

D.C. Findlay, Ph.D

GEOLOGIST

524 BROADVIEW AVENUE
OTTAWA 13, CANADA
(613) 722-1606

BOX 1029
WHITEHORSE, YUKON, CANADA

013646

ROSS RIVER RECONNAISSANCE PROGRAM

(Project 70003)

June 16-18, 1970

for

Cyprus Exploration Corporation Ltd.

Whitehorse, Yukon

D.C. Findlay

June 30, 1970

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SUMMARY AND CONCLUSIONS

GENERAL

Helicopter reconnaissance of the proposed east Anvil Range area was carried out June 16 to 18 inclusive, 1970. The program consisted essentially of examination of rock types and reconnaissance stream-silt sampling in a few selected localities. Total helicopter time was 7.8 hours and the cost of the program was \$2,410.85.

1. Helicopter traverses were run over most of the area and reconnaissance stream-silt sampling was carried out in selected localities. A reference suite of rock type samples was collected and chips submitted for bedrock geochemical analyses (Cu, Mo). Results are listed in the Appendix II.
2. The eastern part of the Anvil Batholith (unit 11) shows little variation in composition, texture or alteration. It does not seem a promising host/carrier rock for sulphide mineralization.
3. The northern contact area between Anvil Batholith (unit 11) and unit 7 rocks (quartz-sericite schist, phyllite, etc.)

Summary and Conclusions (cont.)

should be prospected and streams draining the area should be silt-sampled.

4. The Eastern Pluton (unit 13) shows more variation in composition and texture (locally it is porphyritic) but alteration is not extensive.
5. Anomalous copper analyses were obtained from two silt samples in the extreme eastern part of the area (see Appendix I) (Peak 5563) and follow-up work should be done here.
6. The initial approach to the area should be stream-silt sampling plus visual prospecting.

LOCATION AND ACCESS

The area comprises about 450 square miles lying north of Ross River and between eastern Swim Lakes on the west and just east of the North Canol Road on the east. An outlier of the area lies 22 miles east of the Canol Road in the vicinity of Peak 5563 (about 62 degrees 03' N; 131 degrees 17' W).

Most of the area lies within the southeast quadrant of N.T.S. 105 K (Tay River). The eastern part, roughly bisected by the Canol Road lies within the southwest quadrant of N.T.S. 105 J (Sheldon Lake).

Topography is mainly non-incised, subrounded, with elevations ranging between 3,000 feet A.S.L. and 4,500 feet A.S.L. Tree cover is

Location and Access (cont.)

moderate to heavy and burn areas and alder swamps are common.

In the northwest and north-central parts of the area upland terrain (generally above 5,000 feet A.S.L.) is above treeline and has good rock exposure.

Access within the area is reasonable, with numerous lakes suitable for floatplane utilization. Upland areas are most feasibly reached by helicopter. The North Canal Road provides access to much of the eastern part of the project area.

GEOLOGY

The western part of the area is underlain mainly by the easternmost extension of the Cretaceous Anvil Batholith, consisting of quartz monzonite and granodiorite (unit 11, Geological Survey of Canada Map 13-1961, Tay River). This body is adjoined to the east by a granitic pluton(s) (granodioritic quartz and feldspar porphyry) originally mapped as Tertiary in age (unit 13, op. cit.), but on the basis of subsequent geochronologic data on associated volcanic rocks (unit 14, op. cit.), probably it is Cretaceous also.

The project area also includes 'unit 7' (op. cit.) rocks (quartz-sericite schist, hornfels etc.) that fringe the Anvil Pluton in a few places, notably in the northern and western parts of the area. These rocks subsequently re-termed 'unit 3' by Tempelman-Kluit (1968) in the Anvil area to the west, are the host rocks of the Anvil lead-zinc deposits.

PRESENT WORK

Geology

Rock types were examined throughout most of the area. The Anvil Pluton rocks are typically massive, fairly equigranular medium-fine to medium-grained granodiorite. They contain about 20-25 per cent quartz; 25 per cent K-spar; 45-50 per cent plagioclase; and, 5 per cent mafics. Both hornblende and biotite occur as mafic constituents. Near the north contact with 'unit 7' rocks, the granodiorite is locally finer-grained, bleached-looking and shows sericitic alteration. Elsewhere, there is little sign of extensive alteration. No sulphide mineralization was observed.

Plutonic rocks of the Eastern Pluton are more variable in composition and texture; they range from quartz-feldspar porphyry to granite. Based on this reconnaissance, the western part of the body seems more porphyritic than the eastern part. Southeast of Blind Lakes, for example, the rocks are typically medium to coarse-grained, quartz - feldspar porphyry of granodiorite composition. East of the Canol Road (Carolyn Lake area) the rock locally tends to be coarser-grained, non- or sub-porphyritic, and more quartz-rich. Farther east, in the Peak 5563 locality the rock is typically a biotite-rich granodiorite, non-porphyritic in nature. As in the case of the Anvil Pluton rocks no extensive alteration or signs of sulphide mineralization were noted.

'Unit 7' rocks were examined along the north contact of the Anvil Pluton. The contact is well-exposed here. Unit 7 rocks are light

Geology (cont.)

to dark grey, laminated siliceous phyllites with alternating argillaceous and quartz-rich bands. Locally, banded hornfels zones occur. The rocks are commonly rusty.

Rocks mapped as unit 14 (Map 13-1961 - Tay River) consisting of andesite, dacite and basalt are probably more extensive in the project area than indicated on the Geological Survey map. For example, the unit underlies part of the area around Blind Lakes. Here, the most common rock type is a greenish, fine-grained dacite porphyry, with prominent hornblende phenocrysts.

Silt Sampling

Stream silt samples were collected from a number of streams draining the western and northwestern part of the area. A number of samples were also collected from the eastern outlier (Peak 5563 area) and from Big Timber Creek east of the Ross River. Analytical results are listed in Appendix I.

Recommendations

1. The 'unit 7' rocks along the north and northwest contact of the Anvil Batholith should be prospected and stream silt-sampling programs carried out over this area.
2. A stream sampling program should be carried out over the eastern part of the area, in general the area underlain by the Eastern Pluton,

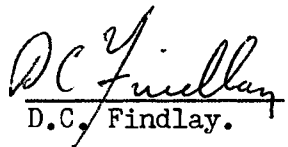
Recommendations (cont.)

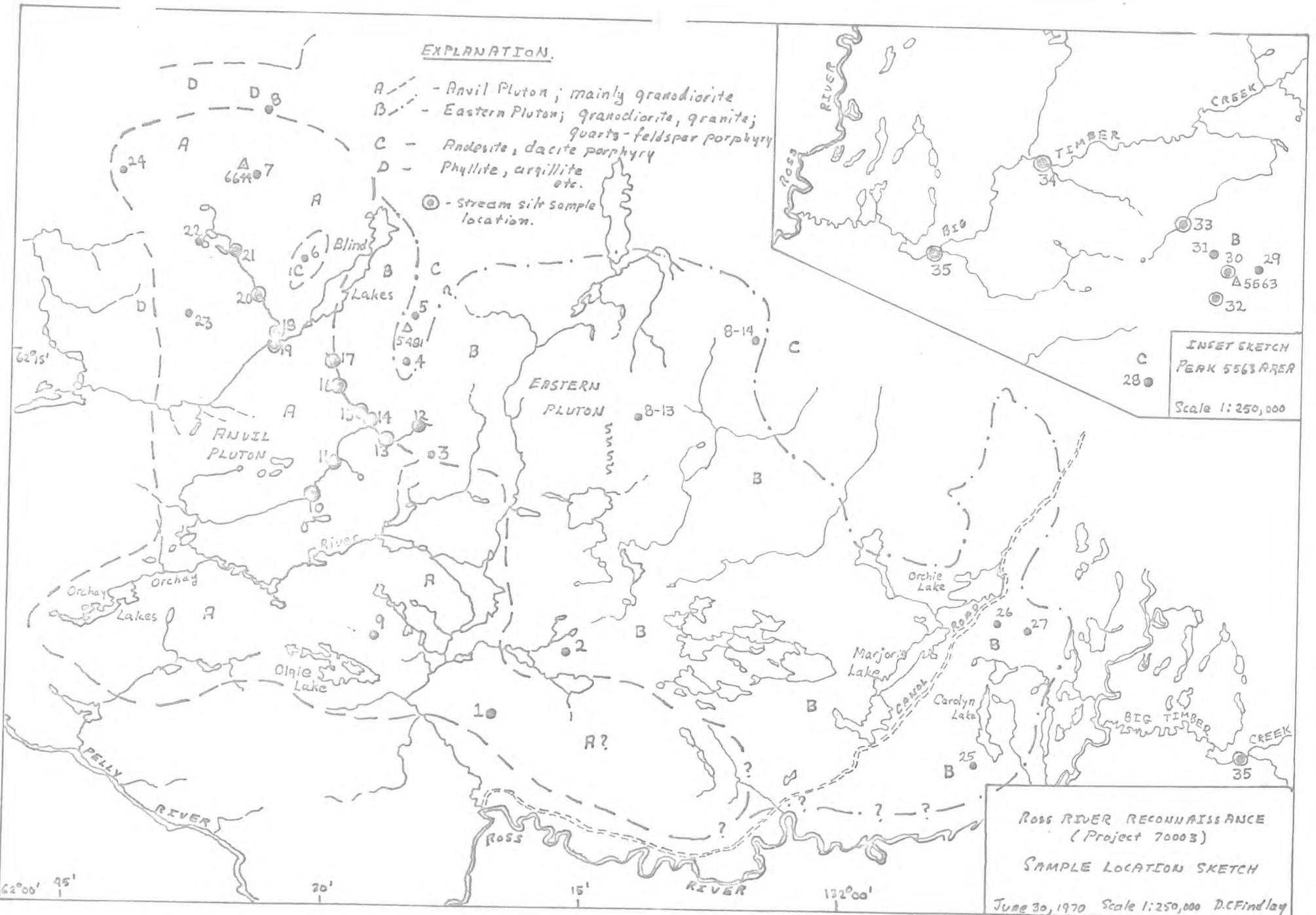
including the (burried) contact area between it and the Anvil Batholith to the west.

3. In general, magnetic patterns over the intrusive rocks are not particularly interesting; however, a number of features should be checked on the ground (geology and silt sampling). These include the two prominent north-south magnetic elements, one cutting through the approximate centre of the area north of the big bend in the Ross River; the other along the east margin of the area, north of Big Timber Creek (Sheldon Lake - 105 J). As a result of the present reconnaissance work, it is suspected that, in part, these magnetic features may be due to a more widespread distribution of volcanic rocks (unit 14, Geological Survey of Canada Map 10-1961, Tay River; Map 12-1961, Sheldon Lake). A number of more-or-less isolated magnetic features should also be checked on the ground; these include positive magnetic anomalies north of Orchie Lake (Geophysics Paper 4388G - Marjorie Lake) and southwest (Paper 4372G - Swim Lakes) and southeast (Paper 4380G - Tenas Creek) of Olgie Lake.

4. The initial stream sampling program in the area could be most efficiently done using a helicopter from a camp established on the North Canol Road near Marjorie-Carolyn Lake.

Whitehorse, June 23, 1970


D.C. Findlay.



62°00' 45'

20'

15'

132°00'

APPENDIX I

STREAM GEOCHEMISTRY RESULTS

Stream silt samples were collected at stations 10 to 21 inclusive and 30 to 35 inclusive (see sketch). At most locations two samples were taken, at distances between 10 and 50 feet from each other. Analyses were done by Whitehorse Assay Office. Results are as follows:

<u>Station and Sample No.</u>	<u>P.P.M. Metal</u>		
	<u>Cu</u>	<u>Zn</u>	<u>Mo</u>
<u>Anvil and Eastern Plutons</u>			
10 - 1	6	20	Tr
- 2	6	24	Tr
11 - 1	12	36	Tr
- 2	14	36	Tr
12 - 1	14	28	Tr
- 2	10	20	Tr
13	16	24	Tr
14	8	24	Tr
15 - 1	10	28	Tr
- 2	12	28	Tr
16	10	40	Tr
17 - 1	16	16	Tr
- 2	12	28	Tr
18	8	20	Tr
19	6	40	Tr
20 - 1	12	20	Tr
- 2	12	28	Tr
21	6	32	Tr

Extreme Eastern Area (Peak 5563)

30 - 1	104	40	Tr
- 2	60	64	Tr
32 - 1	12	36	Tr
- 2	12	36	Tr
33 - 1	32	44	Tr
- 2	28	56	Tr
34 - 1	23	44	Tr
- 2	24	40	Tr
35 - 1	24	44	Tr
- 2	24	40	Tr

Appendix I (cont.)

Based on these preliminary results, most creeks draining areas underlain by the Anvil pluton and by the Eastern pluton do not show anomalous stream geochemistry. The extreme eastern part of the area (Peak 5563 and Big Timber Creek) on the other hand yields significantly higher copper and locally zinc values than the main pluton areas. Samples 30 - 1 and 30 - 2 (104 and 60 P.P.M. cu respectively) are from a shallow meltwater creek near the summit of Peak 5563. No evidence of mineralization was noted during examination of bedrock in this area; however, in view of the geochemical results, additional follow-up work (prospecting and stream sampling) should be carried out in this extreme eastern part of the area.

APPENDIX II

BEDROCK GEOCHEMICAL RESULTS

Bedrock chip samples were collected from eight localities within the area to determine the approximate copper and molybdenum background content of the intrusive and extrusive rocks. Analyses (AA) were done by the Whitehorse Assay Office. Results are as follows:

<u>Station and Sample No.</u>	<u>Rock Type</u>	<u>P.P.M. Metal</u>	
		<u>Cu</u>	<u>Mo</u>
7 - 1A	granodiorite	10	Tr
7 - 3	quartz-feldspar porphyry	14	Tr
7 - 5	dacite porphyry	43	Tr
8 - 13	feldspar porphyry	13	Tr
7 - 22	granodiorite	14	Tr
7 - 25	granodiorite	16	Tr
7 - 26 A	granite	14	Tr
7 - 30	biotite granodiorite	15	Tr

Except for sample 7 - 5, which is a volcanic rock and thus expectably enriched in copper, the acidic intrusive rocks show little significant variation in copper or molybdenum content. Sample 7 - 30 is from near the summit of Peak 5563 in the extreme eastern part of the area where anomalous stream geochemical results were obtained (see Appendix 1); however its copper content is not significantly different from the other plutonic rocks.

APPENDIX III

Costs of Ross River Reconnaissance Program

A. <u>Aircraft Charter</u> (Globe Air Services)		
140.8 plus 136.40		\$ 277.20
B. <u>Helicopter Charter</u> (United Helicopters Ltd.)		
7.8 hours at \$130.00		1,140.00
Estimated fuel costs		
7.8 hours at \$20.00		156.00
C. <u>Consulting Fees</u>		
3 days at \$150.00 - \$450.00		
$\frac{1}{2}$ day at \$150.00 - <u>75.00</u>		
	525.00	525.00
D. <u>Expenses</u>		
Hotel bill, Ross River		48.65
E. <u>Report</u> , drafting etc.		
$1\frac{1}{2}$ days at \$100.00		150.00
F. <u>Geochemical Analyses</u>		
about \$114.00		<u>114.00</u>
	Total	\$2,410.00

REFERENCES

Tempelman-Kluit, D.J.; 1968: Geologic setting of the Faro, Vangorda and Swim base metal deposits, Yukon Territory (105K); in Geol. Surv. Can. Paper 68-1, Pt. A, Report of Activities, 1967

Samples from MR. D. C. FINDLAY

Report No. A-267-29

SAMPLE #	Cu	Zn	MO	SAMPLE #	Cu	Zn	MO
F-70-5 1S	78	24	2	70-7 30BS	60	64	TR
70-7 10As	6	20	TR	32As	12	36	TR
10BS	6	24	TR	32BS	12	36	TR
11As	12	36	TR	33As	32	44	TR
11BS	14	36	TR	33BS	28	56	TR
12As	14	28	TR	34As ¹	23	44	TR
12BS	10	20	TR	34BS ¹	24	40	TR
13S	16	24	TR	35 ¹ 34As ²	24	44	TR
14S	8	24	TR	35 ² 34BS ²	24	40	TR
15As	10	28	TR				
15BS	12	28	TR				
16 S S	10	40	TR				
17As	16	16	TR				
17BS	12	28	TR				
18S	8	20	TR				
19S	6	40	TR				
20As	12	20	TR				
20BS	12	28	TR				
21S	6	32	TR				
30As	104	40	TR				

DATE

June 23/70

ASSAYER

Geo. Spading

