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THE REDBIRD MOLYBDENUM DEPOSIT

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The Redbird molybdenum deposit is located at the east margin of the Coast Mountainss, 160 km south of Smithers, B.C. It lies just outside Tweedsmuir Provincial Park and is accessible only by air or by a combination barge and truck route over Ootsa and Eutsuk Lakes, from either Houston or Burns Lake. It is actually quite close to Tidewater, at Dean Channel, but the intervening terrain is extremely formidable.

The prominant Redbird gossan has been known since the turn of the century, but the molybdenum-copper mineralization, exposed along the crest of Little Redbird Mountain, was first recognized and staked by Phelps Dodge prospecting crews in 1960. Approximately 10,000 m of diamond drilling was done by Phelps Dodge between 1965 and 1968 when work ceased. It was optioned by Craigmont in 1979 and an additional 14,000 m of diamond drilling completed in 1979 and 1980. Published reserves to the present drilled depth are approximately 65,000,000 tonnes grading 0.17% MoS_2 at a cutoff grade of 0.10%.

The deposit lies about 15 km east of the Coast Batholith associated with a small stock dated at 49 ma. The stock intrudes Upper Cretaceous Kasalka volcanics and is one of several along the mountain front, including the Berg and Lucky Ship to the northwest.

The stock is about one kilometre in diameter (Fig. 1) and appears to intrude a westerly trending anticline in the Kasalka volcanics, as they dip away both to the north and to the south.

Mineralization occurs almost completely around the periphery of the stock with higher grade concentrations in three areas which coincide with sharp rolls or irregularities in the contact. Numerous minor faults and slips are evident in core but no trends have been established to date.

The stock is composed almost entirely of medium to coarse grained quartz monzonite porphyry cut by very few quartz feldspar porpnyry and aplite dikes. The

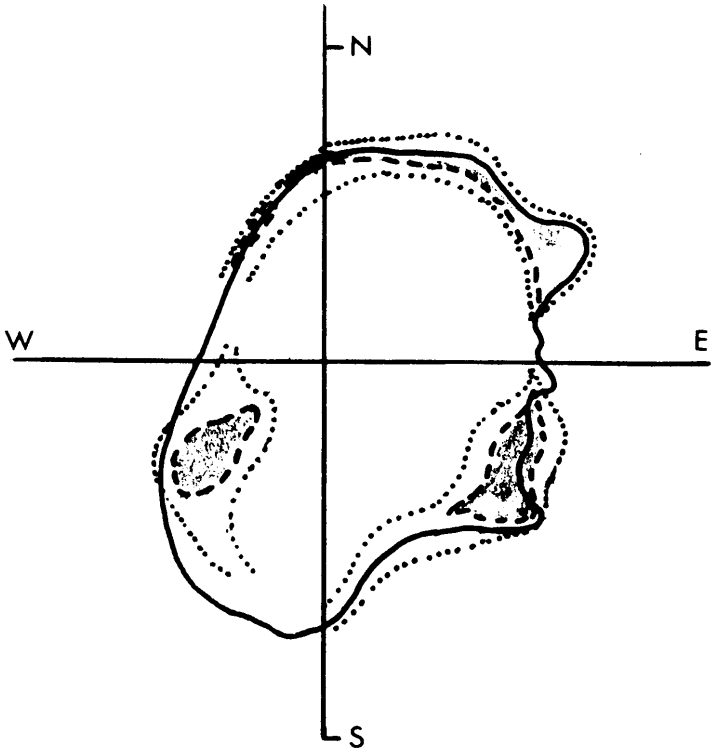

Fig. 1
SURFACE PLAN
1:20,000
0 500m

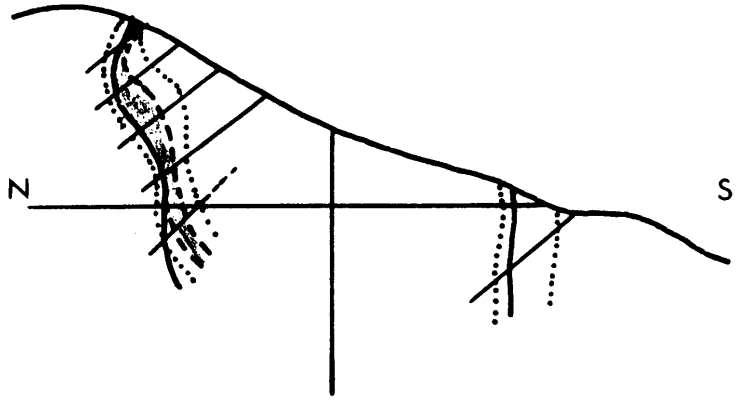

Fig. 2
NORTH - SOUTH SECTION
1:20,000

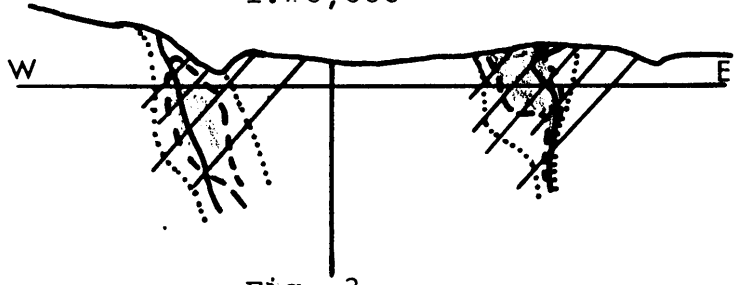

Fig. 3
WEST - EAST SECTION
1:20,000

LEGEND

Intrusive contact
0.05% MoS_2 cutoff
0.15% MoS_2 cutoff

host volcanics are andesitic to rhyolitic tuffs, breccias and ash flows.

The quartz monzonite in thin section is seen to be composed of quartz, coarse orthoclase phenocrysts, zoned plagioclase, and biotite, invaded by secondary quartz and orthoclase.

Molybdenite mineralization is most intense near the periphery of the stock (Figs. 1, 2 and 3), but does grade out into the adjacent volcanics. Copper grades, on the other hand, are highest in the volcanics immediately adjacent to the stock. Mo:Cu ratios tend to reverse at the contact, from about 2:1 in the intrusive to 1:2 in the volcanics.

Copper occurs as chalcopyrite in the volcanics, but was rarely seen in the intrusive. Metallurgical tests suggest it may occur as chalcocite there.

Molybdenite is found chiefly in the quartz vein stockwork, but also occurs on fractures and as disseminations. Individual quartz veins are rarely more than 5 cm wide and average only a few mm. Molybdenite occurs as partings and selvedges in the quartz veins, and in detail, as fine crystals perpendicular to the vein walls. Mineralization is remarkably uniform and, in contrast to some deposits, duplicate assays, check assays and composite assays check each other very closely.

Pyrite is present in small amounts throughout the stock, but increases sharply in the volcanics, to as much as 10% and extends commonly to a km or more' from the contact.

Intense potassic alteration, as potash feldspar, is present throughout the stock and as secondary biotite in the volcanics. Argillic alteration is more prevalant near the periphery of the stock, particularly in the well mineralized zones, where is appears as remnants in a flood of potassic alteration. Silicifcation, as a quartz stockwork, is intense in both intrusive and volcanics, comprising at least 15% of the rock.

The quartz feldspar porphyry dikes are relatively unaltered and are essentially barren of mineralization. They resemble some of the rhyolite ash flow units rather closely. It is possible that detailed mapping and dating would show the intrusives and volcanics to be essentially coeval.

Nels Vollo
May 4th, 1981