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CARIBOO MINELANDS, QUESNEL PROPERTY
SUMMARY OF DATA TO DECEMBER 18, 1969

LOCATION AND ACCESS

The prospect is located some 16 air miles north-northeast of Quesnel, B.C. on Thunder Creek, a tributary of Ahbau Creek. The main showings are about one and a half miles east-northeast of the junction of the Pacific Great Eastern Railway and Highway No. 2. Access to the area is by a two mile tractor road from Highway No. 2, and a helicopter clearing is available on the property; helicopters being based at Prince George, 48 miles to the north-northwest.

CLAIMS AND OWNERSHIP

It is understood that the original 30 claims registered in the name of Cariboo Minelands Ltd. of Prince George, B.C. have recently been re-staked and additional claims put out to the northeast. While being assured that the ground is well covered, details of the re-staking are not yet available.

PREVIOUS REPORTS

1. Cariboo Minelands Ltd., Thunder Creek property, Quesnel, B.C. - - Alrae Engineering Ltd., Rae G. Jury, November 7, 1968

2. Report on Cariboo Minelands prospect, Quesnel, B.C. for Cyprus Exploration Corporation, Ltd., Ross Kidd, November 28, 1968

3. Data on the 1969 Summer's Work Including Geological Mapping, Magnetometer Surveys, A.B.E.M. Electromagnetic Gun and E.M. 16 Surveys, and Diamond Drilling Results are available, but these have not been summarized in report form as yet.

GENERAL GEOLOGY

The claims are underlain by andesitic and rhyolitic lavas and related agglomeritic types of assumed Triassic and Jurassic Age, which have been cut by acidic dykes varying in composition from dioritic to granitic and of assumed Lower Jurassic Age. A more detailed map of the central claim area made available this year does not show any significant structural trends except for evidence of faulting and minor shearing on north-northeast and complimentary north-northwest axes. A major contact with a large granitic body is indicated to the northeast of the area mapped and claim cover is reputed to extend to this boundary.

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MINERALIZATION

Mineralization appears to be restricted to the older extrusives, but not to any particular rock type in this sequence. Minerals include pyrite, pyrrhotite, chalcopyrite, minor galena and sphalerite. Iron and copper sulphides occur either as disseminated grains in the volcanics or in more notable occurrences as massive sulphide veining or associated with more irregular calcite veining systems. Jury - 1968 suggests that an increase in chalcopyrite is generally associated with a marked increase in pyrrhotite content. This would suggest that magnetometer results should be significant in the location of zones of chalcopyrite enrichment.

SHOWINGS

An adequate description of the known showings is given by Kidd, 1968 and the following are the main points of interest:-

1. Showing No. 1 - This is a brecciated shear zone about 20 feet wide with a three foot band of nearly massive sulphides containing 50% pyrite and 5% pyrrhotite and chalcopyrite. This vein exposed for a length of 100 feet by bulldozing, strikes 215° az. and dips at from 45 to 60° to the west. There is a possible extension northwards, but to the south, it is cut off by a quartz porphyry dyke. Assays from surface trenches are as follows:-

   gold - 0.08 - 0.24 ozs., silver - 0.50 - 0.92 ozs., copper - 0.16 - 0.38%

   These assays taken on face value indicate sub-economic sulphides and precious metal content for a width of only 3 feet.

2. Showing No. 2 - Showing No. 2 occurs to the northeast of Showing No. 1 in an area of rhyolitic lavas where parallel veins of pyrite with a little chalcopyrite up to two inches in width occur in chloritic lenses within the rhyolite. The veins striking at about 350° az. and mainly vertical, are well separated by barren rock. Grab samples of this material assayed 0.06 ozs. gold, 0.09 ozs. silver and 0.01% copper. Considering the wide separation of the veins, these assay results are not particularly significant. Other showings occur in the gorge of Thunder Creek to the southeast of No. 1 Showing and consist mainly of minor sulphides in association with calcite veining. These veins do not seem to be continuous or extensive, and assay values over practical widths are low. Minor showings of disseminated sulphides, mainly pyrite, have been noted in outcrops to the northwest of Showing No. 1.

GEOCHEMICAL SURVEY

A geochemical survey carried out in 1968 covers the central area of the claims and the main showings including Thunder Creek and Hopeful Creek to the west. Contouring of results for copper indicate two areas of interest, the main anomaly extends southwesterly from Showing No. 1 with a weak extension of this same anomaly carrying across Thunder Creek to the southeast. A second area of anomalous copper values occurs to the southwest of this again and extends northwards for about 500 feet. Over the rest of the area sampled, soil values for copper are generally low and apart from occasional erratic high values, there are no further significant anomalies.

GEOPHYSICS

Three geophysical methods have been carried out over the area of interest, namely, ground magnetometer surveys, Ronka EM 16 and A.B.E.M. electromagnetic gun.

Magnetometer Survey

The central claim area was covered by magnetometer survey in 1968 and indicated two major anomalies with partial anomalies on the extreme northern edge of the survey's extent. In 1969 a new grid was placed over the property and a more extensive magnetic survey was carried out on lines spaced 400 feet apart. Magnetometer "highs" were recorded over the main showing and to the southwest, roughly coinciding with the geochemical anomaly west of Thunder Creek. A further anomaly was recorded some 500 feet to the northwest of this and further magnetometer "highs" were indicated some 400 feet to the north again on the margins of this survey. The 1969 work covered a larger area and showed these to be a set of four thumb print anomalies in a northwesterly line, individual anomalies being extended to the north-northeast. Similar small but intensive anomalies occur in the extreme northwest and northerly corners of the area covered. Elsewhere on the claims, the pattern is that of a gently undulating background from 0 to 500 gammas.

EM Ronka 16

In 1968 Kidd carried out preliminary EM 16 surveys along lines covering the main showings and extending to the northwest and southeast. Conductors were indicated over Showings No. 1 and 2 and in the general area of the magnetic "highs" to the northwest of Showing No. 1.

In 1969 Alrae Engineering carried out an EM Ronka survey over the area covered by the magnetic survey, however, the results obtained were disappointing and difficult to interpret, there being little or no correspondence between Kidd's earlier survey and the results obtained. Generally, anomalous readings indicating conductors, plotted along lithological boundaries, dyke locations and minor structural indications rather than known occurrences of sulphides. There appears

to be a basic difference of opinion between Kidd and Alrae in the orientation of the EM 16 in order to obtain optimum readings. It would appear that the Ronka is a sensitive instrument requiring careful useage in the field and a good deal of experience for meaningful interpretation, and the results obtained should be treated with caution.

A.B.E.M. Electromagnetic Gun

Complete coverage of the area surveyed by magnetometer and EM 16 was made by the A.B.E.M. gun. Several conductors were noted although none of them are strong. The most significant conductor extends for about 1,500 feet in a northeasterly direction just to the northwest of the main showing and geochemical extension. Other indicated conductors correspond roughly with magnetic and early Ronka EM conductors, but are of limited extent and intensity. A notable feature on Showing No. 2 is the indication of an EM 16 conductor in northeasterly direction following a small shear zone which is crossed almost at right angles by an A.B.E.M. conductor trending north to northwest following the direction of mineralized veins at this location.

DIAMOND DRILLING

During 1969 eight boreholes totalling almost 3,000 feet were drilled on the property. One hole was directed to investigate the downdip extension of mineralization at Showing No. 1, while two boreholes were directed southeast to investigate the magnetic anomaly 500 feet to the northwest of Showing No. 1 and a further four holes were directed to the northwest across coincident magnetic and early EM 16 anomalies. Diamond drill hole No. 1 cut the assumed extension of the surface showing at 130 feet; assays over six feet of core averaged 0.16 ozs. gold, 1.16 ozs. silver, 0.17% copper and 0.53% lead. The indicated potential of this zone to 150 feet depth and along 1,000 feet of strike, assuming the geochemical anomaly to be significant, is less than 200,000 tons of gross value $10.00 per ton in an average 6-foot mining width. The No. 1 borehole was placed too far to the southeast to cut the strongest A.B.E.M. conductor which may indicate an intensification of mineralization downdip of the known intersection.

Of the other boreholes, D.D.H. No. 6 intersected a 5.5 foot width of sulphides averaging 0.20 ozs. gold, 2.54 ozs. silver, 1.86% copper, 0.2% lead and 0.57% zinc. These values were not upheld in D.D.H. No. 7 drilled in the same plane at a steeper angle. nor in borehole No. 8 drilled on the same azimuth and angle from a collar position some 100 feet to the west although minor mineralization was intersected in D.D.H. No. 7. From the diamond drill data at this location, there is little potential for economic mineralization to the depth drilled.

D.D.H. Nos. 2, 3, 4 and 5 intersected magnetic "highs" and roughly coincident EM 16 and A.B.E.M. conductors. None of these holes intersected intensive mineralization, assays indicating discontinuous copper values from a Trace to below 0.1% and traces of gold and silver. The highest assay recorded was 1.23% copper over 1 foot.

SUMMARY AND CONCLUSIONS

Table I gives a summary of the various showings and targets, and a coincidence of the various methods of survey. The downdip extension of Showing No. 1 indicates a restricted potential, main interest centering along the strike extension to the southwest as indicated by geochemical and geomagnetic anomalies, and the significance, if any, of the A.B.E.M. conductor striking parallel to these anomalies, but situated slightly to the northwest. This may indicate a thickening of the mineralized zone below the diamond drill hole intersection. It is difficult to understand why these coincident anomalies were not investigated by further diamond drilling in preference to other locations. Considering a possible 1,000 foot strike and the restricted width as indicated from trench and diamond drill hole sections, the potential is restricted to a moderate tonnage of marginal grade material. Considering the work to date as a whole, there is no potential indication of large tonnages of low to medium grade ore. Gold values previously noted as being of interest have not held up in diamond drill assays, and appear to be too erratic to be of interest.

It is difficult to see much advantage at this point in becoming involved in a joint venture on this property alone. However, it is understood that the Nhylon Lake molybdenum property owned by the same company provides a much more interesting target for a large low to medium grade deposit. It is suggested that any negotiations with the company concerned revolve on the possibility of undertaking a joint venture on the Nhylon Lake property, the Quesnel property being of subsidiary interest only.

Respectfully submitted,

J. G. Simpson

CARIBOO MINES
QUESNEL PROPERTY
TARGET ASSESSMENT

TARGET	NEW GRID REF	SHOWING	MAG.	GEOCHEM Cu	EM 16	ABEM	D.D.H.	REMARKS
1.	1+00S, 00+00E	#1	Anomalous 1000-4000 gamma	Anomalous >100 ppm	Conductor weak-med	Conductor med	#1 6.0'-$10-15	ABEM "A" Conductor 300' North
2.	17+00N, 02+50E	#2	Background 300 gamma	Weak Anomaly > 50 ppm	Conductor weak	Conductor med	None	Irregular vein type mineralization
3.	07+00S, 02+00E	Thunder Creek Canyon - andesite	Background 100-300 gamma	Weak Anomaly 50 ppm	Not Conductor	Not Conductor	None	Irregular calcite veins & sulphide
4.	07+60S, 08+50W	No o/c assumed andesites	Thumb print anomaly >4000 gamma	Background	Weak Conductor	None Conductor	#6, 7, 8 6' - $20	Very low tonnage potential
5.	01+60S, 14+00W	Minor pyrite, etc in andesite	Quadrate thumb print anomalies >1000	Background	Moderate to Weak	Weak Conductor	#2, 3, 4, 5	Mineralization encountered sub-economic