

013268

FRANCES RIVER SYNDICATE

Results of Field Program 1963

AREAS PROSPECTED

1. Gusty Lakes - Beaver River
2. Quartz Lake
3. Thistle Creek
4. Oscar Lake
5. Coal - Best Coal Rivers, Caesar lakes
6. Hyland River - Hyland Lake

4. OSCAR LAKE - STEWART LAKE AREA

The area around Stewart Lake and westerly towards the Frances River is very difficult to prospect due to the heavy overburden of glacial drift and low lying forested terrain masking the geological structure. It is, therefore, difficult to follow the rock sequences and their structural continuity. Rock out-crops are scarce, and appear mainly where the present stream channels have cut through to bedrock.

Due to the scarcity of outcrop throughout this portion of the area and other low lying areas of the map sheet, and hence the lack of continuity of rock sequences, most of the sedimentary rocks were typed into one undifferentiated category. However, wherever possible, an attempt was made to differentiate the rocks into different categories. The general structure of these sedimentary rocks and low grade metamorphics is one of a complex system of folding and faulting. Since these features are also masked by overburden and continuity of features difficult to follow, no definite general trend of either folding or faulting could be established.

From the west end of Stewart Lake, a belt of ultrabasic rocks run northerly, continuing on to the east of Oscar Lake. This belt conforms to the anomaly picked up by aeromagnetic survey. Fingers or dikes of ultrabasics exist elsewhere than this main, north trending belt. Associated with these ultrabasics, minor amounts of chalcopyrite (and nickel?) were observed in the country rocks in contact with them, as well as in the ultrabasics themselves. Crysoile asbestos was found in some of the serpentinized peridotites as cross fibres in veins 1/8" thick. Slip fibre was found also. Much of the ultrabasics are altered to a dolomite-magnesite complex, and as such are hard to distinguish from sedimentary-metamorphic dolomite.

The sedimentary rocks, however, have been domed upwards by the intrusion of the granitic batholith extending from a point northwest of Oscar Lake, northerly to Mt. Murray. Very little alteration of the sedimentary rocks is to be observed along the contact zones, except for some of the rocks along the southeast portion of the granitics. Here, the sedimentary rocks have been subjected to considerable feldspathization and silicification. These rocks have been typed out separately. (Minor amounts of chalcopyrite and pyrrhotite were associated with this complex). However, over most of the rest of the contact between the granite and the sedimentary rocks, the altered zone is only a few inches to a few feet. In some cases limestone that had not been skarnized lay in contact with the granite. Four miles northwest of Oscar Lake massive pyrrhotite and chalcopyrite was found in lenses within limestone, along the contact. This occurrence was of no economic value.

Just west of Murray Lake, fluorite and minor amounts of chalcopyrite were observed in limestone, and again just north of Murray Lake along the western contact lies a bed of chert and limestone, which is highly garnetized. Of all the mineralization observed in the area, none was found of any size or potential. Perhaps the most interesting was the chalcopyrite found associated with the ultrabasics of the area. In testing the silts of the area for zinc, most reached the endpoint before two mls. of dithazone were added; in many zinc was not detectable. All but a few of the silt samples were run in the lab for zinc and copper. Background values for zinc were mostly between 50 and 100 ppm with slightly higher results south of the granite batholith. Copper ranged from 30 to less than 10 ppm. No anomalous results were reported.

In consideration of the area as a whole, it is unlikely that any interesting mineralization of economic potential is to be found within the map area.

D.K. Bragg

5. COAL - WEST COAL RIVERS, CAESAR LAKES AREA

Prospectors Hunders and Ritco spent 5 weeks prospecting along the contact of the batholith between the Coal and West Coal Rivers from late July until the first week in September. The area covered was from peak 6907 to Caesar Lakes. Initial interest in the area resulted from helicopter reconnaissance out of Quartz Lake in 1962. At that time a few miles of the contact were flown and one magnetite bearing skarn zone checked on the ground. A brief helicopter reconnaissance was carried out early in August of this year.

The batholith contacts sedimentary rocks throughout the area prospected. Shale, slate, chert, argillite and limestone striking north to northeasterly are the dominant rock types. In the valley south of Caesar Lakes the sediments are restricted to a belt 2 to 5 miles wide between the large batholith on the east and another granitic body on the west side of the valley.

Six noteworthy mineral occurrences were reported. Travelling clockwise around the contact the first deposit (1) is the magnetite-skarn zone located the previous year. Magnetite makes up 10 - 25% of a principally garnet rock lying against the intrusive contact in a steeply dipping body 20 to 30 feet wide. Next to this zone is a one foot width of garnet-calcite skarn carrying 5 - 10% chalcopyrite. The mineralization is only exposed along strike for 20 feet. No further evidence of significant mineralization was found at this locality.

Showing (2) was found approximately 1000 feet east of the granite contact in a small outcrop about 8 feet by 8 feet. Sphalerite and lesser amounts of galena make up about 15% of the specimen which is light grey chert. The mineralization appears to be related to an east-west cross fracture.

The third showing is a mile inside the granite batholith. Galena and pyrite occur in fracture zones spaced over more than 100 feet along a creek bottom. A picked specimen sent in for assay carried 3.5% Pb, 1.24 oz/ton Ag and .005 oz/ton Au. The area immediately surrounding the mineralized zones is covered by overburden.

Mineralized float was picked up in the pass 3 miles northeast of peak 6638, locality (4). Galena, sphalerite, and a trace of chalcopyrite make up about 5% of a quartz-calcite epidote skarn. Only a small amount of such float was found and no sulphide mineralization was located in place.

Showing (5) is on top of the ridge 6 miles west of peak 7050. Sulphide mineralization is in skarn and appears to be related to 2

faults, one trending northeast, the other northwest, separated by a few hundred feet or more. Sphalerite with very minor amounts of galena and magnetite make up to 25 or 30% of the rock in very irregular zones never more than a few feet across and discontinuous along strike.

Showing (6) is 5 miles south of Caesar Lakes on the west side of the valley. Galena, chalcopyrite, sphalerite and pyrrhotite occur in skarn near the granite contact. Mineralized widths seldom exceed more than a few inches. These showings had been staked by William Paulosk in August 1960. A few thousand feet to the northwest along the granite contact quartz veins carrying small amounts of galena, chalcopyrite, sphalerite and pyrite were found. They occur in a 25' wide rust zone and individual veins are up to 3 or 4 feet wide.

Results from the limited amount of silt sampling that was done indicate a background of 80 to 150 ppm zinc and 10 ppm or less copper. Higher values probably reflect the numerous, small replacement type deposits that are described above. The highest value of 370 ppm zinc is from the drainage a mile or so below showing (5).

CONCLUSIONS AND RECOMMENDATIONS

Of all the areas prospected this season the section between the Coal and West Coal Rivers seems the most mineralized. In the opinion of the prospectors none of the showings are worthy of further work although the area as a whole may be worth more prospecting, particularly if some geologic information could be obtained from the G.S.C. or companies that have worked in the area. The intrusive contact along the main valley of the Coal and north of the area prospected lies east of the mountains and for the most part is covered by low swampy ground with little or no outcrop. Little is known of the geology east and southeast of Caesar Lakes but this area has been prospected before so any obvious mineral deposits have probably been found. This is also true of the west side of the West Coal - Caesar Lakes valley. The whole region is generally more rugged and much better exposed than those prospected to the south. It is therefore possible to put heavier emphasis on conventional prospecting rather than geochemistry.

R. E. Gordon Davis
November, 1963.

6. HYLAND RIVER - HYLAND LAKE AREA

Anderson and Mickle prospected for 2 weeks in August south of Hyland Lake, east of the Hyland River. The ridge east of the Hyland was prospected for 15 miles south of the lake and a small area further east, south of peak 6748 was also investigated. A brief fixed-wing aerial reconnaissance of the area preceded the ground party.

A belt of phyllite, quartzite and limestone lies in the valley east of the Hyland River. Granitic rocks contact the sediments on both the east and west making up most of the higher ground.

Investigation of rust zones spotted from the air proved disappointing. Only small amounts of pyrite and pyrrhotite with a trace of galena and sphalerite were found. The limited amount of silt sampling that was carried out outlined one anomalous area south of peak 6748. This is an area of good exposure and prospecting failed to turn up any base metal sulphide showings. In the area generally no quantity of mineralization sufficient to encourage further prospecting was found.

R. E. Gordon Davis
November, 1963.

2.

2. QUARTZ LAKE AREA

Introduction

On the strength of air-photo interpretation and a helicopter reconnaissance previously done by Aho and Davis, the area delineated on the location map, approx. 100 square miles, was closely prospected and silt sampled (tests for zinc and copper). Geological mapping was not as intensive.

Prospectors Mickle and Anderson spent approximately 3 weeks in the area, Davis, 2 days, and the writer 6 days.

The McMillan property was closely looked at to determine the favourable structural environment.

Weather conditions during this time considerably hindered progress.

Geology

Rock types favourable to mineralization are widespread in the form of limestone, limey phyllite and limey shale. Others are quartzite, sandstone and quartz diorite. The sedimentary rocks are generally of low metamorphic grade but increase towards the north.

The light green phyllite, varying to a schist, is thin-laminated and contains lenses and stringers of calcite. Frequently replacement mineralized with pyrite, limonite and siderite, the McMillan showing of pyrite, galena, sphalerite occurs mainly in this type.

The shale is generally black, thin laminated or thin bedded, fine grain and equigranular. Frequently limey, it may contain pyrite mineralization.

The grey, micaceous, quartzite forms many of the higher areas. Sometimes laminated and phyllitic, it can take on crinkling and accordian folding. It might be more correct to call it a metamorphosed greywacke. The dirty sandstones interbedding with the quartzites are probably just a lesser grade.

Quartz-pebble conglomerate only occurs at the McMillan showing as a small outcrop beneath some phyllite. It has medium to coarse grained white pebbles with little matrix.

Other than pyritization (showing mainly in stream outcrops), the only other mineralization found was galena in a little float

1½ miles SW of Moose Lake.

Interbedding of phyllite-quartzite and shale-phyllite-limestone is very common.

Structurally, the area is complex. Bedding and foliation differ widely, though the most common is a NE strike and moderate NW dip. North, north-west, and westerly trending faults are evidenced topographically and by rust zones and gouge. The skarn zones of the McMillan showing occur on what are reportedly thrust faults, however, irregular folding evidenced in a cross-section would indicate some sort of a relationship of folding-faulting, perhaps a gleits-bretter effect.

Silt Sampling

Initially, many of the samples were field tested for zinc. These indicated the McMillan showing may be larger than the reported 1800 foot length and 250 ft. width. High readings were obtained in the next creek to the east; however, nothing further to the west was indicated.

Further laboratory results indicate some anomalous zinc areas (with 120 to 130 ppm) NNW of Quartz Lake and West of Moose Lake, also the high of land East of Moose Lake which is associated with the Quartz diorite intrusion, and another high of land North of Quartz creek where it drains Quartz Lake.

Anomalous copper concentrations of 30 to 50 ppm were found in three samples 2 miles south of Quartz Lake, in the one sample north of Quartz Creek, and two samples NW of Moose Lake.

High copper concentrations usually coincide with high zinc concentrations, but the converse is not true.

Background zinc concentrations are probably between 80 and 100 ppm. This would correspond to about 1½ ml. of dithizone in the field testing. Background copper concentration is about 20 ppm.

Zinc and copper concentrations toward the north and south ends of the prospected area become less.

Recommendations

Since much of the geology shown on the map is prospector information, and also since there are some anomalous geochemical areas, further geologic mapping, structural interpretation and

geochemistry or geophysics of these anomalous areas could be recommended if any other work is being done in the general area. A geologist and assistant could accomplish this in about 10 days with reasonable conditions.

The former owners of the McMillan Property did a great deal of diamond drilling. This is probably the only way of properly recognizing the structure since there is a scarcity of outcrop. Much of the core remains in order on the sites and could be logged.



John F. Fairley

November, 1963.

3. Thistle Creek Area

Introduction

At the end of the field season in September the proposed Thistle Ck. prospecting area, 80 miles south of Dawson City^① was approximately two thirds covered.

Long known for placer gold, there is a small known showing of replacement galena, and also reported float in the dredgings of Thistle Cr. It is an area of discontinuity in the regional structure.

Prospecting in an unglaciated area such as this is difficult due to the continuous overburden.

Bragg and the writer spent three weeks, Anderson and Mickle 2 weeks, and Davis a few days, here.

Geology

Rock type is uniformly the Yukon Group gneiss. It has a complete range of mafic content from 0 to 100 %. Composition includes muscovite, biotite, hornblende-actinolite, feldspar and quartz, with garnet and pyrite occasionally. Some sections may be called an amphibolite or serpentized rock and these often contain pyrite. There is some remobilization giving quartz rods, boudinage, and injection gneiss structures.

The only limestone occurrence is a one foot bed, unaltered, on a ridge between Phillips and Dollar Creek.

On a ridge near the head of Australia Ck a garnet, chlorite, biotite skarn with a granophyric texture occurs, but no mineralization.

On the F. branch of Neebur Ck. there is a hornblende-garnet hornfels, with some pyrite, magnetite, epidote.

^① See "Proposed Prospecting in the Thistle Mt. District"
Aho, 1962

The pegmatite veins are also prevalent throughout the area. It is not certain, but some of them may actually be quartz re-mobilization into vein structures. Generally coarse-grained, they usually contain large K-feldspar crystals. Pyrite, biotite, magnetite are often present but not in any discernable trend. Quartz float in the Thistle Ck. dredge tailings near Australia Ck. contain small amounts of medium crystallized galena, but unless they were blasted off bedrock their original position is doubtful. Quartz float specimens on Barker Ck. contain a little chalcopyrite and possible sphalerite, but the adjacent silt samples did not respond. The pegmatites are scattered, do not follow any orientations.

Creek pannings, particularly from Thistle Ck., contain cassiterite, pyrrhotite, magnetite, galena, hematite, pyrite, gold, silver, and flakey gold, usually free, was occasionally associated with quartz. None of these except pyrite and hematite occurred in any great quantity.

Structurally, the area is not uniform. A stereonet plot of poles to foliation indicated little except a lack of NW dips. However, there seems to be a trend:



An AEM Magnetometer (vertical component, plus or minus 50 gammas) owned by Mickle indicated a 500 to 1200 gamma anomaly on Telford Ck. - Brewer Ck. at the 2200 - 2300 foot level. It was apparently caused by magnetite in an orthogneiss.

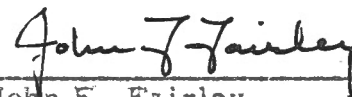
Silt sampling for zinc was mostly done in the field. Since the results from the lab have been returned, the buffer used in the field has come under suspicion. The high background of 90 ppm. should have been detectable, and statistically, some of those field tested should have concentrations around 130 ppm. The two west ridges of Thistle Mt. may be anomalous with creeks showing concentrations of 100 to 130 ppm. zinc. Further lab results for the field tested samples are forthcoming. Background copper concentration is 20-30 ppm., and the few values over this have no particular distribution.

Recommendations

Microscopic examination of the pannings (approx. 25) should be done this winter.

Generally better weather conditions and easy access to this area make it feasible for late season work. Since, geochemically there is a rather high background for zinc, the structure is anomalous regionally, and the originally proposed area has not been completed, the writer feels another two to three weeks work by a prospector and geologist would be worthwhile.

Further reconnaissance examination should first be concentrated in the creek bottoms with float examination, panning, and geochemistry before ridge traverses are made. Sidehill outcrop or float is scanty.



John F. Fairley
November, 1963