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THE AJAX MOLYBDENITE DEPOSIT

INTRODUCTION

The mineralization of this property was discovered by early prospectors; references to it are made in the British Columbia Minister of Mines report for 1927. The zone was staked for Newmont Mining Corporation in 1965 and drilling progressed from 1965 to 1967 when the deposit was explored with 26,000 feet of diamond drilling. Mr. Robert Sheldon synthesized the field data of Mr. T. Taketa and provided the following picture of the deposit.

GENERAL GEOLOGY

The gross texture of the country trends almost northerly in contrast to the east-northeasterly trend in the vicinity of the Lime Creek deposits. The area is underlain by argillaceous sedimentary and some interbedded volcanics rocks of the Jurassic Hazelton Group. In the vicinity of the molybdenite deposit the strata strike north to northwest and dip northeast. They are drag folded and are probably part of the eastern limb of an anticline. Most of the faults, joints and shears dip steeply and strike in both northwest and northeast directions.

The molybdenite deposit is on the steep eastern slopes of Mount McGuire, where the strata include argillites with some interbedded tuffaceous volcanics and a lava flow of pyroxene andesite.

In the central part of the mineralized area, four small porphyry stocks are grouped together in an elliptical area measuring 3000 feet by 2500 feet, with the long axis oriented northwest. The individual stocks are quilinear in plan and generally continue downward to the limits of drilling without merging into one large intrusive. They are however, linked together by abundant dikes of composition similiar to that of the stocks. The two southern stocks are quartz feldspar porphyry and the two northern stocks are monzonite porphyry. There are no intersecting or crosscutting relationships to support the idea of separate intrusives in time. Rather the transitional changes, although partly obscured by alteration, suggest that the two porphyries are facies of the same pluton.

The prevailing strike of the strata is north 35° west with dips between 65 and 85° to the northeast. However, locally drag-folds have changed these attitudes. Localization of the porphyry intrusions was likely influenced by the presence of the drag-folds and the fracturing of the strata. The intrusives appear to have been forcefully intruded into some of these structures. At the upper surface exposures of the intrusive complex the strata dip relatively gently to the northeast and appear to

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be somewhat draped over the upper part of the intrusive complex. At deeper levels, the strata dip steeply to northeast and the intrusive plunges parallel to the steeply dipping strata.

A contact metamorphic aureole surrounds the intrusive center for a distance of about 3000 feet outward from the stocks. This is largely brown biotite hornfels which gradually changes outward to argillic hornfels and which changes adjacent to the stocks to a pale green rock. This pale rock resembles the altered hornfels adjacent to the Lime Creek deposit where the biotite of the hornfels is converted sericite near the ore zone.

Black, hard, fine-grained lamprophyres occur as northeast striking dykes up to two meters in width. They are post-porphyry and contain no sulfide minerals.

MINERALIZATION

Zoning is apparent in the overall mineralization picture. The outer part of the brown hornfels halo exhibits virtually no fracturing or quartz veinlets but may carry sparse pyrrhotite. Proceeding inwards toward the intrusive complex, the hairline fractures contain chlorite and pyrrhotite. Nearer to the intrusive complex, these fractures become wider and are filled with quartz which carries pyrrhotite as well as coatings and minute bandlines of molybdenite.

The sulfides constitute less than two percent by volume of the rock with pyrrhotite in the major amount. Very minor amounts of sheelite have been noted within the quartz veinlet zone or associated with garnet skarn within areas of the hornfels. Molybdenite is always associated with quartz and occurs in the pyrrhotite-bearing veinlets and in the hairline fractures as stringy lenses or smears along shears. Molybdenite is usually concentrated along contact boundaries of the veinlets. The quartz veins or quartz stockwork are present in both intrusive rocks and in the contact zone of the hornfels.

The overall picture of the deposit (drawn from the plans and cross sections) has several significant features. In the upper part of the mineralized area (3000-foot level), the strata dip relatively gently to the northeast and are cut by numerous parallel or sub-parallel faults. The molybdenite mineralization is controlled by these pre-existing structures and the grade contours form bands that are sub-parallel to but definitely cross-cutting the stratifcation.

At a lower level (2500-foot level), a somewhat arcuate form for the molybdenite zone emerges with a relatively lower grade core area trending northeasterly parallel to the many northeasterly-striking, steeply-dipping faults. The outer diameter of the molybdenite zone at this level is about 1400 feet by 1700 feet.

At a much lower level (1500 feet), the molybdenite zone has expanded to 2800 feet by 2000 feet oriented in a northwesterly direction. The ore area has a definite arcuate shape with steeply dipping internal structures as indicated by the grade contours and with a definite barren core measuring 1600 feet by 1000 feet and also oriented northwesterly. However a zone of molybdenite mineralization about 600 feet wide trends northeasterly right through the middle of the barren core. This represents mineralization controlled by a fault and shear zone. At higher levels this fault-controlled linear zone merges with the northwest size of the main arcuate zone leaving the barren core with an apparent northeast trend.

Post-ore faulting has displaced the mineralization in places.

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