

Surveying.—Nature and use of logarithms; the trigonometrical ratios; solution of triangles; adjustments of theodolite and miners' dial; chaining; traversing; connecting underground and surface meridians; calculation of traverses; plotting survey.

Mineralogy and Blowpipe Analysis.—(a.) The six crystallographic systems. (b.) Physical and chemical properties of minerals. (c.) Use of the blowpipe; tests for simple minerals. (d.) Classification of minerals.

Text-book: Collins's "Mineralogy."

Geology.—(a.) Physical and dynamical geology. (b.) Classification and mode of formation of rocks. (c.) The geological periods.

Text-book: Boulger's "Geology."

Theoretical Chemistry.—Fundamental principles; the non-metallic elements; the alkali metals.

Text-book: Roscoe's "Elementary Chemistry."

Practical Chemistry.—(a.) Qualitative tests for metals and acids. (b.) Separation of metals. (c.) Manipulation of chemical apparatus, and the various operations connected with chemical analysis, such as solution, precipitation, filtration, washing, drying, ignition, weighing, &c. (d.) Analysis of simple substances.

Text-book: Park's "Assaying and Practical Chemistry."

Assaying.—(a.) Furnaces, materials, and appliances used. (b.) Dry assays of gold, silver, tin, lead, copper, and antimony ores. (c.) Assay of gold and silver bullion. (d.) Problems and calculations. (e.) Gravimetric assays of silver, lead, antimony, copper, iron, zinc, manganese, mercury, chromium, nickel, and cobalt. (f.) Volumetric assays of copper, iron, and potassium cyanide. (g.) Colorimetric assay of copper.

Text-book: Park's "Assaying and Practical Chemistry."

Metallurgy of Gold and Silver.—(a.) Ore-crushing machinery. (b.) Concentrating machinery. (c.) Amalgamation processes. (d.) Chlorination process. (e.) Cyanide process. (f.) Miscellaneous lixiviation processes. (g.) Smelting processes. (h.) Chemistry of the various processes. (i.) Roasting and smelting-furnaces.

Text-books: Eissler's "Metallurgy of Gold"; Rose's "Metallurgy of Gold"; Park's "Cyanide Process."

Drawing.—Use of drawing instruments; use of scales; plan-drawing.

The school-year is divided into three terms, corresponding to those of the Thames School of Mines, as follows: First term, from the first Monday in February to the 30th April; second term, 9th May to 20th August; third term, 9th September to 20th December.

In mathematics, practical surveying, theoretical surveying, theoretical chemistry, mineralogy and geology, and in drawing the class-fee is 5s. for each class per term; in mining, practical chemistry, assaying, and metallurgy the fee is 7s. 6d. for each class per term. In addition to the class-fees a membership-fee of £1 per annum is charged.

During November, 1898, our accommodation was doubled by the addition of a new class-room and a balance-room to the school-building, the assay-room being at the same time enlarged. The cost of these additions was met by a Government grant of £150. This increase in floor-space has given the assaying and chemistry classes greater facilities for the practical work, and has been one of the causes of the increased attendance.

At the end of last year examination-papers in the various subjects were sent up from Wellington, but only three candidates—E. P. Hargraves, R. Arscott, and E. Johnson—presented themselves. Each was successful in gaining a second-class certificate. After making full allowance for the fact that the school had been established for only eighteen months, it is rather disappointing that more candidates did not present themselves, particularly from the mining class, which is composed of practical men, some with many years' experience.

During the past year two students—Messrs. Gilmour and Hughes—from this school have obtained first-class mine-managers' certificates, and one—Mr. G. Winslow—the battery superintendent's certificate. In addition to these, eight of our students sat for the mine-managers' and battery superintendents' examinations held here under my supervision last January. The results are, however, not yet known.

In the course of the year fifty-four assays and analyses have been made by me for the public. Two of these were analyses of coal; one was a water analysis for Mr. T. Perham, Water Conservation Engineer; and the remainder were fire-assays for gold and silver. The average value per ton of the stone tested was £8 4s. 2d. In addition, a number of determinations of minerals have been made free of charge.

A considerable number of mineral and geological specimens have been acquired from various sources during the past year; but the want of proper show-cases at present greatly detracts from their value.

In conclusion, I have to express my thanks to the Committee, who have been untiring in their efforts to promote the interests of the school; to the local mine-managers and battery superintendents, whom I have always found ready to assist and give information; to Mr. F. B. Allen, Director of the Thames School of Mines; to Mr. F. B. Stephens, lecturer in assaying and metallurgy at the University of Otago, for the gift of mineral ores and specimens; and to the Mines Department, who have forwarded a number of mining reports and papers.

NELSON SCHOOL.

Mr. W. F. Worley reports as follows:—

I have the honour to submit the following annual report of School of Mines work done in Nelson for the year ending the 31st March, 1899:—

The work done comprises the teaching of blowpipe analysis to boys in the State school, the assaying of ores and smelting of bullion for the public, the teaching of agricultural chemistry to a class of young men, and the delivery of public lectures on chemistry subjects.