TUI MINE, TE AROHA.

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ABSTRACT

This paper deals with the history, the geology, and a description of Tui Mine Te Aroha. The report is aimed at providing a basis for a further more detailed study of the Mine and its surrounding area. Tui Mine is one of the few mines still being worked in the Hauraki goldfield, and is the only one in the area that has been worked as a base-metal proposition.

INTRODUCTION

Tui Mine is located two miles north of Te Aroha town-ship, on the western flanks of the Kaimai Ranges. The present workings on numbers Four and Five levels cover an area of 150,000 square feet. The newly opened number Three level has not been included in this study.
In 1962 South Pacific Mines Ltd., acquired the lease to prospect and evaluate the area as a base-metal proposition. Subsequently this company has reopened the lower two levels of the old workings, and has prospected the lodes in these levels by driving along them and stock-piling the removed ore and country rock. Future plans of this company include the establishment of a flotation plant on the flat area at the junction of the mine road and the road leading to the N.Z.B.C.'s Television repeater station on top of Mt. Te Aroha.

THE MINE

The mine has been developed on five adit levels, which vary in length from 30 to 1350 feet. At the time of writing South Pacific Mines Ltd. had reopened two levels, No. Four and No. Five, and were beginning to develop No. Three level.

In the upper levels, Numbers One and Three, the early workings were in the form of open cuts and gopherings through oxidised material and cerussitic ore. This may indicate the presence of a narrow, discontinuous oxidised zone in the Tui ore body. Elsewhere on the surface the reef outcrops are unoxidised, while unoxidised ore also occurs underground in Three, Four and Five levels.

GEOLOGY

The Kaimai Range forms part of a north-west trending belt of andesites of mid(?) and upper Tertiary age. Early workers in the Coromandel - Thames - Te Aroha area divided the volcanics here into three groups: the highly altered and mineralised First Period andesites; the less altered and mineralised Second Period andesites; and the Third Period rhyolites and dacites. If this scheme is adopted Tui mine area is located in the mineralised First Period volcanics.

The country rock at Tui mine consists of altered and mineralised ("propylitised") andesite. Detailed thin section studies of this rock will be presented in a future paper on this area.

Two reefs are present: the north-easterly trending Champion Reef; and the east-north-easterly trending Ruakaka Reef. The expected junction of these two reefs has yet to be proved. The reefs diverge with depth and appear to steepen in dip on their south-westerly extensions. The strikes of these reefs have been traced by surface outcrop for distances of 1500 feet for the Champion, and 2000 feet for the Ruakaka (Williams, 1964). The cross cut on Number Five level from the Champion to the Ruakaka proves the persistence of these reefs with depth. Williams (1964) records that the Champion and Ruakaka reefs persist over vertical distances of 594 feet and 785 feet respectively. Williams also described the reefs as "relatively massive, hard quartz containing a persistent core of sulphides from three inches to, exceptionally, as much as three feet in thickness. The reefs are separated from the relatively hard country rock by a clay parting, but the contained sulphide core is frozen to the reef."
The purpose of this investigation was to provide a basis for a more detailed study of the area. The results of a plane-table survey of the Number Four and Number Five level adits and the road connecting them, made during a 1964 Geology Stage III field trip, have been checked and used here. The actual adit-levels were surveyed using the chain and compass technique.

HISTORY of the TUI MINE

Originally known as the Champion Mine, it was first opened up in 1884 to provide a flux for the smelting of the Wairongomai gold ores of the Te Aroha Gold and Silver Company. However, the high zinc content of the ore rendered it unsuitable for this purpose. Attempts were then made to mine the Tui ore purely for its gold and silver content, but the refractory nature of the ore made it impossible to extract economically the gold and silver by the methods then in use. Even the "thermohyperphoric" method of treating refractory ore, developed in 1899 by the Rev. Joseph Campbell, failed on the Tui ore.

The earliest owners appear to have been the Thames Lead and Silver Co., but in its early stages the mine passed through many hands. In 1889 three levels had been constructed and communication made between them on the main lode. An aerial tramway was under construction to take ore 120 chain down the mountain to the flats below. It was planned that some of the ore should then go to the Te Aroha Gold and Silver Company's smelter at Wairongomai; and that a packet of 200 tons be sent to England. A previous packet of 11 tons sent to England realised £6. 10. 0. per ton.

By 1893 the company was striking financial difficulties since no successful and economical method of dealing with the refractory Tui ore had been found. The Wairongomai smelter had only recovered 30% of the bullion from the samples sent from Tui, and it was considered not worth sending any more. It was then decided to wait for a plant to be erected by the nearby Crown Co. that would treat ore by the more economical cyanogen process. This plant apparently failed, and in 1896 the lease was obtained by The New Zealand Syndicate. The following year the Tui Gold-mining Co. acquired the lease. By this time five adit-levels had been opened on or near the Champion lode, and had been driven in for distances varying from 30 to 270 feet.

The Tui Gold-mining Co. does not appear to have developed the mine any further; the working of the area apparently being subject to the success or failure of the treatment plant that was being erected to deal with the ores of the close-by Montezuma claim. This plant proved to be a failure, and the Tui area was abandoned until 1902 when a local syndicate took up the claim. A few men were put on to extract ore for testing purposes. Although the results of these tests are unknown, presumably they proved too poor to consider the resumption of mining.

Since then the claim has had a number of owners, and several changes of name. All efforts made to raise capital in England and elsewhere to provide the expensive treatment plant failed.
Cinnabar is associated with the lode material as druses in the lode, and along the clay selvages. Limonitised quartz-filled drusy cavities in the wall-rock near the lode are sometimes well developed.

Whittle (in Williams, 1964) described the Tui ore from polished sections as "essentially a coarse-grained aggregate of sphalerite, galena, chalcopyrite, and pyrite with subordinate finer-grained marcasite, tennantite, and chalcocite in quartz gangue," and "minor secondary enrichment exists by virtue of chalcocite replacing the edges of chalcopyrite and spalerite."

CONCLUSION

With the advent of a plant for crushing and concentrating the Tui ore, further development of the Tui Creek area as a base-metal field is possible. More detailed and concentrated prospecting could reveal other likely lodes or veins. However, the steep and densely bushed nature of the country will make this difficult.

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REFERENCES


N.Z. MINES RECORDS

N.Z. MINES STATEMENTS.

REQUEST FOR RESEARCH MATERIAL

Material is required for working involving the revision of the New Zealand Aradidae (Order Hemiptera). These insects are commonly known as flat bugs or bark bugs and are usually found underneath the loose bark of dead trees, or in leaf litter. They are quite small, many of them being only a couple of millimetres long, although our largest species is over 1 cm. Nearly all species are very flattened, some being paper thin. This characteristic and their dull brown or mottled coloration renders them very inconspicuous in their natural surroundings.

New Zealand has a very rich fauna of Aradidae; in fact it has been said that this country stands as a natural storehouse of Aradid types unequalled by any other island or continent.

Associate-Professor J.G. Pendergrast, of the Department of Zoology, would be very grateful for any specimens which collectors discover. They could be sent dry (in soft tissue paper) or preserved in spirit. Information about the locality, place where they were living, date and the collector’s name would be appreciated.

An Aradid Bug