

"Zinc-ore, Aclare Mine, South Australia. Analysed by Mr. W. Climo."

"Silica	11.50
Iron	12.03
Zinc	32.01
Lead	13.64
Sulphur	30.71
Loss	0.11
	100.00

"This was also a very complex low-grade sulphide ore, which the owners so far have not been successful in smelting on account of the high percentage of zinc present. This sample contained about 25dwt. of gold and 24oz. silver to the ton.

"Theoretical Chemistry.—This very important and essential branch of chemistry was started last year for the benefit of the members of the practical chemistry class. I have treated the subject most exhaustively throughout the whole course; indeed all my lectures have been illustrated with numerous experiments. The attendance has been large and regular, among the students being a number of teachers from the State schools. The results of the instruction have been most gratifying, and have amply repaid me for the extra work which this class has placed on me.

"Mineralogy and Blow-pipe Determination.—The attendance at this class has always been small, as the instruction is given only during the day, on account of the difficulty of recognising the colour-reactions of the different minerals by gaslight. The subject is, however, one of great and growing importance, and I should like to extend the instruction to the night students, many of whom have expressed a wish in that direction. At present this is impossible, as my time during the evenings is already fully taken up with other classes.

"Geology and Geological Surveying.—This is also a day-class, attended principally by the members of the mineralogy class. The lectures in this subject are devoted chiefly to the study of general geology, including the study of faults, lodes, and geology as applied to mining. One forenoon every week is devoted to a field-excursion for the study of natural sections, mapping geological formations, collecting rock and mineral specimens, and instruction in taking the strike, dip, and inclination of strata and lodes. The different mines on the field are also visited for the purpose of noting the behaviour of lodes, character of country, different methods of timbering; also the machinery used for pumping, winding, and rock-boring. The batteries are also examined in order to study the various appliances and processes used for extracting the gold and silver from their ores.

"Mining.—This class was largely attended by students qualifying themselves for certificates as mine-managers. The syllabus of instruction is very wide and comprehensive, being intended to cover the whole of the subjects of examination for certificates under "The Mining Act, 1891," except surveying, which is taught in a separate class. During the year I sent up seven candidates for the Government examination, and six of them successfully passed the examination for first-class certificates as mine-managers, the other failing in one subject only, making a total of sixteen students of my mining and surveying classes who have succeeded in passing the Government examination during the last two years and a half. This is in every way an eminently satisfactory result, considering the very technical and exacting nature of the papers set by the Board of Examiners. It also reflects great credit on the industry and abilities of the candidates themselves, none of whom, at the time they joined the classes, possessed any knowledge of the subjects of examination, excepting the practice of mining acquired in their ordinary occupation.

"Land- and Mine-surveying.—This class is mostly attended by the members of the mining class, as well as others who wish to qualify themselves as mine-surveyors and engineers. The instruction is imparted by field practice with the theodolite, miner's dial, and level, once, and sometimes twice, every week; and by lectures on the use of logarithms, solution of triangles, calculation of areas, &c., and instruction in plotting, map-drawing, &c. Most of the students have taken a deep and intelligent interest in this subject, and many of them have found the instruction of immediate value to them in their work as mine-managers, contractors, &c.

"During the last two quarters I gave lessons in practical astronomy, dealing principally with the different methods for the determination of azimuth, latitude, and time. With a very superior 6in. transit theodolite, belonging to one of the students, I carried the standard meridian of Mount Eden to a prominent permanent station on Mount Pleasant. With the same instrument I took a number of observations for azimuth at the sun and several circumpolar stars, making an angular difference with the standard meridian, after making the necessary correction for convergency—varying from 7 seconds to 40 seconds of arc—the average difference being 36 seconds. Observations for time, extending over a number of consecutive days, gave very close results. One of the students has made excellent progress and will soon be able to fix his own meridian.

"While I was at Coromandel, in December, I fixed a station close to the School of Mines there and connected it by triangulation with the standard triangulation. Since that date, Mr. Wm. Horne has made a number of observations for time and azimuth with his 6in. transit at this station, and the results have been fairly good. An urgent necessity of our surveying class is a good serviceable 5in. theodolite in place of the old worn-out 4in. at present in use.

"Mechanical Drawing.—This class is still under the able supervision of Mr. E. F. Adams, M.E., and is attended chiefly by young mechanics and artisans. Many carefully finished drawings have been executed by the advanced pupils during the year. The instruction is imparted by drawing to scale from copies and objects, and the examination in December showed that most of the candidates possessed an intelligent understanding of the method of delineating on paper the construction of objects by section and elevation drawn to scale. The attendance should be much larger, and would doubtless be so if the Committee could afford to reduce the present guinea-fee per quarter to, say, ten