

access and close examination to the students at any time between lectures, which is not well possible with the large collection in the Museum, to which they have hitherto had to take inadequate recourse. In the petrography class the students were during the past session much troubled not only with the rock-section grinding-machine—now nineteen years in use—frequently becoming unworkable on account of worn-out bearings, but proving also quite insufficient for the use of all. The provision of a new machine and a thorough repairing of the old one—which is practicable and could be done at moderate expense—are therefore necessary requirements.

The class in general geology was during the past session conducted by the lecturer, Dr. Don, with the same if not greater enthusiasm than in former years, and afforded the students both excellent instruction and pleasure, owing to Dr. Don having, at his own expense, provided the necessary gas apparatus and fittings, room-darkening arrangements, &c., for the use of limelight in connection with his fine optical lantern, arranged for illustration on the screen of some five hundred photographic slides of interesting geological features and phenomena in various parts of the world. His private outlay on all these appliances and apparatus has so far been over £80, and I feel it a duty to him to state that, owing to his fine illustrative mode of teaching general geology, students are greatly aided in a clearer understanding of many somewhat difficult parts of my much drier subject of mining geology. As in former sessions, Dr. Don made with his students three excursions for field instruction during the recent session, the first of which was to the Harbour Cone and Sandymount for the purpose of studying the volcanic rocks of these districts. During the second excursion of one day a visit was made to the Wairongoa mineral springs, and the highly interesting deposit of auriferous greensand in the vicinity of these springs underwent close examination; while on the return journey the party were conducted through Freeman's coal-mine, in the Green Island coal-measures. The third excursion of the class was to the Oamaru district, and extended over three days. During the first day, on the way to Oamaru, the Hampden beds, enclosing the celebrated Moeraki boulders, were visited; whilst the second day was devoted to an inspection of the recently discovered auriferous quartz reefs on the Balruddery Estate, about fifteen miles from Oamaru; and on the third day the party went out exploring the fossiliferous beds of the Devil's Bridge and the pitchstone and bedded volcanic tuffs of the Oamaru Cape. It needs scarcely to be pointed out that, whilst affording the students great enjoyment, these excursions are of special value to them on account of the interest created in and the practical instruction received by ocular demonstration of geological features and occurrences. Dr. Don, on behalf of himself and the students, expresses thanks to Mr. and Mrs. Reid, of Elderslie, for hospitality shown to them on the visit to Balruddery; to Mr. A. Thomson, proprietor of the Wairongoa springs; to Mr. J. Green, manager of Freeman's coal-mine, for kindly conducting them through his mine; and to Mr. Crombie, Stationmaster at Dunedin, for seeing their large party comfortably settled for the journey to Oamaru.

Through the appointment of Mr. F. B. Stephens, one of our distinguished past students, as lecturer in metallurgy and assaying, this department of the school has been well kept up to its past high level of efficiency, as Mr. Stephens, through practice for several years as metallurgical chemist and assayer for some of the largest gold-mining companies in the Transvaal, proved to be an excellent instructor in these branches; and, owing to the intimate connection of the positions he there occupied with the management of crushing and cyanide establishments—the latter, perhaps, the largest and most perfect at present extant—he not only thoroughly understands their construction, but is also specially qualified for instructing students in the best modes and ways of working the cyanide process under varying conditions regarding the nature of ores to be treated. In the construction of our testing plant he finds defects, and recommends improvements and alterations in several parts, as detailed in a letter to me as follows: “(1.) The battery as at present arranged is not by any means a good amalgamator. I should recommend the addition of amalgamated apron-plates and deep-drop ripples as you yourself suggested. (2.) The speeds of the pulleys have all been miscalculated, and will have to be altered. This is the most important matter, as the pump will not work at the low speed, and the engine is very much strained. (3.) A connection should be made from the top cyanide-solution vat to the pump for the purpose of priming it. (4.) The overflow from the berdan should be enlarged, as it runs on to the floor at present. (5.) The pipe-connections on the cyanide plant want altering to make the affair at all workable. (6.) A covering for the gas-engine is necessary, as the building is very dusty, and the bearings will soon become ruined.”

With the exception of a small lot of tailings treated by the cyanide process and the berdan close towards the end of the past session, the testing plant was not in request by the public for many months—quite in contrast to its nearly continuous employment during the previous year. The chief cause of this unsatisfactory state of affairs is, doubtless, the boom in gold-dredging enterprises, in consequence of which quartz-mining and prospecting for auriferous quartz reefs, for which testing of samples is nearly exclusively required, have suffered to a great extent. There is, however, another circumstance that certainly contributed to it—viz., the general opinion amongst Otago mining men that our charges for treatment are much too high. Mr. Stephens has, indeed, evidence that several parties, after ascertaining our charges (which are on a par with the Thames School of Mines), send their test samples to Sydney, New South Wales, where there is a Government testing plant, and that the treatment charges per ton there made, together with all expenses for transport, &c., came to less than our charges for treatment only would have come to for the same samples. It is therefore a matter for consideration by the mining committee of the Council whether our charges per ton might not, without loss, be so far reduced as to equalise them with the total expenses entailed by having samples tested in Sydney.

EXPENDITURE ON SCHOOLS OF MINES.

The following table shows the expenditure by the Government on Schools of Mines since their inauguration, exclusive of subsidies paid to the University of Otago towards the School of Mines in connection with that institution:—