

lar check-assays made of the general dirt before it passes to the stamps, and of the resulting tailings. It frequently happens that the tailings assay as high as the general dirt before treatment, but it does not mean that no gold has been saved. The tailings are always concentrated to a greater or less extent, according to the character of the ore and contained gold, and the appliances used for concentration. The loss, however, must be considerable, since the tailings from the different batteries are treated profitably by the tailings-plants by a process similar to that adopted at the mills.

“Samples of ores and tailings from all parts of the peninsula have been examined at the school, with the result that tellurides of gold and silver have been found to be more widely distributed than has hitherto been suspected. These ores are not amalgamable, and are consequently lost. This matter was forcibly brought under my notice on two occasions towards the end of 1890. A parcel of ore from the Marotota Mine, at Hikutaia, had been exhaustively treated at the School of Mines' experimental plant, and still the tailings showed an assay-value of almost 300oz. of silver and 6oz. of gold per ton. The constant discrepancies between the fire-assays of these tailings led me to suspect the presence of tellurides, and subsequent investigation verified this surmise. Mr. W. Climo, one of the advanced students of the school, has made an analysis of these tailings, with the following results :—

“ Silicious matter and gangue	...	...	...	...	...	99.32
Telluride of gold and silver	...	...	...	...	...	00.56
Selenide of gold and silver	...	...	...	...	...	00.12
						100.00

“These tailings were shipped by the owners to the smelting-works at Dry Creek, Adelaide, from which they have been forwarded, I am informed, to Freiberg for treatment.

“On another occasion a sample of tailings from the Nordenfeldt Mine, situated at the head of Shotover Gully, Thames, was forwarded to the school for assay. Afterwards the tailings were treated by amalgamation in a tailings-pan at the Onslow Works, the return being practically nil. As there was a large discrepancy between the return and the assay-value, assays were made of some black concentrates of great specific weight which had collected in the bottom of the pan. These showed an assay-value of over £800 per ton, and analysis proved that the gold existed chiefly in combination with tellurium.

“Last February I detected nagyagite (telluride of gold, lead, and silver) in a rich mineral vein in the Sylvia Mine, Tararu Creek, most of which should be saved by the very complete concentrating and dressing works that have recently been erected there.

“The gold-bearing rocks of the peninsula, consisting principally of tufas, breccias, and andesites, both in physical characters and age are closely related to those of the Western States of America and some parts of Hungary, where rich tellurides of gold and silver are characteristic ores. Their occurrence here is a promising indication.

“*Students.*—Of the students of the School of Mines who successfully passed the necessary examinations and obtained their certificates during the past year a number have received good appointments. Among these are Mr. J. Mangan, who has been appointed manager of the Huntly Coal-mines; Mr. J. Carter, who has received the management of the Consols Mine, Hape Creek, where powerful winding and pumping machinery has recently been erected; Mr. W. Baker, who by obtaining his certificate has secured the management of the well-known Cambria Mine; Mr. Malcolm Fleming, appointed manager of the Manganese Mine, Waiheke Island; and Mr. Noble, assayer and analyst to the Kauri Company's Whangapoua mines. Others have left for Australia and South Africa, with bright prospects of future success.

“The present students of the school include miners and mine-managers, battery-men and battery-owners, mechanics, bank assayers and clerks, lawyers, school-teachers, and day-students, who are studying with a view of qualifying themselves as assayers, analysts, &c.

“No other mining centre in New Zealand offers the same advantages for a school of mines as the Thames. The great diversity of the gold- and silver-bearing ores, both free-milling and complex, and the numerous systematic and scientific methods now adopted for their treatment, present special attractions to the metallurgist and millman, while the great variety of mining operations are equally attractive and instructive to the miner and mining student. The Thames Goldfield is compact and easily accessible in all parts, thus enabling those engaged in practical mining and gold-extraction to attend the school and acquire a technical knowledge of their occupations.

“In concluding, I have to thank the local committee for their hearty co-operation and assistance during the past year, and for the disinterested manner in which they have always promoted the interests and welfare of the school.”

The Reefton School is not progressing so rapidly as was at first anticipated, neither is the same interest taken by the people in the district that is shown in the case of the Thames School. The reason attributed is that the mines are all situated a considerable distance from the township, which prevents the miners from attending. The ores in this district are not so complex as those in the North Island. The gold is in a more free state, and not combined with silver; but still there are lodes, such as those found in the Golden Treasure ground, which contain a large percentage of antimony, combined with gold. Only a few of the miners, who wish to qualify themselves for mine-managers, attend the classes. The importance of having a good knowledge of mineral ore and the percentage of metal it contains does not receive sufficient attention. The apathy displayed at the Reefton School shows that unless a school of mines is in the centre of a large mining population, where the miners can conveniently attend the night classes, it is not likely to prove a success. Although Reefton may be considered the centre of a large mining district, the miners are greatly scattered all over the district, none of the mines being situate within two miles of the town. The following is the report of Mr R. Aitken, lecturer and instructor of the School of Mines, Reefton, for the year ending the 31st March, 1891 :—