

poorly attended; hence none of our students competed at the annual examinations. The irregularity in the attendance is, of course, largely due to the distance the mines are from the school, and the different shifts allowing some to attend only every other week.

Up to the end of 1897 no less than thirty-two students from the school have successfully passed the Government examinations for first-class mine-managers, twenty-four under the Mining Act and eight under the Coal-mines Act. Besides these, a great many have been successfully prepared for the engine-drivers' and other examinations. Five candidates sat at the last examinations for mine-managers, held in January, the results of which are not yet known.

In the laboratory 430 assays and analyses have been performed, which shows a decrease compared with the previous year. Besides these, a large amount of experimenting has been done with the cyanide process on the tailings from the different batteries on the field, and, as a result of these experiments, the process is now being successfully used at two different places. The decrease in the number of assays performed at the school is owing to some of the large companies here employing assayers at their mines. The want of a small testing plant as described in my last report has been very much felt, and I am quite sure it would be largely used, and would greatly increase the utility of the school. As I have been doing all the laboratory work and experimenting myself, this, together with the classes, has kept me fairly busy throughout the year. The smaller schools, such as at Brunnerton, Denniston, and Boatman's, were not visited.

The number of individuals attending the classes would be about thirty, and the following tabulated statement will show the attendance at the different classes:—

Subject.	Members.	Average Attendance.
Mining and mathematics	15	10
Surveying	14	10
Assaying and metallurgy	18	12
Theoretical chemistry	10	6
Practical chemistry	10	6

The work done at the classes is similar to that of previous years, as follows:—

Practical Assaying and Metallurgy.—This has been our principal class, and has been fairly well attended throughout the year. The instruction given is of great importance to those who wish to qualify as assayers or battery superintendents, and the class should be even better attended than it is. The students are instructed in the wet and dry methods of assaying; use and composition of fluxes, fuels, reagents, &c.; smelting; valuing and refining of gold and silver bullion; amalgamation, retorting, &c.; also in the various methods of extracting gold and silver from their ores, such as battery-work, amalgamation, concentration, cyaniding, and chlorination. Some of the students from this class intended to sit for the battery superintendents' examination, but were unable to do so, not having the practical experience at a battery with cyanide plant attached.

Practical and Theoretical Chemistry.—The two subjects are taken together, and the attendance has not been good. In theoretical chemistry the non-metallic elements were taken generally, together with the chemistry of gold, silver, and mercury. This class does not seem popular, although a knowledge of the subject is very necessary to all mining men. In practical chemistry instruction was given in the preparation of reagents and salts, testing for acids and metals, separation and detection of metals and mineral substances, besides assays and analyses by gravimetric and volumetric methods.

Land- and Mine-surveying.—The work in this class was nearly all theoretical. Very little practice could be given to students, owing to want of instruments. Instruction was given in chaining, tabulation of traverses, calculations of areas, heights, distances, plotting, levelling, and laying out roads and races. This class, I am afraid, will soon get smaller unless more practical work is done; but I hope to have the necessary instruments early this year. It is a subject of great importance to mining students, and has always been a popular class at the school.

Mining and Mathematics.—The instruction given in this class includes mining geology, strength of materials, timbering, pumping and pitwork, hauling and winding, ventilation, explosives, water-power, &c.; also logarithms and plane trigonometry. These two latter subjects are of great importance to the mining student, and are the first things taught to a new member. Those attending are mostly miners and those wishing to qualify as mine-managers or engine-drivers. The attendance is rather irregular, which retards the class greatly, and prevents a large amount of work from being done.

Reefton School.—There has been nothing done in the way of adding improvements to the school, as the necessary funds were not available. The preparation of all assay samples has to be done with pestle and mortar, and finely pulverised on the bucking-plate and muller. With large samples this work is very laborious, and takes up a great deal of time. I have had to refuse many large samples on account of not having the necessary appliances to reduce them. The school is still urgently in need of a good assay balance, as a great deal of careful work has to be done, and should inaccurate returns be given it would greatly injure the school. I trust that during the coming year the committee may be enabled to equip the school a little better, and to add a few of the most necessary improvements.

The Laboratory.—In this department 430 assays and analyses have been performed during the year, besides a large number of experiments with cyanide and chlorine. A large number of samples have been sent for qualitative analysis, the most of which is done free of charge. The tests are made up as follows: Fire-assays, 361; amalgamation tests, 14 (weight of stone, 280 lb.); bullion assays and smeltings, 23; analyses, 5; cyanide tests, 20; tin assays, 2; copper assays, 5. The fire-assays made at the school are never less than 1,000 gr. tests, except in the case of concentrates where the sample is rich. The following is a copy of a 1,000 gr. assay-table made out by myself for use in the school; it may be of some use to others;—