A REPORT ON
THE BOUNDARY RECONNAISSANCE
SEKWI MOUNTAIN AREA, YUKON, NWT

December 1970 Ian Turnbull

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A REPORT ON
THE BOUNDARY RECONNAISSANCE,
SEKWI MOUNTAIN AREA, YUKON - N.W.T.

Ian Turnbull

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Location of Exploration Area	1" : 4 miles
Geology	1" : 1/2 mile
Silt Sample Location Plan	1" : 1/2 mile
Drainage Geochemistry - Copper	1" : 1/2 mile
" " Lead	1" : 1/2 mile
" " Zinc	1" : 1/2 mile
" " Manganese	1" : 1/2 mile
" " Tungsten	1" : 1/2 mile

SUMMARY

During July 1970 a two man party completed a reconnaissance exploration program along the Yukon-N.W.T. boundary in the Selwyn Mountains.

Geologically, the area comprises numerous Cretaceous plutons intruding Devonian and Mississippian black shale, argillite, cherts and calcareous rocks.

Streams draining the plutons were silt sampled at approximate 1/4 mile intervals. Metal determinations were made for totals copper, lead, zinc and manganese, and tungsten.

Four geochemically anomalous areas were defined. It is recommended that additional field work be carried on two of these areas. As part of this same program, but discussed in a separate report, the Mehitabel claims were staked over a showing at the headwaters of the Hess River.

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INTRODUCTION:

In early 1970 it was proposed that a reconnaissance exploration program be carried out in the MacMillan Pass area. At a later date this area was more precisely defined so as to cover only those plutons outcropping on the Sekwi Mountain Map Sheet 105-P.

A party comprising Ian Turnbull and Ted Altenburg carried out this program in July 1970; stream silt sampling, prospecting and reconnaissance mapping was completed for the specified area.

The plutons were designated A., B., C. etc. to distinguish samples and specimens collected in the field. This same notation is used in this report.

LOCATION AND ACCESS:

The target area comprises some 200 square miles straddling and to the north of the Yukon-N.W.T. boundary in the Selwyn Mountains. Latitude 63'00" - 63'15", longitude 129'20" - 129'55", see Figure 1.

Access into the area was generally by helicopter from MacMillan Pass airstrip. A Float plane from Ross River, some 130 miles to the S.W., was used twice to establish fly camps where suitable lakes existed.

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TOPOGRAPHY:

The Yukon-N.W.T. boundary is, in this vicinity, located along the continental divide which separates the headwater drainages of the MacKenzie and Yukon river systems.

The plutons form sharp relief features, rising up to spot heights in the region of 7500'. The valley floors and plateaux lie at approximately 4500'. Cirques, decaying glaciers, glacial debris and snowfields are common features on all the plutons. Extensive talus slopes exist in their steep valleys, and these extend into the areas underlain by friable sedimentary rocks.

The whole of the target area lies above treeline.

GEOCHEMISTRY, STREAM SILT SAMPLING:

A total of 314 stream silt samples were collected from the reconnaissance area. These were analysed for totals Cu, Pb, Zn, Mn & W. Results are reported on five accompanying plans at 1":1/2 mile.

Results:

Four areas of anomalous copper values were defined by the silt sampling program.

I. Two adjacent streams, which parallel and separately drain the intrusive and sedimentary rocks, report high to anomalous copper values. These streams flow into and towards the small lake due east of Christie Pass, at the northwestern part of pluton A.

Associated with the western one of these streams are high manganese and zinc values.

II. Anomalous copper results were obtained in the creek draining the northwestern flank of pluton F. This may be a reflection of either the sediments contact or the locally altered portion of the stock.

No coincident high manganese or zinc values were reported.

III. On the southern part of pluton A, high and anomalous copper, zinc and manganese values were obtained in the headwaters of the two creeks flowing north and south from the intrusive sediment contact.

IV. Samples from streams draining the northern and southern flanks of pluton C report anomalous copper and zinc values. The pluton intrudes calcareous rocks, and skarn zones have developed at or near the contact. These would appear to be responsible for the high metal values.

GEOLOGY:

The Cretaceous plutonic rocks exposed in the target area are fresh coarse grained hornblende and hornblende biotite quartz monzonite, granodiorite, granite and occasionally syenitic. They are commonly porphyritic, phenocrysts of potash-felspar occurring in lathes up to 1 1/2" long.

Dominant hornblende and biotite comprise approximately 20% of the intrusive rocks.

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GEOLOGY CONT'D:

Throughout the area, the plutons contain rounded and subangular inclusions of light grey fine to medium grained dioritic boulders. These are rarely porphrytic but not infrequently carry minor pyrite.

Similar dioritic and pale fine grained quartz felspar dykes occasionally intrude the plutons.

Two of the plutons exhibited bleached and altered intrusive rocks at their margins. These areas of alteration are not widespread.

The contacts with the country rock are sharp, cross-cutting and dip steeply outwards.

The intruded Devonian and Mississippian sedimentary rocks comprise argillite, shale, chert and minor phyllite, chert pebble conglomerate, coarse grained limestone and related calcareous sediments.

Commonly these rocks are rusty, and carry small amounts of pyrite. The strata breakdown to form extensive red brown talus slopes.

At the intrusive-sediments contact, the latter have, in several localities, been converted to hornfels. Similarly the remaining root pendants are frequently silicified and altered to hornfels, which form large rusty red "pseudo gossans" within the intrusive bodies.

Where there are carbonate rocks, skarns have developed at the intrusive contacts. However, only two of the plutons, C and F, were noted to have intruded carbonate rocks, and mineralization has developed at only the one stock C, in the eastern part of the target area. Sulphides comprise pyrrhotite and minor pyrite. These occur in a 2'-6' wide siliceous skarn zone which subparallels the contact.

Specimens throughout the area where tested with a UV lamp, with negative response.

CONCLUSIONS:

1. All the anomalous stream silt samples are closely related to intrusive-sediment contacts.
2. Prospecting and mapping indicated that the plutonic rocks are generally fresh and unmineralized.

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CONCLUSIONS CONT'D:

3. Two plutons, B and F, exhibited bleached looking altered sections of their respective stocks. The latter has an apparently related drainage geochemical anomaly.

RECOMMENDATIONS:

Follow-up work is recommended for the drainage anomalies Nos. I and II on the northwestern margins of plutons A and F respectively.

Respectfully submitted.

Ian Turnbull.

16 December 1970

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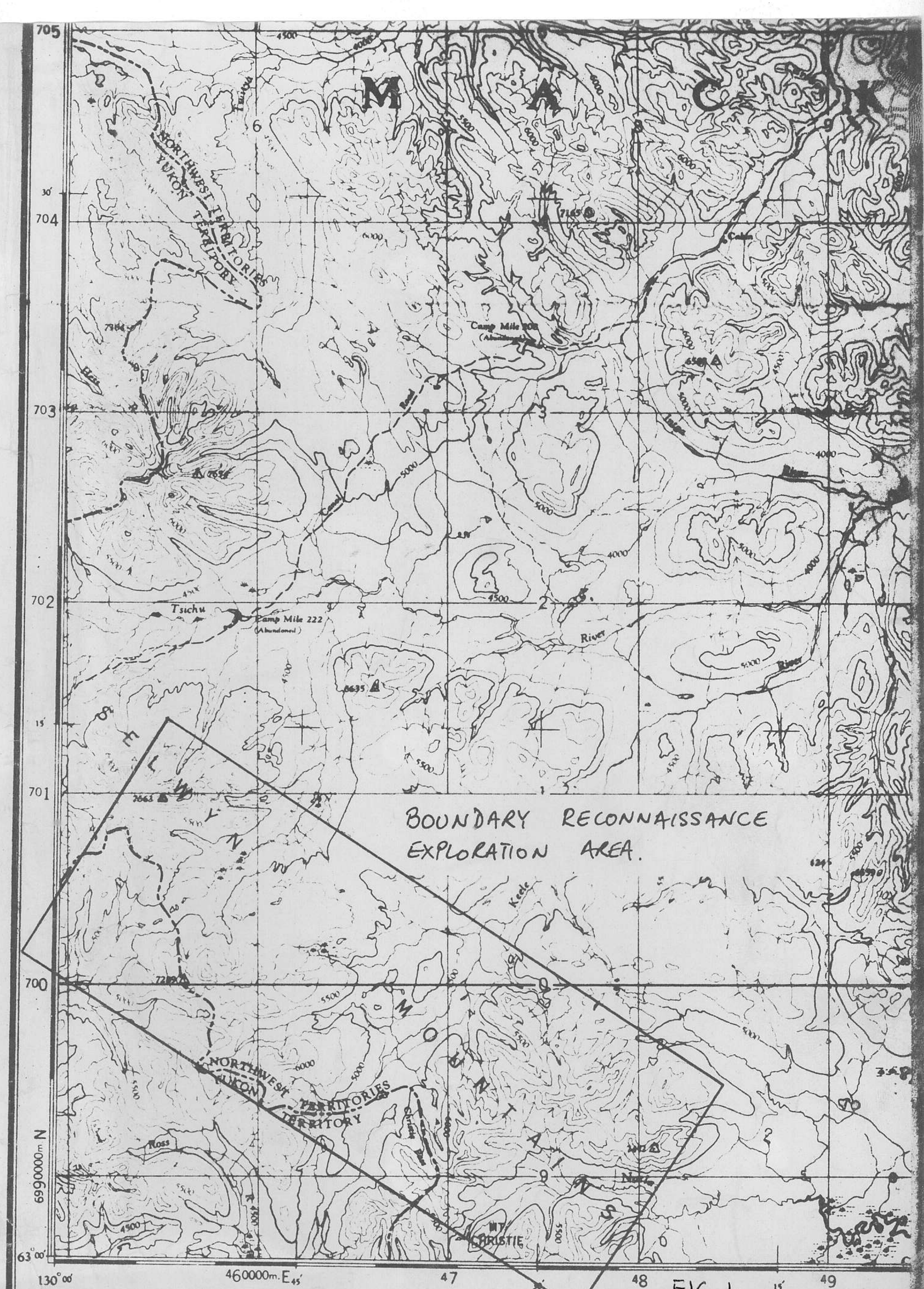
705
M A C K
NORTHWEST TERRITORIES
YUKON TERRITORY
30'
704
7165
Camp Mile 208 (Abandoned)
Canol
Road
703
7654
702
Tsichu
Camp Mile 222 (Abandoned)
River
River
6635
15'
701
7663
BOUNDARY RECONNAISSANCE EXPLORATION AREA.
Keele
700
7283
S E L W Y N
M O U N T A I N S
NORTHWEST TERRITORIES
YUKON TERRITORY
Ross
Christie Pass
MT. CHRISTIE
6990000m N
63°00'
130°00'
460000m. E 45'
47
48
15'
49
4000
4500
5000
5500
6000

FIG. 1

DECLINATION OF THE COMPASS NEEDLE, 1954

Surveyed, compiled, drawn and printed by the

Scale. 1": 4 MILE

F.
B.
A.
C.
D.
E.
Northwest Territories
Yukon Territory

SEKWI MOUNTAIN AREA

Legend

CRETACEOUS

🟥	Coarse-grained hornblende and biotite hornblende quartz monzonite, granodiorite, granite and minor syenite. Commonly porphyritic.
🟥	Altered intrusive rocks, commonly bleached-looking.
▨	Dioritic plutonic rocks
▨	Quartz feldspar porphyry dykes.

DEVONIAN AND MISSISSIPPIAN:

🟧	Orange brown weathered, dark grey and black siltstone. Interbedded grey and purple chert.
⬛	Black fissile shale, minor phyllite. Commonly rusty
🟩	Chert pebble conglomerate.
🟦	Light to dark grey argillaceous limestone.
🟦	Light grey coarse grained limestone.
🟨	quartzite.
🟩	Skarn zones. ▨ Hornfels
≋	Snowfield
RS	Rock geochem. sample.
16	Cu. p.p.m.
～	Geological boundary - defined, approximate.
∿∿	Fault

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BOUNDARY RECONNAISSANCE
SEKWI MOUNTAIN AREA

GEOLOGY

DESIGNED
DRAWN
CHECKED
DATE NOVEMBER, 1970

SCALE HOR. VERT. 2" = 1 Mile

DWG. No.

Northwest Territories
Yukon Territory
Christie Pass
N

inches
0 1 2
0 1 2 3 4 5
centimetres

YUKON GEOLOGICAL SURVEY

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

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BOUNDARY RECONNAISSANCE
SEKWI MOUNTAIN AREA

SILT SAMPLE LOCATION PLAN

DESIGNED		SCALE HOR. VERT.	2" = 1 Mile
DRAWN			
CHECKED		DWG. No.	
DATE	NOVEMBER, 1970		

Northwest Territories
Yukon Territory
Christie Pass
N

inches
0 1 2
0 1 2 3 4 5
centimetres

YUKON GEOLOGICAL SURVEY
This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

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BOUNDARY RECONNAISSANCE
SEKWI MOUNTAIN AREA

DRAINAGE GEOCHEM. COPPER

DESIGNED
DRAWN
CHECKED
DATE NOVEMBER, 1970

SCALE HOR. 2" = 1 Mile
VERT.

DWG. No.

Northwest Territories
Yukon Territory
Christie Pass

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BOUNDARY RECONNAISSANCE
SEKWI MOUNTAIN AREA

DRAINAGE GEOCHEM. LEAD

DESIGNED		SCALE HOR. VERT.	2" = 1 Mile
DRAWN			
CHECKED		DWG. No.	
DATE	NOVEMBER, 1970		

inches
0 1 2
0 1 2 3 4 5
centimetres
YUKON GEOLOGICAL SURVEY
This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

N
Northwest Territories
Yukon Territory
Christie Pass

inches
0 1 2
0 1 2 3 4 5
centimetres

YUKON GEOLOGICAL SURVEY

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BOUNDARY RECONNAISSANCE
SEKWI MOUNTAIN AREA

DRAINAGE GEOCHEM. ZINC

DESIGNED
DRAWN
CHECKED
DATE NOVEMBER, 1970

SCALE HOR. 2" = 1 Mile
VERT.

DWG. No.

Northwest Territories
Yukon Territory
Christie Pass
<4
8
12
16
24
32
40

inches
0 1 2
0 1 2 3 4 5
centimetres

YUKON GEOLOGICAL SURVEY

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BOUNDARY RECONNAISSANCE
SEKWI MOUNTAIN AREA

DRAINAGE GEOCHEM. TUNGSTEN

DESIGNED
DRAWN
CHECKED
DATE NOVEMBER, 1970

SCALE HOR. 2" = 1 Mile
VERT.

DWG. No.

Northwest Territories
Yukon Territory
Christie Pass
N

Total W.

TOT. W

all samples <4 ppm.
except where marked.

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BOUNDARY RECONNAISSANCE
SEKWI MOUNTAIN AREA

DRAINAGE GEOCHEM. MANGANESE

DESIGNED DRAWN CHECKED DATE NOVEMBER, 1970	SCALE HOR. VERT. 2" = 1 Mile
	DWG. No.