



REPORT ON ZINC GROUPS, HASKINS MOUNTAIN

MCDAME AREA, B.C.

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1. Ceology of Haskins Mountain scale 1" = 200' 1. 2. Haskins Mountain - Main Gully (Assay plan) 1" = 100'

REPORT ON

ZINC GROUPS, HASKINS MOUNTAIN MCDAME ARKA, B.C.

by

D. R. DERRY

INTRODUCTION

Sulphide mineralization was first found on Haskins Mountain some forty years ago by Haskins, after whom the mountain is named. Haskins started a promotion on the property and raised quite a sum of money, mostly in England, but he died before going very far. At that time the discovery was hundreds of miles from any form of transportation and it would clearly have been impossible to carry out any successful operation.

In June 1948 D. R. Derry and M. K. Pickard examined the showing for Yukon Ranges Prospecting Syndicate. Although some claims staked at the time of the original activity had been Grown granted and subsequently bought for taxes by two individuals in Telegraph Greek, it was found that the main showing was open. The mineralized zone looked good enough to warrant further investigation and accordingly 5 claims were staked. Preliminary sampling indicated interesting quantities of zine with some lead and silver in certain portions of the showing. Accordingly, in 1949 a party was sent in to do assessment work and to carry out a programme of mapping, rock trenching to expose fresh material and more thorough sampling. This work indicated the deposit to be more extensive than first appeared and, accordingly, 9 additional claims were staked, making a total of 14 claims.

The possibilities of the property are considerably greater than

when it was first discovered by reason of (a) The building of the Alaska Highway during the war, which passes within 70 miles of the showing; (b) The building in 1948 of a truck road from a point on the Alaska Highway just west of Watson Lake to the placer workings of Mocassin Mines on McDame Creek. This road is about 75 miles long and reaches a point within 4 miles of Haskins Mountain; (c) The possibility of a railroad being built from the present end of steel to Alaska. The projected route of this railroad would pass within 45 miles of the property.

The improved transportation facilities, coupled with the indications of quite extensive mineralization, make the showing of definite interest at this time.

LOCATION

Haskins Mountain, on which the Zinc Groups have been staked, is at lat. 59°21'N. and long. 129°30'W. It lies on the north side of McDame Greek about 12 air miles northwest of McDame Post on the Dease River. The property can be reached by (a) plane from Watson Lake or Lower Post to Poorman's Lake one mile mortheast of the mountain. A rough trail, 2 miles long, leaves the west end of the lake, skirts the foot of the mountain on the northwest side and leads to the bottom of the gully in which the main showing lies; (b) truck using the new road which runs from Mile 649 on the Alaska Highway for about 70 miles to the Mocassin Mines and then 6 miles west up McDame Creek to Joe Reed's Cabin. From here it is about 4 miles by trail to the top of the mountain.

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TOFOGRAPHY, TIMBER AND WATER

The top of Haskins (elevation 5500 to 5900 feet) is relatively level but the sides, particularly to the west and northwest, are intersected by sharp gullies and are very steep and precipitous. For this reason many of the showings to the west and northwest are difficult and dangerous to reach. The mountain can be climbed most easily from the south.

Timber line is at an elevation of approximately 4300 feet. Above this the only vegetation is "buck brush", grass and the odd stunted bush.

Water for diamond drilling should be obtainable from melting snow up to the end of July but in August the mountain top is apt to be dry. The highest permanent water supply would be at an elevation of about 4800 feet.

REGIONAL GEOLOGY

The area in which Haskins Mountain is situated lies on the east flank of the Cassiar Batholith which forms a long and relatively narrow belt from near Finlay Forks northwesterly into central Yukon. The rocks, mainly sedimentary, which this batholith intrudes are in three main series (1) Late Precembrian sediments, now mainly schists, termed the Beltian Series in southern B.C. and the Yukon Series in the Yukon. These rocks do not appear in the McDame area but do occur on the east flank of the batholith further north. (2) A series of Palaeozoic sediments, mainly limestones, shales and quartzites, to which different names have been given in different areas. In the McDame area they have been called the "Dease Saries" and probably range in age from Lower Cambrian to Pennsylvanian. Limestones of Lower Gambrian age lie at the base, overlain by quartzites (in which the Haskins Mountain deposit occurs) and then by more limestones. (3) A series of Mesozoic andesitic lavas with associated sediments, termed the "McLeod Series" in the McDame area. Small stocks of granitic and porphyritic rocks intrude the above series beyond the limits of the Cassiar batholith. They are assumed to be of the same general age as the batholith itself.

East of the McDame area post-Coast Range sediments occur in the basin of the Dease and Liard Rivers. Fleistocene and/or Recent gravels, containing placer gold, lie in most of the river and creek beds.

In structure the main feature is a synclinal axis running about parallel to the margin of the batholith and about four miles east of it. The Mesozoic "McLeod Series" occupies the centre of this syncline with sediments of the Dease Series dipping in towards the axis from both sides. At least one, and probably two anticlinal axes lie to the east of this and also run in a roughly N.W.-S.E. direction. The prevailing dips are usually between 30 and 60 degrees. Many minor flexures and folds occur.

Faulting has not been worked out except locally but it is probable that strike faults are numerous, particularly in the valleys. The one strong fault observed on Haskins Mountain has a N.W.-S.E. strike and a steep northeasterly dip.

PROPERTY GEOLOGY

Haskins Mountain lies on the east flank of the major syncline montioned above. The sediments, all of Palaeozoic age (Dease Series), strike northwesterly and dip southwesterly except on the more northerly claims where a local anticline appears. Although the stratigraphy has not yet been satisfactorily worked out (due to possible repetition by folding and faulting) the succession appears to be as follows :-

Youngest - Cherty bedded quartzite. (Outcropping mainly south of the claims.)

Gray, shaley limestone, banded and somewhat sandy at the base grading upwards into gray limestone which becomes shaley near the top. The true thickness of the member is probably under 100 feet. Quartzite, ranging from white to rusty red (where mineralized and altered). One phase, which may be a distinct horizon or may be the less altered phase, is gray and slightly gritty. Over most of the property it is cherty and breaks into sharp, angular fragments. Bedding, although not prominent, can usually be distinguished. One or two limey and sheley beds are interbedded with the more typical quartzite near the base. This quartzite forms the main mass of the mountain.

Oldest - Limestone (or Dolomite), buff to gray. This member appears on claims Zinc 10, Zinc 11 and Zinc 14 dipping under the quartzits.

Another crystalline limestone or dolomite appears on claim Zinc #8. This occurs on an isolated group of cutcrops, separated from the main mass of Haskins Mountain by ground heavily drift-covered. As a result, the structure, and hence the stratigraphic relationships of this member, have not been solved. It overlies a quartzite that appears similar to that on Haskins Mountain and so it seems likely that this limestone is younger than the series listed above.

Within the limits of the property the above series is intruded by one stock. This is a muskowite granite in its coarser phase in the centre of the stock, but grades into a microgranite or aplite near its margins. It has only been seen in contact with the quartzite and here there is a suggestion of a replacement type of invasion, the one rock grading into the other. However, as most of the contact is formed by a fault it is not possible to draw any definite conclusions on this point. A second stock occurs a short distance north of the property boundaries.

Structure: It was mentioned above that haskins Mountain lies on the east flank of a major syncline, and that the prevailing dips are southwesterly. There appears, however, to be a local anticline having its axis running in a northwesterly direction. Its presence is somewhat obscured by a strike fault (see below) which cuts out the apex of the fold but northeasterly dips prevail on claims Zinc 4, 12 and 6, as opposed to southwesterly dips over most of the rest of the property.

There is a suggestion of a local synclinal axis just southwest of the anticlinal axis mentioned above, passing through the "island" of limestone near the top of the mountain. The marrow belt of gray limestone running southeasterly through claims Union Jack and Meteor Flag (owned by G. F. Dalziel) may indicate a continuation of this synclinal axis. Another slight downwarp is indicated by the smaller "island" of limestone in the Capilano claim adjoining the Zinc group to the south.

One important strike fault has been noted and is of particular interest in that it appears to be associated with the ore deposits. This runs in a N.W.-S.E. direction (average 320 T.) and dips northeast at about 30 degrees. It probably runs through the entire property although its identity towards the southeast is uncertain. As far as can be ascertained from mapping to date it corresponds fairly closely with the anticlinal axis mentioned above and appears to cut out the apex of the fold, bringing northeast-dipping beds in contact with beds having a more gentle southwesterly dip. This situation, however, is restricted to the northwest part of the property. To the southeast the beds dip southwesterly on both sides of the fault projection.

Several northeasterly-striking faults probably occur. One pretty definite one is on claim Zinc #11. Several others are suggested by topography and fracturing in the gully on claims Zinc #3 and #6, where they run out from the main fault.

MINERALIZATION

type in which the commoner minerals in order of abundance are pyrrhotite, sphalerite, pyrite, galena and chalcopyrite. An appreciable silver content is limited to those parts of the mineralization showing galena. Gold is absent or present in very minor amounts. Typically, these metallic minerals occur as disseminations and replacements accompanied by silicification which has produced lime silicates where limestone forms at least one wall. Apart from the lime silicates and other altered host rock material, there is rarely any gangue mineral such as quartz or calcite.

With regard to the age and origin of the mineralizing solutions, it is assumed that they are associated with the granite which forms a stock in the northwestern part of the property. This granite, which intrudes rocks of older Palaeozoic age, is in turn assumed to be associated with the Cassiar batholith which intrudes rocks of Falaeozoic and Mesozoic age. The association of the mineralizing solutions with the granite stock on the Haskins Mountain claims is not entirely based on propinquity. There is some indication of a zoning effect in following the main vein as it departs from the granite contact. In structural control of the ore deposition it is apparent that two main features predominate. The first is the tendency of the ore solutions to form replacement bodies along limestone-quartzite contacts. Although the majority of such cases are where limestone overlies quartzite, several mineral occurrences have been seen in the reverse condition. As a rule it is the limestone (quite altered to a dense lime silicate) rock) which forms a host for the mineralization rather than the quartzite.

The second and economically more important structural control is a fault or fault zone transecting both the sedimentary and intrusive rocks of the property. This fault zone has a northwest-southeast strike and a vertical to steep northeast dip. It is most prominently developed in a

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steep gully from the northwest slope of the mountain but it can be traced with reasonable confidence across the summit of the mountain and with somewhat less certainty down the southeast slope. As may be seen in the more detailed descriptions below, the best grade of mineralization follows this fault zone. Since, however, the fault forms, along part of this length, the contact between limestons and quartzite the relative importance to ore deposition between the fault and the limestone contact is difficult to assess. Certainly it is a fact, on observations to date, that mineralization containing appreciable lead and silver is confined to the fault zone while the limestone contacts eway from the fault have only sphalerite-pyrrhotite mineralization.

Individual zones or areas of mineralization are described as follows :-

Main (or Fault) Zone:

Sulphide minerelization has been indicated along the northwestsoutheast fault zone over a total length of 2700 feet. This does not include several more or less isolated patches of mineralization along the southeast alope of the mountain. Within this length the mineralization is best developed at the top of the gully that runs down the northwest slope. Here, trenching and natural exposures have shown the following sections:

(1) A length of continuous ore for 300 feet with an average width of 19 feet and an average grade of zinc 8.46%, lead 2.68%, silver 2.66 ozs. The mineralization ranges from almost solid sulphides in which pyrrhotite is the commonest mineral and sphalerite next, to disseminated ore where the sulphides are distributed through a dense, hard, dark green rock which probably consists largely of lime silicates. The lead and silver values tend to be concentrated on the southwest, or footwall, side. (2) Continuing northwest from the above is a section of one with a length of 740 feet, an average width of 11.5 feet and an average grade of zine 8.93%, lead 0.13%, silver 1.06 czs. Exposures are less frequent than in the first section and the steepness of the slope and amount of talus has made trenching impossible. The exposures are numerous enough, however, for it to be assumed provisionally that continuous mineralization exists. The total width of mineralization is rarely exposed in this section and the average width given is calculated from the exposed widths only.

(3) Beyond this section again in a northwest direction sulphide mineralization is exposed at irregular intervals over a length of 1660 feet and samples have shown only low values in zinc. Since a large proportion of the zone is here covered with talus it is possible that lenses of better grade ore occur.

(4) Thirty-five feet west of and parallel to what is considered to be the main zone at the northwest end of (2) above is a sparsely mineralized zone some 10 feet wide which is associated with a metamorphic amphibolite. Fifty feet farther west is another sparsely mineralized zone which is some 15 to 20 feet wide. Where exposed these zones do not seem to be of economic importance but the extensions which are largely covered with talus may be of interest.

Limestone-Quartzite Contact Deposits:

(a) Summit Deposit -- Approximately at the summit of the mountain (although not actually the highest point) is an "island" or capping of gray shaley limestone. This is truncated on the northeast side by the fault zone described above. Against the fault the limestone is steeply folded and contorted but away from it the dips are more gentle in a general southwesterly

direction. The ore at the fault contact has already been described. Away from the fault mineralization of some sort is more or less continuous but concentrations of heavier mineralization and greater widths occur at various points probably by reason of local folds. The mineralization consists mainly of pyrrhotite and sphalerite. It has not been possible to sample the contact systematically but some trenches have been put in both on the east and west edges of the limestone capping. Three samples on the east contact on claim Zinc #4 gave an average grade of zine 3.96%, silver 0.35 ozs. The true thickness here is difficult to determine but appears to be something over 5 feet. Samples taken along the same contact near the northwest point of the limestone gave an average grade of zinc 9.24%, lead 1.21%, silver 1.28 ozs. These samples were difficult to obtain and the results may be higher than true grade. Further south along the west contact three areas sampled gave an average grade of zinc 2.62%, silver 0.25 ozs, each being taken at local bulges or concentrations. The contact around the southern end of the limestone capping is more sparsely mineralized and does not appear to be of ore grade. It seems probable, therefore, that the northern half of the island or capping of limestone is underlain by sphaleritepyrrhotite mineralization, probably with a good deal of variation in both thickness and grade.

(b) West Knob Deposit -- In the relatively low ground to the northwest of Haskins Mountain within timber growth and at an elevation of 3700 feet above sea level, a group of outcrops occurs in which some old trenching was found. This trenching lies 4500 feet in a northwesterly direction from the top of the gully in which the main one zone occurs and is 2100 feet vertically lower than the highest occurrence. The West Knob showing is evidently not on the direct continuation of the Main, or Fault, Zone but would lie a short distance to the southwest of the projection of this zone. The mineralization appears to follow the approximate contact of quartzitic schist and white to buff limestome. Where mineralized this contact strikes in a roughly northerly direction and dips about 65 degrees to the east, but a short distance further north the bedding strikes in a northwesterly direction and dips southwesterly so the showing may be at a local dragfold. The old trench crosses the zone and exposes it to a depth of about 5 feet. The trench shows a horizontal width of about 20 feet of ore but due to a combination of dip and slope this is probably exaggerated and a true width of 6 to 10 feet may be assumed. A sample representative of the mineralized material on the dump from this trench gave the following assays - zine 12.16%, lead 0.76%, silver 0.52 ozs/ton, copper 0.70%, nickel Nil.

About 200 feet east of the above showing another patch of mineralization is exposed in the bed of a creek. This appears to have a roughly eastwest strike and a north dip and the host rock is breesiated quartzite. The mineralization consists mainly of pyrrhotite and does not appear to be of much importance.

(c) Northeast Slope Showings -- Along the northeast alope of the mountain a short distance below the summit a contact of quartzite overlying limestone can be traced striking in a roughly northwest direction and dipping southwesterly into the mountain. In this case the quartzite is overlying the limestone. Mineralization occurs sporadically along the contact and appears to form concentrations which may be governed by local folds or cross fractures. Due to the amount of talus it is difficult to assess how continuous the ore is between the exposed showings. Three pits were found and re-sampled. The details of these may be seen on the accompanying map. The average grade

This mineralized contact appears to be a different one from that in which most of the other contact deposits were found. The limestone is less shaley, of a lighter colour and appears to underlie the main Haskins Mountain quartzite. The structure is somewhat obscure in that although west dips prevail in the area where mineralization was found the dips observed in the quartzite further northwest become vertical and then to the northeast and the limestone could no longer be found. Assuming that the contact in the area where it is mineralized continues to dip in a southwesterly direction, it would eventually come into the region of the main fault which would give a very favourable condition for large scale ore replacement. Further work is needed before the chances of this occurring can be properly assessed.

from the samples taken was zine 7.83%, lead Trace, silver 2.40 czs.

(d) Upper Adit Showing -- An old adit put in probably thirty or forty years ago was found on claim Union Jack lying approximately 4500 feet southeasterly from the corner posts of Zinc Nos. 1 to 4 inclusive. This adit lies very close to the projection on strike of the main fault. It is possible that the ore itself is on this fault plane but, if so, the fault is far less definitely developed in this area. The mineralization, consisting of pyrrhotite, sphelerite, pyrite and a little galene, occurs along a fracture striking southeasterly and dipping steeply mortheast but also tends to run out along subsidiary fractures. The mineralization is fairly heavy at the mouth of the adit and in the face of the adit (which is only a few feet deep). A trench running up over the hill above the adit shows shearing to continue but the mineralization becomes weaker.

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The showing is of interest in indicating the continuation of mineralization this far from the main zone but does not appear to be of great promise in itself.

(e) Other Possible Main Zone Showings - In the area between the main zone showing at the head of the gully and the Upper Adit described in the last paragraph there are two places where mineralization including zinc may be seen. These are marked in on the attached map. Relatively little is known about them and they appear to be fairly small in themselves. It seems likely that they may follow branching fractures from the main fault zone.

(f) Lower Adit -- The lower adit lies 2600 feet from the Upper Adit and at an elevation of 4500 feet above sea level. The adit is again a part of the original work carried out many years ago. It has been put in at the mineralized contact between quartzite (to the mortheast) and limestone (to the southwest). In this case the limestone is overlying the quartzite with a dip of approximately 70 degrees to the southwest. There is a fairly strong development of dark green lime silicates along the contact and this forms the host rock for the sulphides which are disseminated to massive. Pyrrhotite is again the commonest sulphide but sphelerite is fairly abundant and galena rare. The mineralization in the adit is exposed over a width of 9 feet. It can be traced only 40 or 50 feet in length over the arest of a ridge and is covered by talus on its extent in both directions. A sample taken across 9 feet assayed zine 4.69%, silver 2.62 ozs.

CONCLUSIONS AND RECOMMENDATIONS

The occurrence of heavy sulphide mineralization, containing zinc with some lead and silver, in association with a strong, steeply-dipping fault is promising and deserves further development. Of secondary, but not inconsiderable, interest is the prevalence of zinc-bearing mineralization along many limestone-quartzite contacts in the vicinity. Even though the physical difficulties of terrain and transportation are severe, the possibilities of a large tennage are good enough to justify a thorough investigation. The proposed Alaska Railroad, under present investigation by a U.S. Senate Committee, would pass within 45 air miles of the deposit. If this were built it would remove one of the biggest obstacles to the development of a base metal deposit in this area.

For the further development of the deposits on Haskins Mountain I would recommend the following action :-

Surface Work:

Stripping and rock trenching on the more promising contact zones to establish the grade of the un-oxidized material and, as far as possible, their extent. This would require four man with two gasolene rock drills for a period of about one month.

Diamond Drilling:

 (1) Main or Fault Zone. Four holes of 150 to 200 feet each to test the downward continuity of the higher grade shoot. Six holes of about the same length to test the next 740 feet to the northwest. About 2000 feet in all.

(2) "Summit Deposit" About ten short vertical holes (probably most under

100 fest each) to test the continuity and grade of the mineralization under the "capping" of gray limestone. Probably about 1000 fest in all.

- (3) Three vertical holes of about 150 feet each, to test the continuity of the contact zone at the "Northeast Slope showings". (450 feet)
- (4) Three holes of about 100 feet each to test the continuity of the "West Knob Showing". (300 feet)

Allowing some additional footage for testing other showings, depending on surface results, and for following up any favourable indications on the holes suggested above, this would require between 4000 and 5000 feet of drilling. The drilling would best be carried out in July and August, doing the higher elevation work first while there was still sufficient water from melting snow. Since contract prices for drilling are high for this district the possibility of buying or reating a drill and hiring a good man to run it should be considered. This policy would have the additional advantage of not being tied down to a fixed minimum footage, should the early results not seem to justify it.

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SUMMARY

 The host-rocks of the ore at Haskins Mountain are quartizte and limestons of probable Upper Cambrian age. These rocks are intruded by a granitic stock which is probably an offshoot of the Cassiar batholith of Mesozoic age.

2. The main ore zone is in a steeply-dipping strike fault. Over part of

its exposed extent one wall of this fault is limestone and the other quartzite. The best ore found to date is in this condition. Sampling on trenches or natural exposures at regular intervals has indicated a length of 300 feet, a width of 19 feet and a grade of 8.46% zinc, 2.68% lead and 2.66 ozs/ton silver.

3. An additional 740 feet extent to the northwest of the above shoot is indicated by less regular exposures in which the full width is not always seen. Over a sampled average width of 11.5 feet this length has given an average grade of 8.93 % zinc with negligeable lead and 1.06 ozs/ ton silver.

4. Mineralization, containing between 2% and 12% zinc and occasional lead, has been found on limestons-quartzite contacts at a number of places over the property. One of these extends out from the fault zons. Another dips towards it.

5. The total length of the area in which the above mineralized showings have been found is 10,000 feet, and the maximum difference in elevation is 2100 feet.

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