

KARANGAHAKE SCHOOL OF MINES.

The Director, Mr. R. B. Macduff, reports as follows:—

I have the honour to furnish herewith the third annual report on the Karangahake School of Mines for the year ending the 31st December, 1903.

Attendance.—The attendance at the classes was not so good as was the case during last year. This was especially noticeable at the end of the year, but can be accounted for by the cessation of work at one of the mines and its battery, so that the average attendance was reduced to twenty-three students, taking an average of slightly over three classes per student; but I hope the classes will be better attended next year. There is no lack of young men in the district who could avail themselves of this branch of education were they inclined to do so.

Examinations.—This year was the most successful we have had since the opening of the school. The results of the examinations held by the Mines Department at the end of the year 1902 show that the students have done excellent work, gaining certificates as follows: Eighteen first-class, eleven second-class, five third-class. At the examination for mine-managers and battery-superintendents, held in January, 1903, eight students sat, two for mine-managers and six for battery-superintendents, and all of these students succeeded in passing.

Syllabus.—This was similar to that of former years, but some students did a little advanced work in their respective classes, and with good results. Next year it is intended to add to the syllabus a class in metallurgical chemistry, which shall include qualitative and quantitative analysis of battery-products such as ore, slimes, concentrates, sands, amalgam, slags, &c., as well as the testing of ores for acidity, the causes of loss of KCy during treatment, assay of KCy solutions for gold, silver, zinc, &c. This class should greatly benefit battery hands.

It is also intended to start a separate class in elementary arithmetic, so as to give any one willing a chance to work up enough arithmetic to follow the other classes intelligently.

New Building.—Thanks to a grant from the Government, the size of the school has been doubled, and now the school comprises a large lecture-room, a reading-room, chemical laboratory, balance-room, and office, and the whole school is soon to be lighted with gas, which will also be used for heating purposes in the laboratory.

Governing Body.—The following gentlemen held office during the year: Patron, Mr. E. G. B. Moss, M.H.R.; President, Mr. D. P. Mitchell, M.E.; Vice-presidents, Messrs. F. Rich, B.Sc., G. N. McGruer, and E. Cartwright; Council—Messrs. H. W. Guthrie (Chairman), C. Tresize, T. G. Vinson, G. A. Chappell, A. Tomlinson, T. P. Heron, and R. D. Jones (Secretary and Treasurer). This Council has worked untiringly in their efforts to push the school to the fore.

Library.—During the year the library has been added to, partly by the Council and partly by gentlemen outside the school. In this respect I must heartily thank the Very Rev. Dean Hackett for two standard works on geology and assaying, and Messrs. McGruer and Rich for several books and papers. My thanks must also be extended to the Mines Department for all Government publications.

Mineral Collection.—During last year a good number of mineral specimens and rocks were added to the collection, but want of space has prevented their being displayed; but this has now been overcome, and any gentleman wishing to donate specimens to the school collection will receive the thanks of the Council by forwarding them to the school.

Assays and Analyses.—During the year six assays for gold and silver and sixteen analyses of iron-ore were done, besides the identification of a number of minerals for prospectors. This latter is done free of charge.

In conclusion, I must thank the Council for their co-operation in all matters pertaining to the advancement of the school; likewise all gentlemen who have kindly given books, specimens, &c., and also Mr. V. C. Dette, my laboratory assistant.

NELSON SCHOOL OF MINES.

The Instructor, Mr. W. F. Worley, submits the following report:—

I have the honour to report as follows upon School of Mines work done in Nelson for the year ending the 31st December, 1904:—

Blowpipe Analysis Classes.—These classes continue to do satisfactory work, but owing to the drafting of the senior boys of the town schools to the Nelson College as soon as they have passed Standard VI., the quality of the work is not equal to that of former years. In these classes twenty two boys were taught how to use the blowpipe for the identification of the ordinary ores of commerce. Beginners are allowed to practise on salts of the chief metals, but the testing of ores is the object aimed at. Second-year boys are put through a systematic course of testing unnamed substances. They have to record in note-books—(a) the physical properties of the substance given them to test, (b) the experiments they make with it, (c) the results obtained from these experiments, and (d) the conclusions they arrive at as to the composition of the substance. The results are then checked, and marks awarded for successful work. At the end of the year a certificate of proficiency is given to those whose work has been uniformly good. Testing for gold by panning off wash-dirt in a digger's dish also forms part of the instruction given.

Assaying.—During the year ten assays were made for the public. Some of these were to test the value of leaders of quartz found in the Maitai Valley, but the results were, I regret to say, not satisfactory.

Assaying Class.—Only one student attended this class, but he by his enthusiasm made up for lack of numbers. The course of instruction embraced the crushing and sampling of ores, the proper use of the balance, the fluxing of ores, the refining of bullion, and the estimating of the value of the ores per ton from the results given by the assay. More students could have been got for this class if my laboratory had been large enough to accommodate them. When the new technical school is opened here arrangements will probably be made for the teaching of chemistry and kindred subjects in connection therewith.