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05/2Location and Access

The Jake property lies on the Yukon Territory at 62 - 3¹/₂ N, 132 - 45 W, about 3 miles northeast of the Tay River and about 25 miles north - northeast of the Vangorda Creek camp. At present the only practical access to the property is via aircraft, landing on Leckie Lake, a lake about 1 mile long, situated 2 miles west of the claims. A good camp site used during this exploration programme, lies on the eastern shore of the lake and a blessed trail connects the camp with the property.

Claims and Their Standing

The Jake group consists of 16 claims and 3 fractional claims. The 16 full claims were staked for the Company on September 10th, 1956 by K. Willison and E. Sommers. The claim lines are fairly straight and either coincide with or lie close to the 2 base lines cut for a geophysical survey this year. Some of the claims (Particularly Jake 11 and 12) exceed 1,500 feet in length, and internal fractions exist. The two groups of 8 claims which form the Jake group do not overlap, leaving a 300 - 500 foot wide fraction, in the middle. A greater part of this was staked on August 24th, 1957 by R. Macrae as the Bonanza 1 - 3 fractional mineral claims. The remaining part covering steep cliffs near the top of the mountain is not considered valuable and was not staked.

All claims except those of the 3 fractional claims are tagged, and sufficient work has been done on the claims to keep them in good standing for more than a year.

Topography

The claims extend from the valley of Teddy Creek to and over the top of Chert Mountain. The mountain is a prominent topographic feature in the area. It is only about 3,500 feet high but the side covered by the claims is steep with precipitous cliffs in places, and a difference in elevation between the lowest and highest point of the claim group is in the order of 800 feet.

Teddy Creek, a tributary of the Tay River meanders across the claims. It is twenty of thirty feet wide and two to five feet deep. A bridge built of two logs crosses the creek at the end of the trail leading from the lake to the property and various logs and

beaver dams a few hundred feet apart provide fair crossings.

The greater part of the property is covered by thick moss, buck brush, spruce and cottonwoods, with but a few outcrops. Only the top of Chert Mountain and the cliffs show larger areas of bare rock.

Geology

Almost the whole property is underlain by sediments.

- (a) Chert. Chert underlies most of the claims. The rock occurs in beds 1 - 5 inches thick that strike easterly to south easterly and are usually steeply folded. Major folds several tens of feet high are visible in the cliffs of Chert Mountain. The mountain consists almost entirely of this rock. The Chert in the southern part of the group is predominantly black, fractured and stained with red iron oxide, while the whole mountain and outcrops to the north show light gray to white chert without iron stain.
- (b) Siltstone and Shale. Siltstone and shale occur mainly in two large areas 2,000 feet apart on Jake 1 and 3 and on Jake 6 mineral claim. Except for the small differences in colour and grain size, the rocks in both areas are very similar, and both contain some disseminated pyrite and minor pyrrhotite. The amount of pyrite is greater in the eastern area, where rock is darker and finer grained. Both areas of outcrops are separated by a wide zone of spruce and thick moss without rock exposures. But because of the similarity of the rocks and because both areas are connected by a prominent magnetic anomaly, which will be considered later, they are believed to be parts of one siltstone bed 400 - 600 feet thick. Moreover, this bed would trend 145° while almost all outcrops show a strike of 110° to 120° , so that a different interpretation may be possible.
- Light gray siltstone grading into quartzite occurs also on the Jake 15 mineral claim, where it forms prominent outcrops and cliffs. Although this rock is locally rusty it does not contain pyrite in any noticeable amounts, and appears to be a different form than that described above.

(c) Chert Conglomerate. Medium grained chert conglomerate interbedded with quartzite and siltstone in the northeastern corner of the property. It consists of small rounded pebbles of chert imbedded in quartzite matrix.

The three rock types mentioned appear to belong to one sedimentary formation similar in attitude and lithology to unit #7 of Mississippian Age, described by Campbell in the adjoining Glenlyon District (Glenlyon sheet G. C. S. paper 54 - 12).

(d) Biotite Quartz - Plagioclase Porphyry. On Jake 3 mineral claim, the sediments are intruded by a small, porphyritic rock, consisting of crystals of biotite, quartz and plagioclase feldspar in a very fine biotitic matrix. Outcrops of the porphyry were seen only in a very restricted area; it may form a small plug or dike of undetermined attitude.

(e) Rusty Conglomerate. An area of rusty conglomerate was found on Jake 4 mineral claim about 100 feet from the claim line. The rock outcrops were over 400 feet in the banks of a small creek completely dry at the time of examination; it is thin bedded, dips flatly to the north, and consists of pebbles of chert, siltstone, porphyry and some magnetic rocks, cemented loosely by iron oxide. The pebbles are mostly less than 2 inches in diameter, but some boulders up to 2 feet long are present. No metallic minerals were found in any of the pebbles examined. Drilling has indicated that the conglomerate is less than 10 feet thick and overlies unconsolidated gravel.

(f) Mineralization. There are few visible signs of mineralization on the property. The rusty conglomerate indicates the presence of some quantity of iron bearing minerals above the outcrops. The siltstone and shale, lying topographically above the conglomerate, contain crystals and specks of pyrite up to 5% by volume in places. Quartz and pyrite fill narrow fissures in the siltstone and the rock also contains sparse pyrite bearing vugs up to one inch in diameter. But the amount of iron sulphide in the siltstone as seen on the surface does not appear sufficient to account for the

limonitic matrix of the conglomerate. Unfortunately, the area above the rusty outcrop lies on a steep dry slope and is too far from water to be drilled with our present equipment; and attempted trenching was stopped by permafrost 2 feet below the surface so that the origin of the limonite remains unknown for the present.

A small pebble of sedimentary hematite was found in a deep gully near the southern boundary of the property. Although the bedded chert on the claims does not seem to be iron bearing, this find may indicate the presence of some iron rich beds in the sediments nearby.

[Heavy iron stain was found in a 2 foot creek one half mile outside the claims, about 500 feet upstream from where the creek is crossed by the camp trail. This zone of iron oxide is several hundred feet long but the iron stain did not show any high content of base metals when tested, and may be derived from the iron rich igneous rocks (basalt?) found abundantly in the creek. For this reason no further attention was paid to the area but it could be checked more thoroughly during ^{any} eventual future work.

(g) Geochemistry. The whole property, except for the top of the mountain and the cliffs, was covered by a geochemical survey. The method of sampling and testing was described in an earlier report on the Gal group.

[Two major chemical anomalies were found on the claims. One situated on Jake 1, 2, 3, 4, spreads out from the area of the rusty conglomerate downhill to Teddy Creek. The base metal ions probably come from the same source as the limonitic matrix of the conglomerate; while this source is probably connected with the siltstone bed, it has not yet been located.

[The other anomaly, lying mainly on Jake 11, 12 and 14, has again the typical fan-like shape due to drainage, and appears to originate on Jake 14 mineral claim. The ground here is thickly covered by vegetation and overburden, and no visible sign of mineralization was detected.

[Other more scattered high values appeared near Teddy Creek and the adjoining swampy lakes in the northern part of the property, and in some higher lying

areas in the south. A large part of the latter area is too steep and dry to reflect accurately traces of the possibly underlying base metals; for this reason, even the comparatively low anomalies (100 - 300 p.p.m.), such as the one on Jake 5 mineral claim may have a considerable significance.

- (h) Geophysical Survey. The claims have been surveyed with an Askania magnetometer, using lines spaced 400 feet apart.

[The results showed two major magnetic anomalies. One is long, relatively narrow, and extends in an arc from Jake 1 through Jake 3 and 6 to Jake 7 mineral claims. This was found to coincide remarkably well with the bed of pyritic siltstone and shale mentioned earlier. Although this has not been traced continuously, the fact that the highest readings were obtained over outcrops of this rock (on Jake 1, 6, and 7) strongly suggests a connection between the siltstone - shale and the magnetic anomaly. The rocks themselves were found to be non-magnetic, and although pyrite is common in surface exposures, the amount of pyrrhotite seen near the surface is negligible. Therefore, the magnetic high is believed to be caused by a concentration of pyrrhotite in a siltstone bed farther below the surface. This theory has been partly confirmed by drilling; in hole J 2 drilling on the magnetic anomaly on Jake 1, the rock becomes limy with depth and the amount of pyrrhotite increases. Grains of massive pyrrhotite up to 10 m.m. across, appear in the rock 40 feet below the surface. Drilling continues at the time of writing, and the final results will be described in a supplementary report.

[The second magnetic anomaly lies on Jake 11 and 12 mineral claims. It is broad, roughly elliptical and much less sharply defined than the first. The cause of this anomaly is not apparent. This area is almost devoid of outcrops, but it is believed to be underlain by chert. Although the magnetic high coincides with a part of the chemical anomaly, it lies near the base of drainage (Teddy Creek), not in the topographically higher area where the source of the chemical anomaly is to be expected. No magnetic high was found

in the higher ground. Thus, the sulphide body responsible for the high chemical values may be non-magnetic. An EM survey of the property is planned to start in a few days and will be reported on later.

- (i) Drilling. At the time of writing one hole has been completed and one is in progress. Hole J 1 drilled in the rusty conglomerate, was stopped at 18 feet without reaching bedrock. It penetrated 3 feet of loose rusty conglomerate and 15 feet of glacial till, in that order. Hole J 2, collared on the magnetic high on Jake 1, has to date penetrated 45 feet of pyritic siltstone becoming more limey and showing increasing amounts of pyrrhotite with depth.
- (j) Conclusions & Recommendations. Our work to date has indicated the presence of an unknown quantity of base metal sulphides, associated with a magnetic mineral, probably pyrrhotite. These lie on or near the siltstone - shale bed in the southern part of the property. The latest drilling results suggest the possibility of a replacement deposit in the more limey parts of the siltstone. Although the indications in the northern part of the property are less definite, the strong and persistent chemical anomaly there may mean the presence of non magnetic sulphides in that area.
- The writer considers this property sufficiently interesting to warrant further work, and recommends deeper drilling in the accessible areas and trenching in the higher and less accessible parts (such as Jake 7) as the best means of exploration. A detailed programme involving a minimum of 3,000 feet of drilling will be submitted separately. These recommendations are subject to revision when the results of the EM survey are known.
- (k) Acknowledgments. Douglas A. Lockie, Geologist, and Gunnar Pennikis, Geophysicist, rendered efficient assistance during the exploration of this property.

V. S. Papezik,
August 30th, 1957,
La Lockie, Y. T.