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GEOLOGY
FYRE LAKE AREA
YUKON TERRITORY
ATLAS EXPLORATIONS LIMITED

-by-

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SUMMARY

Metamorphic and granitic rocks lie to the northeast of the Tintina fault. No continuity or pattern is evident.

The geology is similar to that in the Anvil Mountains area where mineral deposits are located at the intersection of N.E. and N.W. faults. In the Fyre Lake area similar intersections are masked by alluvium, and the area may best be explored by airborne geophysics.

INTRODUCTION

The Fyre Lake area is one of several selected for exploration by Atlas. The present photogeologic study is based on published maps of the area.

The area, location, and access.

Fyre Lake has geographic coordinates Lat. $61^{\circ}12'N$, Long. $130^{\circ}35' W$. A deposit about 3 miles northeast of the lake is of immediate interest. N.T.S. sheets 105G include the area. The area is within the Pelly Mountains of southeastern Yukon, and photo-coverage studied extends from Grass Lakes, in the northwest, to the North River near its junction with the Black, in the southeast. The Watson Lake to Ross River road passes the west shore of Frances Lake 30 miles to the northeast. Watson Lake, 100 air miles to the southeast, is near mile 635 on the Alaska Highway, and Ross River is 80 air miles to the northwest.

Previous work

The mineralisation has yet to be recorded in government reports, and no unpublished data are available to the writer other than the location of the deposit northeast of Fyre Lake.

The area was first mapped as part of the regional study of the southern Yukon at the 4 mile scale begun by Bostock in the 1930's. Sheet 105G, the Finlayson Lake area, G.S.C. Map 8-1960, was mapped by J.O. Wheeler in 1958 and 1959, accompanied in the

second year by L.H. Green and J.A. Roddick. The data were incorporated in the 1963 geological compilation of the Yukon and N.W.T., G.S.C. Map 30-1963, and in Gabrielse and Wheeler's G.S.C. Paper 60-24, "Tectonic Framework of Southern Yukon and Northwestern British Columbia (1961)". Aeromagnetic coverage is provided by Maps 1360G, 1361G, 1378G and 1379G, at the one mile scale, and 7006G, the 4 mile compilation.

GENERAL GEOLOGY

Describing the Finlayson Lake area, Wheeler et. al. note: "The dominant structure in the map-area is the Tintina fault (which just touches the southwest corner of the Fyre Lake area). It separates two distinctively different geological terranes, the folded and faulted but relatively unmetamorphosed strata to the southwest and the metamorphic and granitic rocks to the northeast. As the fault (or fault zone) is approached from either side, steeper dips and more shearing, parallel with the trench, are visible".

"The metamorphic rocks northeast of the Tintina Valley dip steeply near the valley, but elsewhere, rather gently large recumbent folds such as that exposed on the west face of peak 7721 may be common in this belt. Northwest trends, parallel with the Tintina fault, predominate except in the area of schist and granitic gneisses between North River and Peak 7184

(just east of Fyre Lake sheet 8) where east and north-east trends are common".

LOCAL GEOLOGY

The metamorphic rocks described under general geology are largely included in the Fyre Lake area.

Clastic schists with minor limestone (A), clastic gneisses (C), and ultrabasic rocks (D) all of indeterminate age, and greenstones (6a) of Mississippian (?) or earlier age are described. In some areas on the photographs one can readily see the bedding of the schists and gneisses and more lumpy terrain of the volcanics. Commonly, however, glacial scouring and plucking, talus slopes and soil creep, and glacial deposits make both structural interpretation and rock typing difficult. No fold pattern for example, becomes apparent.

Within the clastic metasediments there are commonly both sharp and vaguely defined fault traces. The latter are regarded as old faults, later annealed.

Most of the larger valleys appear to be fault controlled, and lineation in the recent deposits is regarded as evidence of recent movement or differential deposition and compaction on bedrock faults.

One may anticipate that many faults in the area were initiated by horizontal (folding) pressures, and re-used when the acidic and basic rocks were intruded.

ECONOMIC GEOLOGY

The deposit northeast of Fyre Lake is in clastic metasediments at the west end of a granitic intrusive. There are no major faults in the vicinity, but minor faults are numerous.

A comparison with this and the Anvil Mountain base metal area is readily drawn. Both are underlain principally by clastic metasediments intruded by granite, on the northeast side of the Tintina fault. In the Anvil Mountains most deposits are in the metasediments near the intersections of N.W. and N.E. faults, principally along a fault 5 miles northeast of the Tintina. The North River-Fyre Lake structure and intersecting N.E. faults provide a strictly comparable environment.

Faulting rather than rock type is considered most likely to control ore deposition. Most major fault intersections are covered by alluvium, and airborne geophysics provides the most convenient exploration approach.

Respectfully submitted,
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