

an evidence of much application and industry on the part of many. The silver medal offered by Dr. Scheidel, of the Royal Academy, Freiberg, for proficiency in practical chemistry was won by Mr. H. Paltridge, with 87 per cent. of total marks. The special prizes presented by Dr. Williams and Mr. E. F. Adams for proficiency in mechanical drawing were secured by J. Watson, H. Paltridge, and Price. Six valuable book-prizes, presented by the Under-Secretary for Mines, were secured by Messrs Baker, Carter, Crawford, Eddowes, Forbes, and Paltridge.

*"School-buildings.*—In May the lecture-hall was unfortunately destroyed by a fire, which originated through a defective gas-pipe in one of the draught-chambers. With the most commendable promptitude the committee reinstated the building, the new hall being in many respects superior to the old one. During the building operations the classes were conducted in the office and assaying-rooms, and in the end of June the usual work of the school was resumed as before the fire. In the new lecture-hall the small wooden draught-chambers have been removed, and a large brick chamber constructed off the furnace-room, thus preventing a recurrence of fire from this cause.

*"Laboratory.*—The number of assays and analyses performed for the public during the past year was 271, being an increase of 91 over the number for the year 1889–90. These included 249 assays for gold and silver, and the analysis of coals, rocks, limestones, manganese ores, waters, and substances from the police in two poisoning cases. The supervision or actual performance of many of these by myself—for many are of a special character, requiring my own attention—together with the writing and despatching of the reports relating to them, involves on me a large amount of extra work in addition to my already very heavy duties connected with the school and experimental plant, which occupy my time to the fullest extent. Bullion and parcels of ore and tailings are bought on our assays, and in this respect the school has proved itself of public use.

*"Kurunui Water.*—In his annual report for last year Mr. H. A. Gordon, Inspecting Engineer of the Mines Department, referred to and published the results of some analysis of the waters and suspended matter issuing from this adit at the Thames, by Mr. R. M. Aitken, of the Reefton School of Mines. Mr. Aitken's tests showed the presence of large quantities of bullion both in the water and sediment, and Mr. Gordon suggested that further experiments should be made, with a view of ascertaining if those made by Mr. Aitken were reliable.

"During the past year a number of tests have been made both of this water and suspended matter, on gallon samples as used by Mr. Aitken, but no bullion was obtained. A test of a 21-gallon sample gave no better results. Mr. Aitken reported the bullion he obtained from the water and sediment as worth £2 5s. per ounce in each case; his own figures, however, show that the value of the bullion from the sediment was £1 11s. 10½d., and from the water £1 13s. 9½d. per ounce. This would tend to show that an element of error had found its way into Mr. Aitken's tests.

*"Coromandel.*—In August and December I visited this place and held classes in practical assaying, practical chemistry, mining, and surveying. The greatest interest was evinced in the mining and surveying classes. In the latter practical instruction was given in the field in the use of the theodolite, dial, and level, and in the school the surveys were plotted to scale by rectangular co-ordinates, calculated trigonometrically and by the use of logarithms. Satisfactory progress was shown in all the classes, but the average attendance was much below that of the previous year. This was said to be due to the general dullness of mining at Coromandel, and the absence of many of the miners at Kuaotuna Goldfield. Mr. William Horne, who was a most attentive and regular attendant at my classes, succeeded in passing the Government examination for mine-managers with great credit. Mr. Horne has always displayed the deepest interest in the Coromandel School of Mines. He holds weekly classes for instruction in assaying for boys and youths, and for the unselfish manner in which he has devoted his time to this purpose he deserves every praise and encouragement.

*"Experimental Plant.*—During the past year eleven parcels of ore have been treated at our plant, as against two for the preceding year. This satisfactory increase is chiefly due to the recent development of the Puhipuhi Silverfield, and the discoveries of silver-bearing ore in the Waiomo district.

#### *"Particulars of Working-tests.*

##### *Five Parcels of Ore from Gem Mine, Waiomo :—*

*No. 1.*—This was a test by amalgamation of 256lb. of dry pulp, containing free gold- and silver-chloride. The sample showed an assay-value of £16 2s. per ton, being gold 3oz. 5dwt. 13gr., and silver 19oz. 18dwt. 5gr., per ton. The ore was hot pan-amalgamated for four hours with chemicals, and yielded 1oz. 9dwt. 13gr. of bullion, 241·4 fine in gold and 758·6 fine in silver, representing a saving of 87 per cent of the assay-value.

*"No. 2.*—This was a test of 1,045lb. dry pulp, showing an-assay value of £10 3s. 6d., being gold 2oz. 5dwt. 9gr., and silver 7oz. 6dwt. 5gr., per ton. The ore was crushed wet, and passed over amalgamated-copper plates so as to save free gold. The tailings were collected in settling-pits, and afterwards treated by hot pan-amalgamation with chemicals. The plates saved 3dwt. 18gr. of bullion, 535·8 fine in gold and 408·7 fine in silver, equal to a saving of about 8 per cent. of the assay-value. The pan saved an additional 16dwt. 10gr. of bullion, 415·2 fine in gold and 584·8 fine in silver, equal to a saving of 33 per cent. of the assay-value, or a total saving by the plates and pan-amalgamation of 41 per cent.

*"No. 3.*—This was a test of 910lb. of ore, containing, in addition to gold and silver, a considerable proportion of lead-chloride, most of which was collected on the blankets. The ore showed an assay-value of £10 4s. 6d., being gold 2oz. 5dwt. 9gr., and silver 7oz. 16dwt. 6gr., per ton. The ore was treated like parcel No. 2, and yielded on the plates and by pan-amalgamation 9dwt. 18gr. of bullion, 161·4 fine in gold and 838·5 fine in silver, representing a saving of 9 per cent of assay-value.