to Dunedin on the 19th February, and was there engaged unpacking and rearranging, allotting and re-packing and forwarding thirty cases of chemicals and apparatus to the various goldfields centres, where local schools of mines were established and funds collected for the purposes of the schools.

On the 8th March I proceeded, with McLymont and Goodlet, to Lawrence, where I delivered