Antelope / Bryn Don

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MOLYBDENUM DEPOSITS

INTRODUCTION

The principal molybdenum deposits in the Rossland area on Red Mountain were known from the early days of the camp when copper and gold were being mined nearby. Exploration for molybdenum began in 1962 when Torwest Resources Ltd. drilled old showings on the western and upper slopes of Red Mountain. Exploration of the southern slopes of the mountain and into the upper valley of Little Sheep Creek was undertaken subsequently by Cascade Molybdenum Mines Ltd. and others. Production by Red Mountain Mines Limited (a company owned by Torwest Resources Ltd., Metal Mines Limited, and Canadian Nickel Company Limited) began in 1966 from a series of small shallow open pits; up to January 1972, 939 398 tonnes of ore had been milled from which 1 652 970 kilograms of molybdenum was recovered. The ore contained tungsten but virtually no copper or gold. After closing, Inco engaged Minefinders Inc. of Denver, Colorado to carry out an extensive exploration program based on a porphyry model of mineralization. Geological mapping, geochemistry, geophysics, and deep drilling were carried out in the mine area between 1972 and 1974. In 1980 most of the mineral claims on Red Mountain were sold to David Minerals Ltd. In 1981 that company drilled nine short holes just south of the mine area to test for gold and cobalt, and on the basis of this work a proposal has been made to recommence molybdenum production. (Mo,W) No Cu-Au.

Showings of molybdenite are widely scattered in the Rossland area, mainly near the western margins of the Trail pluton and associated granodiorite intrusions. Molybdenite is reported to have been present with copper-gold mineralization in the War Eagle and Centre Star mines. Thorpe (1967, p. 8) describes molybdenite as a constituent of the intermediate zone of mineralization (*see* Fig. 4). * Cu-Au (minor Mo)

Molybdenite occurs in quartz veins and aplitic offshoots of the Trail pluton. The known occurrences on the northern slopes of Columbia Kootenay Mountain and along Highway 3A southwest of Topping Creek are about 100 metres from the main mass of the pluton. The Rainy Day quartz diorite contains molybdenite in narrow fractures with pyroxene, quartz, pyrrhotite, and pyrite. These are well exposed in old workings in the upper part of Little Sheep Creek below the Cascade Highway, and along the natural gas pipeline where it crosses the southeastern margin of the quartz diorite south of Highway 22. Deep drilling * on Red Mountain encountered a large mass of quartz diorite, probably part of the Trail pluton, about 600 metres below the surface. It contains scattered molybdenite in quartz veinlets for as much as 300 metres below the upper surface of the quartz diorite. The * molybdenite on Red Mountain is mainly in small fractures in hornfels throughout an irregular Breccia complex. It is associated with pyrrhotite and erratic scheelite. Dyke-like Mo-W bodies of quartz diorite that are lithologically similar to the Rainy Day pluton occur within the Breccia complex. They are mineralized and associated with the best grades of * molybdenum. However, a large dyke of similar looking quartz diorite north of Red Mountain near the tailings pond is not known to have significant amounts of molybdenite associated with it. Thus, molybdenite is spatially and probably genetically related to the * quartz diorites, particularly to the pyroxene-bearing Rainy Day pluton. It also occurs on Red Mountain with similar dykes that have associated feldspathization.

RED MOUNTAIN MOLYBDENUM DEPOSITS

These deposits occur on the west and southwest slopes of Red Mountain, mainly on the Coxey (Lot 122), Golden Queen (Lot 991), Novelty (Lot 958), Giant (Lot 997), St. Elmo (Lot 928), and Mountain View (Lot 682) Crown-granted mineral claims (Plate II). They probably extend to the north into the Red Mountain skiing area, which has not been adequately tested. Because of the topography and geological complexity, the geology of the deposits was obscure during the early stages of exploration and reports made at that time differ widely. As mining progressed many of the relationships have been clarified. The deposits are well exposed in the pits and roadways of the mine and some indication of their extensions in depth can be deduced from Minefinders Inc. deep drilling. Figure 5 (in pocket) is based on fieldwork by the writer from 1967 to 1971 and in 1981, and on mapping by I. S. Zajac for Minefinders Inc. in 1972 and 1973. Zajac made detailed lithological subdivisions of the hornfels and the dykes; these are not reflected in the legend.

The principal host for the molybdenum mineralization is siltstone that is extensively metamorphosed to various types of hornfels. Bedding in the siltstone dips at low to moderate angles to the west and over much of the upper western and southern slopes of the mountain these rocks are broken into a spectacular breccia called the Breccia complex. The Rossland sill intrudes the siltstone which, judging from the upper surface, dips to the west beneath Red Mountain (*see* Fig. 2, section A-A'). The siltstone is also intruded by lenticular masses of andesite, irregular bodies of quartz diorite and quartz diorite breccia, and late, steeply dipping mafic dykes which trend northward. Small-scale faults parallel to this trend step the older rocks down on the west.

SILTSTONE AND HORNFELSIC SILTSTONE: The oldest exposed rocks in the sequence are dark grey to black siltstones and argillites that crop out in the lower part of the valley of Little Sheep Creek, on the Cascade Highway, and in road cuts on the upper slopes of Red Mountain where they form small lenses which are not shown on Figure 5. These rocks are the relatively unmetamorphosed equivalents of the hornfels and hornfelsic siltstones which are exposed across the western slopes and upper part of Red Mountain; they grade into them both laterally and across the bedding. In outcrops the siltstone is rusty, sooty, and massive or thinly bedded with a parting parallel to the bedding. In thin sections rounded and angular very fine grains of quartz, plagioclase, and opague carbonaceous material with more or less biotite and hornblende can be identified. Minor amounts of disseminated pyrrhotite and pyrite are common. While it is difficult to distinguish the primary from the metamorphic minerals, some of the plagioclase and hornblende may be of detrital, possibly pyroclastic, origin. Calcareous siltstones are uncommon; only two very small lenses were found at widely separated localities.

The hornfels and hornfelsic siltstones are light greenish grey, green, buff, light and dark grey, or purplish brown. They are thinly laminated and massive hard cherty rocks. They are composed of very fine-grained quartz and feldspar with varying amounts of biotite, pyroxene, and hornblende; locally there is brown garnet and epidote, the proportions of which produce the varieties in colour. As mapped in the field, no stratigraphic succession was identified among the hornfelsic rocks. Minefinders Inc. geologists distinguished seven types of hornfels for core logging but were unable to correlate these types between holes except in a most general manner. Banding, however, reflects bedding, and some distinctive rock types can be traced around the walls of the pits and mapped beyond them. A laminated green (pyroxene) and brown (biotite) hornfels, for example, commonly forms the footwall of the ore zone in the A and B pits. A green magnetite-bearing hornfels occurs on the upper southwest slopes of Red Mountain in and around the E and F pits; a similar rock was encountered both on surface just above the Rossland sill and in deep drilling.

ANDESITE AND META-ANDESITE: Irregular lenses of aphanitic to porphyritic greenish brown andesite occur within the hornfels and hornfelsic siltstone. They are metamorphosed and altered, so are distinguished with difficulty from some of the more massive biotite hornfels; hence they are difficult to map. Figure 5 shows several of the larger masses which appear to be sills, but others are irregular and transgressive. Eastwood (1966, p. 203) describes gradational contacts with hornfels, and drill core shows sharp contacts with chilled margins. In thin sections phenocrysts, which are 1.5 millimetres and less, are hornblende and pyroxene. Hornblende is more or less altered to biotite and pyroxene to hornblende. The very fine-grained matrix consists of plagioclase, minor amounts of quartz, and biotite, hornblende, or pyroxene. It is difficult to distinguish the primary from metamorphic minerals and most of the specimens studied from Red Mountain are recrystallized.

Eastwood (1966) described these rocks as diorite, mine geologists as andesite, and Gilbert (1948) as diorite porphyry. Gilbert correlated them with the diorite porphyrite of Drysdale (1915, p. 27). Although this correlation is plausible, it is by no means certain. The lithology is not distinctive and relationships with neither the augite porphyry nor the Rossland monzonite have been established on Red Mountain.

AUGITE PORPHYRY: A thick massive sill of augite porphyry called the Rossland sill lies beneath the hornfels and siltstone. The upper part of the sill is exposed on the eastern slopes of Red Mountain and shown on Figure 5. Most of the augite porphyry is a uniform dark green rock with phenocrysts of augite up to 3 millimetres across. The upper contact was penetrated by several diamond-drill holes. It is generally planar and dips at about 20 degrees to the west, concordant with the bedding of the hornfels and siltstones. In these holes the hornfels immediately above the sill is rich in hornblende and contains disseminated magnetite. Several narrow dykes or sills of augite porphyry occur within the hornfels in this zone. Thus the augite porphyry appears to be intrusive into the siltstones and to have a narrow thermal contact metamorphic zone of hornblende-magnetite hornfels.

QUARTZ DIORITE AND QUARTZ DIORITE BRECCIA: Irregular discontinuous dykes of quartz diorite and quartz diorite breccia occur within the Red Mountain mine area. Some are associated with the highest grade molybdenite mineralization. The largest of these dykes forms the southeastern corner of the A pit and, after a small right-hand offset, extends at roughly 60 degrees irregularly up the hill for 350 metres (*see* Fig. 5). It appears to dip steeply but is discontinuous and irregular. It consists dominantly of medium-grained quartz diorite and is marked by a fragmental structure. The margins contain blocks of hornfels partly made over into quartz diorite; the central part contains fragments of quartz diorite in a greenish pyroxene-rich matrix. The margins of this and another more massive quartz diorite dyke north of the A pit are fairly sharp but smaller bodies of quartz dioritic rock appear as bleached zones that grade into the surrounding hornfels. Central parts of these zones are medium-grained quartz monzonite containing quartz, potassic feldspar, plagioclase, biotite, and pyroxene. At one place in the B pit a narrow dyke of aplite with sharp margins cuts a bleached zone of quartz monzonite (Plate VIII). One quartz diorite dyke on the Mountain View claim gives way along strike to a breccia with angular fragments of hornfels and grey siltstone.

LATER DYKES AND FAULTS: Steeply dipping mafic dykes trending 160 degrees transect the orebodies. They form a swarm of closely spaced dykes on the western slope and lower south ridge of Red Mountain but are less common on the upper part and eastern slope of the mountain. Superficially they appear to be uniform and continuous with sharply defined walls and chilled margins. Detailed mapping shows discontinuities and irregularities in the dykes and confirms the regional observation that the swarms themselves are discontinuous. The principal rock types are aphanitic to fine-grained biotite lamprophyres and various types of diorite. Petrographic descriptions of two dykes from the mine area are given in Appendix C. These dykes are later than the molybdenite mineralization, the quartz diorite, and the andesite.

Steeply dipping faults trending 160 degrees offset the orebodies. One separates the A from the B orebodies, another passes between the A and upper A orebodies, and yet another passes between the A and E orebodies. A fourth, the St. Elmo fault, follows a gully just below the summit of Red Mountain. From the offset of the orebodies the faults are assumed to be downthrown on the west. The Headwall fault, between the A and upper A orebodies, is followed by a lamprophyre dyke which is locally sheared along the fault. The quartz diorite breccia is also offset 45 to 50 metres to the right along this fault.

BRECCIA COMPLEX: Much of the hornfels and hornfelsic siltstone on Red Mountain comprises a breccia with angular blocks ranging up to about 30 metres across. The attitudes of bedding and colour laminations which reflect bedding show that smaller blocks, from a few centimetres to a few metres across, have random orientation. Larger blocks, however, are only slightly disoriented from the normal low westerly dip of the siltstone. The approximate outline of the Breccia complex, which is not everywhere well defined, is shown on Figure 5. Drilling and exposures in the pits, particularly along the south walls of A and B pits, indicate that the margins of the Breccia complex dip steeply and are very irregular. The base appears to be controlled by the bedding. The roof, which is probably represented by the western margin near Jumbo Creek and contacts on the lower slopes of Red Mountain, appears to be irregular; it may also be controlled by the bedding. Most of the molybdenite mineralization lies within the Breccia complex.

Exposures in the pits and in road cuts on Red Mountain display an intriguing array of crosscutting relationships within the Breccia complex and have led to the following interpretations:

(1) The development of the Breccia complex was probably an early event subsequent to lithification. The blocks are angular; very few soft sediment structures have been recognized in the siltstones, either within or away from the Breccia complex. The matrix between blocks is composed of very fine silicates and rock fragments; rarely, it is vuggy with coarse silicates, quartz, calcite, garnet, or scheelite. Thus originally there seems to have been very little open space between breccia fragments.

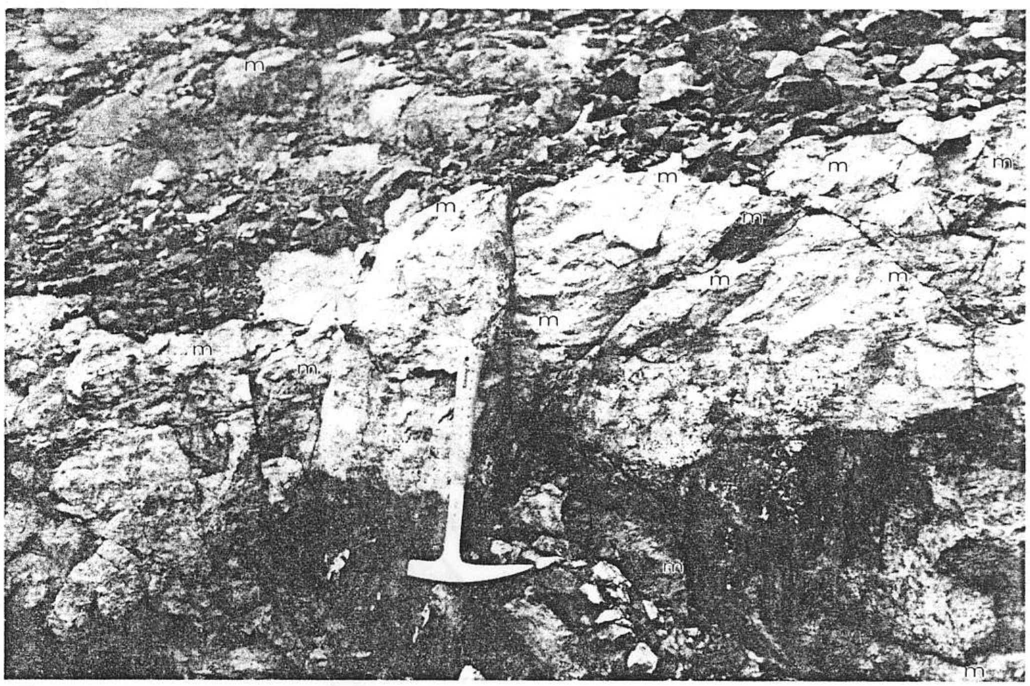

Plate V. Molybdenite in hornfels breccia and banded hornfels near the footwall of the orebody in the E pit; m indicates fracture faces coated with molybdenite.

(2) Intrusion of the andesite probably took place later than the formation of the breccia. This is suggested by the concordant shapes of andesites outside the breccia and the irregular shapes within it. Andesite, however, seldom fills spaces between blocks.

(3) Relationships between the Breccia complex and augite porphyry of the Rossland sill are obscure. The two are not known to be in contact. Drilling beneath the pits shows that the upper surface of the sill is not significantly disturbed on dip below this part of the Breccia complex. Nevertheless, it seems possible that the Breccia complex is in some way related to the intrusion of the Rossland sill.

(4) Relationships between the Breccia complex and the Rossland monzonite are also obscure, even though a northerly trending tongue of rock similar to, and correlated with, the Rossland monzonite occurs west of the upper part of Jumbo Creek. The southern end of this tongue is breccia with blocks of normal medium-grained monzonite grading into a coarser grained feldspathic matrix. This monzonite breccia is close to the westernmost part of the Breccia complex, but the actual contact is not exposed.

(5) The hornfels developed after formation of the Breccia complex because the metamorphic silicates cross block margins and reflect the differences in composition between the blocks and the matrix (Plate VII). The varieties of hornfels probably result from differences in composition and structure of the original siltstone. Hornfels within the Breccia complex is further altered by silicification and feldspathization along fractures which in general have a random orientation. The lenticular dykes of quartz diorite and quartz diorite breccia, two of which trend 60 degrees, appear to have originated, at least in part, from this process of feldspathization. Feldspathization is dominant in the pits on the western slope of Red Mountain, whereas silicification is dominant in the Novelty pit. In altered zones hornblende, pyroxene, and epidote commonly line fine fractures.

(6) Molybdenite, usually without other sulphides, occurs in randomly oriented fractures in all types of hornfels breccia and in the granodiorite breccia. Commonly it lies along the margins of breccia blocks and locally is concentrated at junctions between the blocks (Plates V and VI). Rarely, these junctions also contain drusy quartz, scheelite, hornblende, or epidote. Pyrrhotite, and locally pyrite, are disseminated in hornfels and also occur in fractures and as massive lenses between breccia fragments. Its distribution seems to be independent of the distribution of molybdenite. In the Novelty pit fractures in siliceous hornfels contain arsenopyrite, cobalt minerals, bismuthinite, and uraninite (*see* Thorpe, 1967, p. 15). In the southeast corner of the F pit a narrow chalcopyrite-pyrrhotite vein trending 120 degrees and dipping 75 degrees to the north cuts molybdenum-bearing hornfels. It is typical of the copper-gold veins of the main camp, and this exposure is taken as evidence that the copper-gold mineralization is later than the molybdenum mineralization.

MINERALIZATION: Molybdenum mineralization is widespread on Red Mountain; the orebodies and reserves are defined by the grade and continuity of the mineralization. All the ore mined, and essentially all the mineralization in potential orebodies, is within the Breccia complex. Ore mined between 1966 and 1972 is in the widest part of the Breccia complex, within 50 metres of the surface. Although no clear stratigraphic control of the mineralization has been established, the A and B orebodies 'bottomed' on a green and brown hornfels which probably formed a west-dipping floor to the Breccia complex in this area at this horizon. The Headwall and other faults make correlations difficult between the A, B, and C orebodies on the lower slopes of the mountain with the E and F orebodies on the upper slopes. According to one interpretation all the orebodies are within 100 metres of stratigraphic section; according to another they may be at two horizons covering a stratigraphic interval of 200 metres. Because the grade is controlled by the intensity of fracturing, it is concluded that the stratigraphy is a secondary factor in the control of mineralization; the primary control is the intensity of brecciation, which may itself have been influenced by lithology. A line of deep holes beneath the orebodies encountered scattered molybdenum (and tungsten) mineralization but did not provide data that would allow the identification of potential orebodies. The best mineralization encountered is in fractures and quartz veinlets within the hornfels, particularly in the upper part and above the Rossland sill, as well as in the upper part of the quartz diorite (*see* Fig. 2, section A-A').

Production figures indicate that almost a million tonnes with an average grade of about 0.2 per cent molybdenum was milled (*see* Table 1). Company estimates indicate that this material was taken from more extensive mineralized zones within the Breccia complex which totalled some 6 million tonnes grading 0.1 per cent molybdenum. At the time the mine closed, in January, 1972, reserves were estimated to be 107 000 tonnes of 0.25 per cent molybdenum near surface. Subsequently it was estimated that a reserve of about 1 million tonnes of 0.24 per cent molybdenum is present within the Breccia complex close to the mine. Drilling of the Breccia complex on the ridge south of Red Mountain by Cascade Molybdenum Mines Ltd., Scurry-Rainbow Oil Limited, and Continental McKinney Mines Limited led to a consultant's estimate in 1967 of 'reasonably assured' near-surface reserves of 738 000 tonnes of 0.23 per cent molybdenum in five separate orebodies and about an equal amount of various grades at depth. Some of this material is reported to carry minor amounts of gold but estimates of the average grade cannot be made from the data available.

Scheelite, occurring as medium to coarse grains, is scattered through the Breccia complex; rarely, it forms spectacular clusters of grains between fragments. Its occurrence is erratic and company records indicate that the highest grades were found in the E and F orebodies, where the average grade was about 0.10 per cent WO_3 (tungsten trioxide).

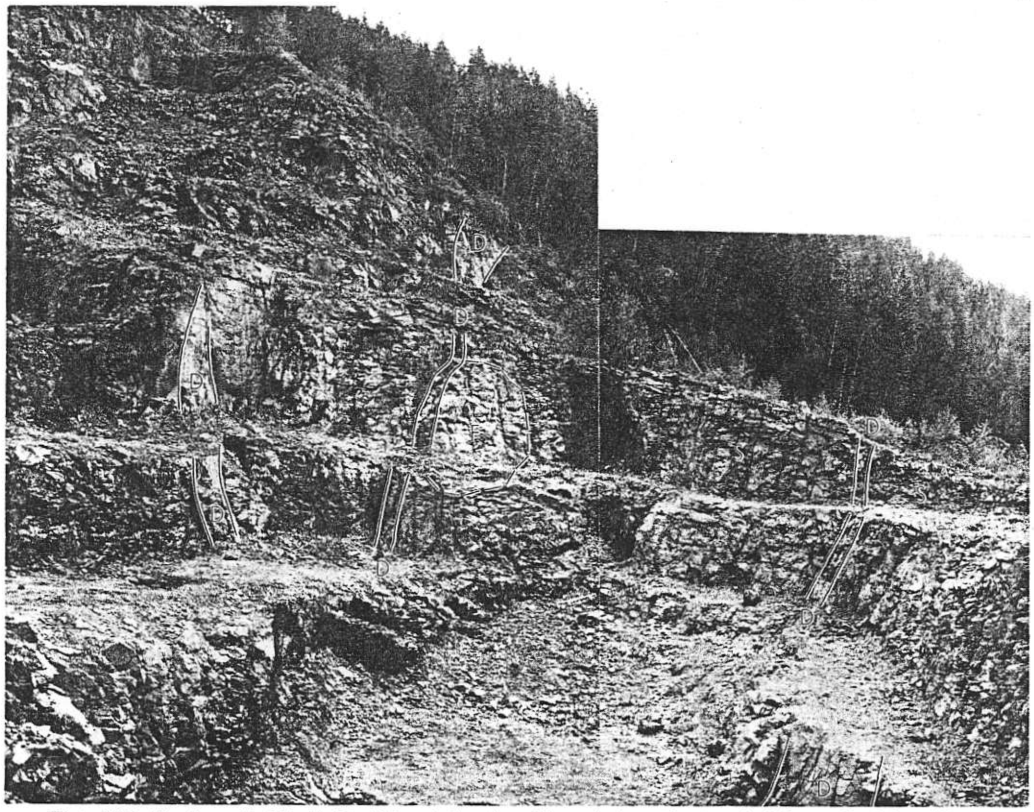

Plate VIII. South wall of B pit, Red Mountain mine. Viewed along the trend of the mafic dykes (D).

GENESIS AND CONTROLS OF MINERALIZATION

The age and origin of the copper-gold mineralization has been a subject of discussion for many years by geologists who have worked in the Rossland camp. The historical development of interest in this subject is summarized by Little (1963, p. 6):

> Brock (1906, pp. 15-18) thought the ore was earlier than the lamprophyre and basic and acidic dykes, though in the Giant and Jumbo mines he saw ore in and around alkali syenite (Coryell) dykes. Drysdale (1915, pp. 85-93, 140, 148) contended that successive intrusions of lamprophyre occur, variously related to the Nelson (Trail), Coryell, and Sheppard intrusions. The first were cut by sulphides, with little or no gold; the second by gold-bearing veinlets; and the third were unmineralized. Drysdale considered that sulphide mineralization with minor gold was related to the Nelson and gold mineralization to the much later Coryell. He admitted the Coryell 'pulaskite' adjacent to the Spitzee and Giant orebodies is slightly impregnated by sulphides but presumably related this to his later period of mineralization. However, it is apparent that the positions of these orebodies are controlled by the 'pulaskite' contact, and the ore, therefore, in the present writer's opinion, is later than Coryell.
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> Bruce (1917, p. 235) favoured two periods of mineralization, but contended that abundant sulphides accompanied the gold of the later period.
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> Gilbert (1948, p. 193) could see no good evidence for two periods of mineralization, and concluded that all the dykes in the mines are older than the ore.

Little's own observations were that 'pyrite stringers from the veins cut lamprophyre dykes' and 'long stringers of chalcopyrite from the vein cut a mica lamprophyre.' White (1949, p. 162), working with veins in the Mayflower mine area south of Rossland, noted that 'the lamprophyre dykes are older than the ore minerals, with the possible exception of pyrrhotite, and consequently play an important part in localizing the deposition of ore minerals.'

Thorpe (1967) established the pattern of mineral zoning discussed previously (Fig. 4). He concluded that 'zoning was apparently controlled by the chemical character and evolution of the ore fluids as determined by such factors as wall rock alteration, deposition of ore minerals, and buffering reactions with previously deposited minerals superimposed on the background of a moderate thermal gradient away from the center of mineralization.' He considered the mineralization to be related to the Rossland monzonite and/or the Trail and Rainy Day plutons of quartz diorite.

In 1970, as part of an extensive program by W. H. White of the University of British Columbia for dating sulphide mineralization in the cordilleran region, samples of rocks from critical localities (*see* Fig. 2) were collected for potassium-argon dating. The results of the work (*see* Fyles, *et al.*, 1973), recalculated using revised decay constants adopted in 1976, are tabulated in Appendix A. Critical tests indicated that, with the exception of the samples of Rossland monzonite and the conglomerate dyke, the potassium-argon ratios represented the true ages of the rocks. These results, however, have been questioned (*see* Thorpe and Little, 1973) because of the wide distribution and close spacing of Tertiary dykes and the unknown, but suspected, thermal aureole of the large Coryell batholith to the west, which may have updated or reset the potassium-argon dates. Further testing is in progress. Initial results of samples collected by P. S. Simony of the University of Calgary and the writer are tabulated in Appendix A.

Potassium-argon biotite and hornblende dates for the Trail pluton are mostly Early Tertiary but one mineral pair, for sample TP81-4, is strikingly discordant — biotite giving 53.3 Ma and hornblende 109 ± 4 Ma. This suggests resetting of an older date by the Early Tertiary thermal event.

The Trail pluton proved to be too uniform in rubidium-strontium ratio and $^{87}Sr/^{86}Sr$ ratio to yield an age using the rubidium-strontium whole rock isochron technique. Zircon extracted from the sample of the Trail pluton with discordant potassium-argon dates (TP81-4), collected about 3 kilometres north of Rossland, however, has recently yielded concordant uranium-lead dates of 159 and 162 Ma, Middle to Late Jurassic (Callovian) (*see* Appendix B). Thus, mineralization associated with this pluton, the Rainy Day pluton, or the Rossland monzonite must be pre-Tertiary; the conclusion of the work in 1973 that all the mineralization in the Rossland camp is Tertiary is superseded.

The following field observations are significant in any study of the age and controls of mineralization in the Rossland camp and are consistent with the new age determinations.

(1) Molybdenum and minor tungsten mineralization is associated with the Trail pluton, especially with its upper and western margin, and is now considered to be (Late) Jurassic. Mineralized quartz and quartz-aplite veins in and adjacent to the margins of the Trail pluton are exposed at a number of places on surface and were encountered during the deep drilling program beneath Red Mountain mine; to date stockworks of such veins in sufficient quantity and grade to constitute ore have not been discovered. The Rainy Day pluton and quartz diorite dykes on Red Mountain, and associated feldspathized zones, all of which are thought to be related to the Trail pluton, contain significant quantities of molybdenum and tungsten. Highest concentrations of molybdenite are in the highly fractured hornfels breccia near feldspathized fracture zones and quartz diorite dykes. These characteristics suggest a porphyry type of mineralization and point to all the area around the western edge of the Trail pluton as potential ground for exploration. Feldspathized zones on the western slopes of Blackjack Mountain west of the Union property and tungsten mineralization further to the west (*see* Stevenson, 1943, Blue Eyes) are possible targets in that area. Scheelite in breccia associated with bleached hornfels on the Cascade Highway near the Snowdrop mine forms a similar exploration target.

(2) The fractures containing copper-gold mineralization had a long history. The sets trending 90 and 60 degrees contain the oldest intrusions — diorite porphyry and quartz diorite dykes on Red Mountain — which are probably also Jurassic. Fractures with these trends, as well as those trending 115 degrees, contain quartz, pyroxene, and molybdenite in the Rainy Day pluton, and amphibole, chalcopyrite, and pyrrhotite in the Rossland monzonite. North-south fractures contain major Tertiary dyke swarms. The Main vein fractures (60, 90, and 115 degrees) were probably also reactivated during the Tertiary.

(3) Sulphides and gold within these fractures were probably deposited during more than one interval of time. At least part of the copper-gold mineralization is later than the Tertiary dykes. Observations of sulphides cutting these dykes, made independently by Little, Gilbert, and White, are confirmed by more recent observations in the 3045 crosscut of Falaise Lake Mines Ltd. Where the crosscut encountered the Nickel Plate dyke, chalcopyrite-filled fractures cut the lamprophyre. In addition, on Red Mountain a vein of chalcopyrite cuts molybdenite mineralization which is clearly older than the Tertiary lamprophyre and diorite dykes. The pattern of zoning defined by Thorpe is unrelated to an obvious Tertiary heat source, and Thorpe argues that the copper-gold mineralization is related to the Rossland monzonite (*see* Thorpe and Little, 1973, p. 1338). The pattern of mineral zoning, however, is probably the result of a complex interplay with more than one source for the metals and a succession of structural events, as well as changes in the composition, temperature, and confining pressure of the mineralizing fluids.

(4) Finally, it may be significant that gold veins on the I.X.L. and nearby properties are west of the Jumbo fault and structurally higher than any of the deposits to the east. It is tempting to speculate that they represent the upper extension of the same or a similar mineralizing system as the copper-gold deposits of the main camp.