



K 115I05/06/083
VOL 1 UNC
Coranex Limited

1966/12/01 1966/12/01

27080



No. 666
VANCOUVER BUSINESS SYSTEMS

115-112
1152-6A

CORANEX PROJECT

KLAZAN GROUP, YUKON TERRITORY

North Vancouver, B. C.
December 1, 1966

CORANEX LIMITED

KLAZAN GROUP, YUKON TERRITORY

C. J. Campbell

Vancouver, British Columbia
November 29, 1966

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KLAZAN PROJECT

LOCATION AND ACCESSIBILITY

The Klazan Group is situated approximately 140 air miles northwest of Whitehorse in the Yukon Territory. It is at latitude $62^{\circ} 23'$, longitude $137^{\circ} 29'$ on Geological Survey Map 340A (Figure 2). Maximum elevation is approximately 4000 feet with the valley floors at 3000 feet.

The nearest settlement, Carmacks, is about 45 air miles or 35 miles by gravel road and 25 miles by tractor road from the Klazan Group. Carmacks is accessible year round via the Mayo—Dawson Highway, a good gravel road.

A camp on the Klazan Group could be supplied during the spring and early summer, via the tractor road, by a bulldozer and trailer but during July and August several long stretches of the tractor road might be impassable.

The only consistent means of supply would be by helicopter or by tracked vehicle similar to a Nodwell.

CLAIMS AND OWNERSHIP

The 48 Klazan claims (Figure 3) were staked June 7, 1966 by a crew of Coranex men and have been transferred to Coranex Limited.

The geochemical work and the trenching done in 1966 will provide one year of assessment work for most of the claims.

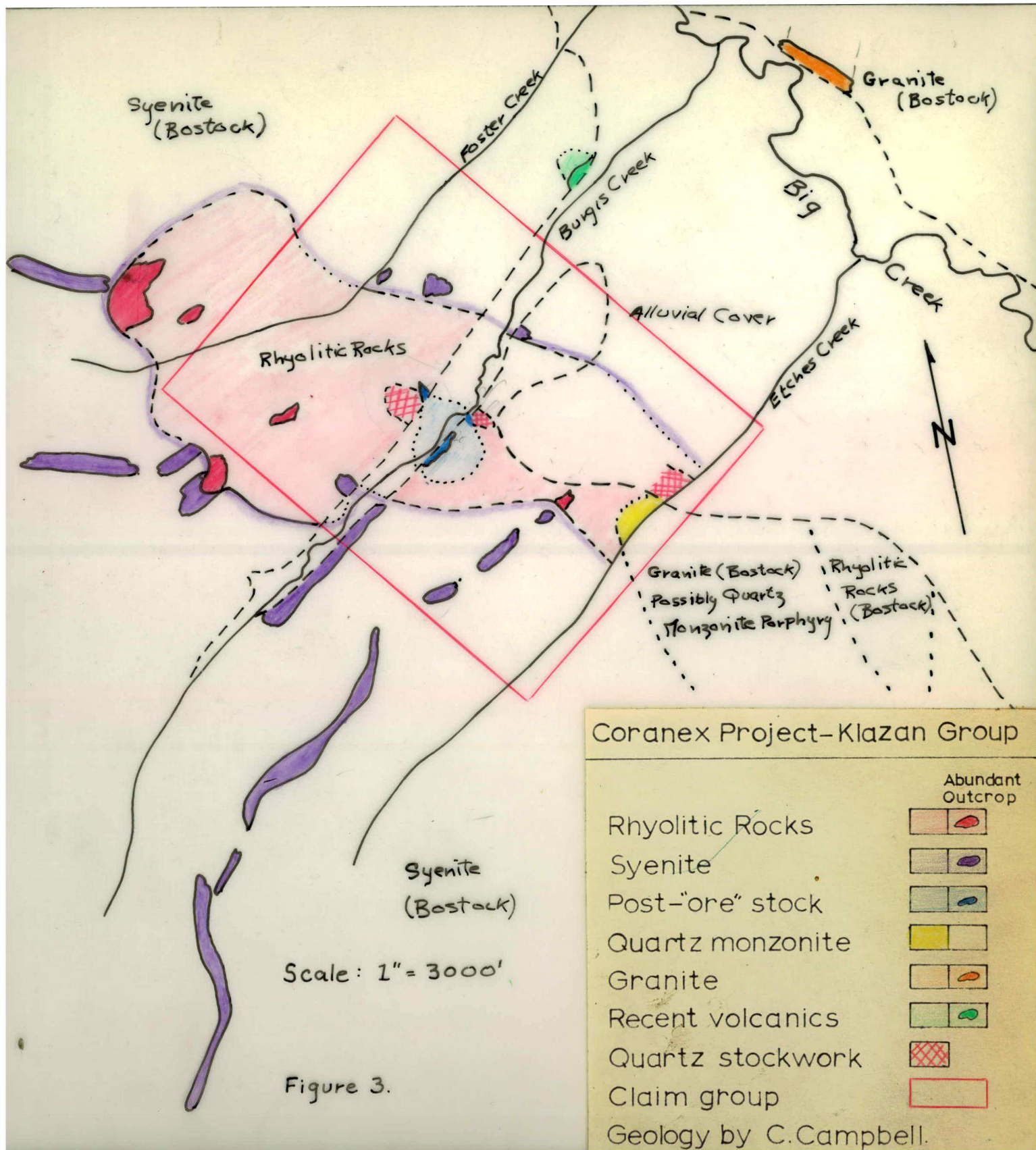
EXPLORATION WORK

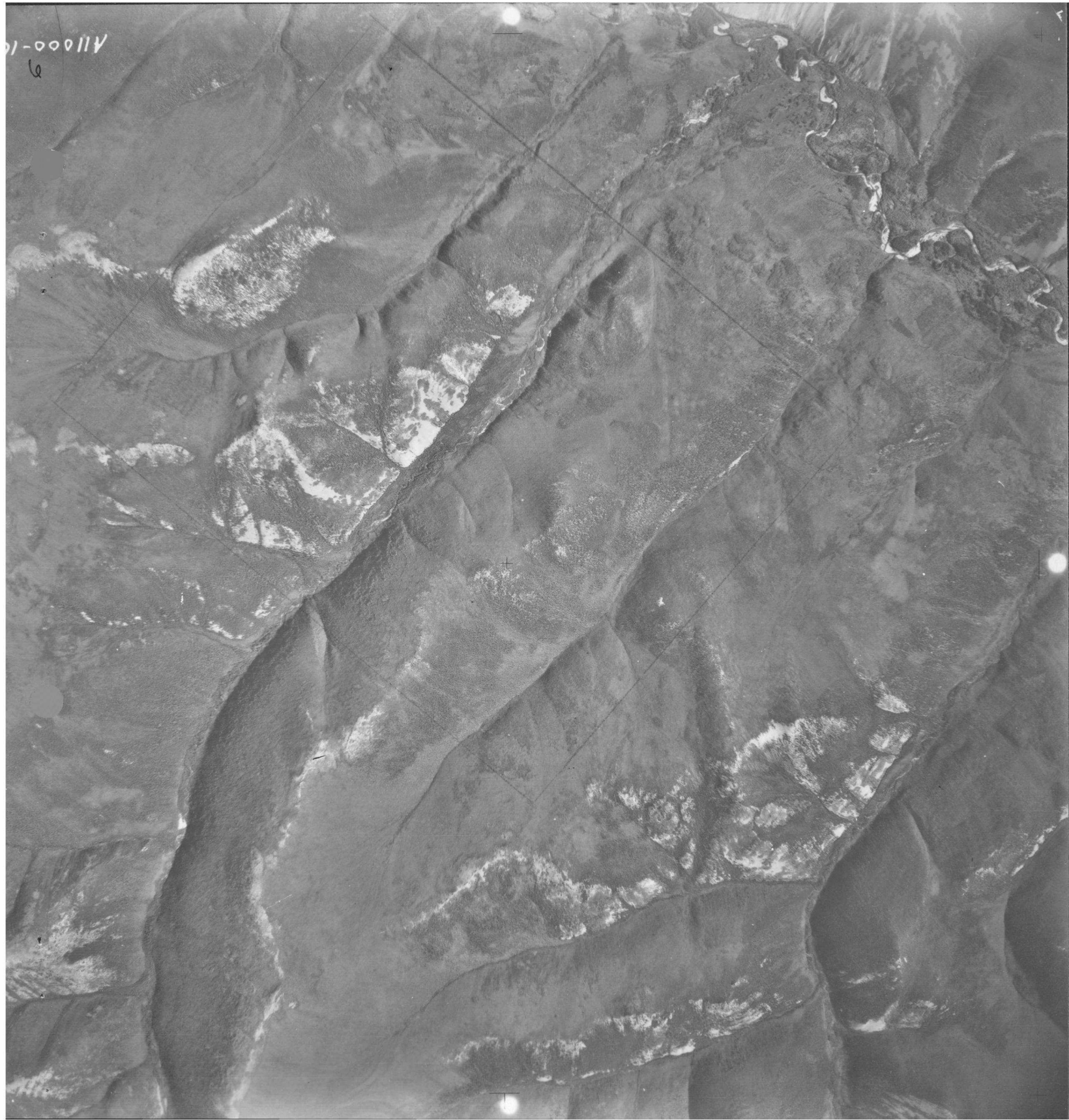
The area of interest was located during the 1965 field season by Coranex silt sampling crews under the supervision of W. T. Meyer. Detailed silt sampling outlined an area of approximately one mile along Burgis Creek (Figure 5) which had anomalous heavy metal values. Soil sampling was carried out near Burgis Creek and on the creeks immediately to the northwest (Foster Creek) and to the southeast (Etches Creek).

Samples of weathered rock were taken from an arsenic anomaly and from some quartz stockwork but assays revealed only low gold and silver values. However the large anomalous area, including heavy metals, arsenic, molybdenum and copper, near an area of quartz stockwork was thought to warrant more intensive investigation.

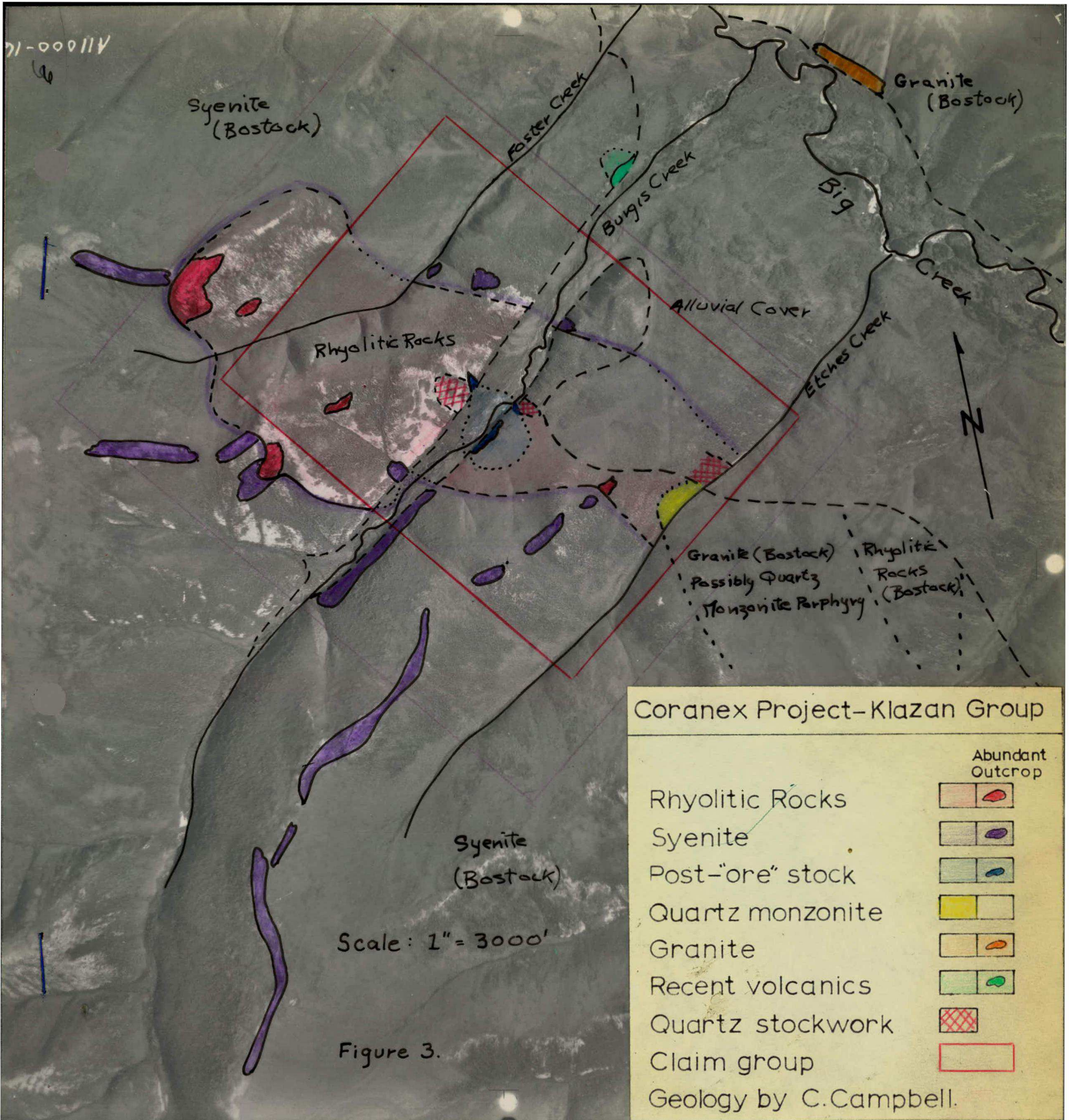
The 48 Klazan claims were staked June 7, 1966 and during the latter part of July and August a crew of three attempted to tie down the anomalous area more closely by detailed geochemistry and subsequent trenching. Several days of geological mapping were also done on the claim group.

Samples taken during the trenching yielded no interesting gold values, but molybdenite mineralization was found in two of the trenches (Figure 4).





71-000114



Coranex Project-Klazan Group

	Abundant Outcrop
Rhyolitic Rocks	
Syenite	
Post-"ore" stock	
Quartz monzonite	
Granite	
Recent volcanics	
Quartz stockwork	
Claim group	



Plate I (A) Area to the southeast of Burgis Creek



1 (B) Grassy slopes and gossan to the northwest of
Burgis Creek

A series of rock samples for alteration studies and geochemical analysis were collected by J. R. Woodcock and myself during the latter part of August, 1966.

REGIONAL GEOLOGY

Bostock (1948) has divided the Canadian Cordillera into three physiographic systems; the Eastern System consisting of the Rocky, Mackenzie and Arctic Mountain areas, the Western System including the Coast Mountain area, the Coastal trough and Outer Mountain area and the Interior System which includes the Yukon Plateau and other areas. Near the central part of the Yukon Plateau is the Dawson Range composed mainly of intrusive rocks.

A large irregular body of porphyritic syenite of Jurassic age occurring along the northeast flank of the Dawson Range has been intruded locally by Tertiary quartz porphyry, granite porphyry and rhyolite (Bostock, 1936).

The Klazan Group partially covers one of Bostock's Tertiary "plugs" (Figure 2). However, our thin section examination of the rocks from this "plug" indicates that many of the rhyolite porphyries are crystal tuffs and flows.

GEOLOGY OF THE PROPERTY

Since over 90 percent of the area is covered by from two to ten feet of overburden most of the mapping was on float. The areas of abundant outcrop (Figure 5) are widely spaced. Specimens for thin sections are from float and from outcrop. Because the area remained unglaciated during the last period of glaciation the use of float in mapping can be quite accurate.

A. Geomorphology

The northwest slopes (Plate 1, A) are typically covered by a layer of moss, two to ten inches of volcanic ash and below the ash by a normal soil horizon. The moss, being a good insulator, does not allow any melting of the permafrost during the summer.

The southeast slopes (Plate 1, B) are dissimilar in that open areas typically consist of grass above soil mixed with small blocks of bedrock. Permafrost is generally not present near the surface.

Part of the Klazan Group is covered by alluvium (Figure 5), consisting of fine sand, gravel and rounded boulders of granite and syenite. Bostock (1936) notes that in recent times Big Creek has downcut its bed from 200 to 500 feet. The alluvium may be part of a series of old beds of Big Creek or glacial outwash from an earlier period of glaciation.

B. Rock Types

Syenite: The syenite is generally porphyritic with large (up to 3 cm. long) phenocrysts of pink orthoclase and hornblende in a matrix of plagioclase and minor quartz (less than 5%). Accessory minerals include magnetite, apatite and sphene. Most of the syenite shows evidence of shearing and many of the fractures are filled with epidote.

Rhyolitic Rocks: The rhyolitic rocks consist of a sequence of crystal tuffs, flows and quartz porphyry. The crystal tuffs occur along the south and southwest parts of the area mapped as "rhyolitic rocks" (Figure 5). The tuffs consist mainly of crystal fragments of quartz, feldspar and rock in a matrix of partially devitrified glass. The flows in hand specimen look similar to both the tuff and the quartz porphyry and are distinguished from the tuff by lack of fragments and from the quartz porphyry only in thin section by the presence of flow banding. The contacts between the tuffs, flows and porphyry seem to be gradational.

Carbonatized Orthoclase Porphyry (Post-"Ore" Stock): In hand specimen the rock is grey with white phenocrysts of orthoclase and fresh crystals of pyrite up to 3 m.m. in diameter. Thin section examination reveals that the orthoclase is largely altered to carbonate (calcite) and minor kaolinite. The plagioclase which represents approximately one-half the total feldspar is slightly sericitized. Minor sphalerite and some chlorite were observed in some of the post-"ore" stock.

Quartz Monzonite Porphyry: Large quartz eyes (up to 2 cm. across) and orthoclase phenocrysts give this light grey-brown rock a definite porphyritic texture. In relatively unaltered specimens, plagioclase of composition An_{30} to An_{38} composes approximately 50% of the total feldspar. In one relatively unaltered specimen biotite was present.

It is noted that at least part of the area mapped by Bostock as granite (Figure 2) is the quartz monzonite porphyry. If the whole massif is the same rock type, then the quartz monzonite porphyry may extend another 1.8 miles to the southeast (Figure 3).

C. Quartz Stockwork

The areas of quartz stockwork have been roughly outlined (Figure 6). The percentage figures given are the average percentage of quartz veins in the areas outlined and are based largely on the examination of weathered float. The veins vary from hair-line fracture fillings to lenses ten inches in width, the average width being approximately 1/8 inch. The stockwork seems restricted to the "rhyolitic rocks" except for a small area of the quartz monzonite porphyry stock. No quartz veins were observed in the post-"ore" porphyry stock.

Minor molybdenite mineralization was found associated with one area of quartz stockwork.

D. Molybdenite Mineralization

The molybdenite in the quartz stockwork to the southeast of Burgis Creek (Figure 6) occurs in several ways. Most of the molybdenite is fine-grained and occurs within quartz veinlets. The rock, originally a quartz porphyry, has been altered and weathered to a soft "mush" of rock fragments. The quartz veinlets remain suspended in this "mush". Much of the molybdenite may have been mechanically washed out.

The molybdenite also occurs as small pods of quartz and molybdenite in the wall rock along shears. This molybdenite is coarser grained than the first type.

Minor molybdenite is also found as flakes disseminated in the quartz porphyry (Figure 4).

E. Rock Alteration

A suite of rocks from the Klazan Group was studied in both hand specimen and thin section to determine the degree and type of alteration present.

The zones of alteration occur in areas of rhyolitic rocks and in the quartz monzonite porphyry. The alteration products are mainly sericite with some kaolinite. Portions of the post-"ore" porphyry stock have been carbonitized.

In estimating the degree of sericitization, both the grain size of the sericite and the percentage of the plagioclase altered to sericite were considered.

The alteration pattern (Figure 6) tends to be quite extensive and somewhat elongate in an east-west direction. The most strongly sericitized rock is from the quartz monzonite porphyry stock to the northwest of Etches Creek. One specimen from here consists entirely of large quartz grains and sericite.

GEOCHEMISTRY

A. General Geochemistry

As previously mentioned the initial anomaly on Burgis Creek was a heavy metals anomaly outlined by silt samples. Soil sampling provided further anomalies of arsenic, heavy metals, molybdenum and copper. Geochemical maps which include the soil sampling of 1965 and 1966 are being compiled under a separate report for assessment work.

The soil sampling done during 1965 resulted in the outlining of a main arsenic anomaly and a heavy metals anomaly to the northwest of Burgis Creek and a multi-metals (copper, heavy metals, arsenic and molybdenum) anomaly to the southwest of Burgis Creek. These areas are outlined on the molybdenum geochemistry map (Figure 8).

(a) Major Anomalies:

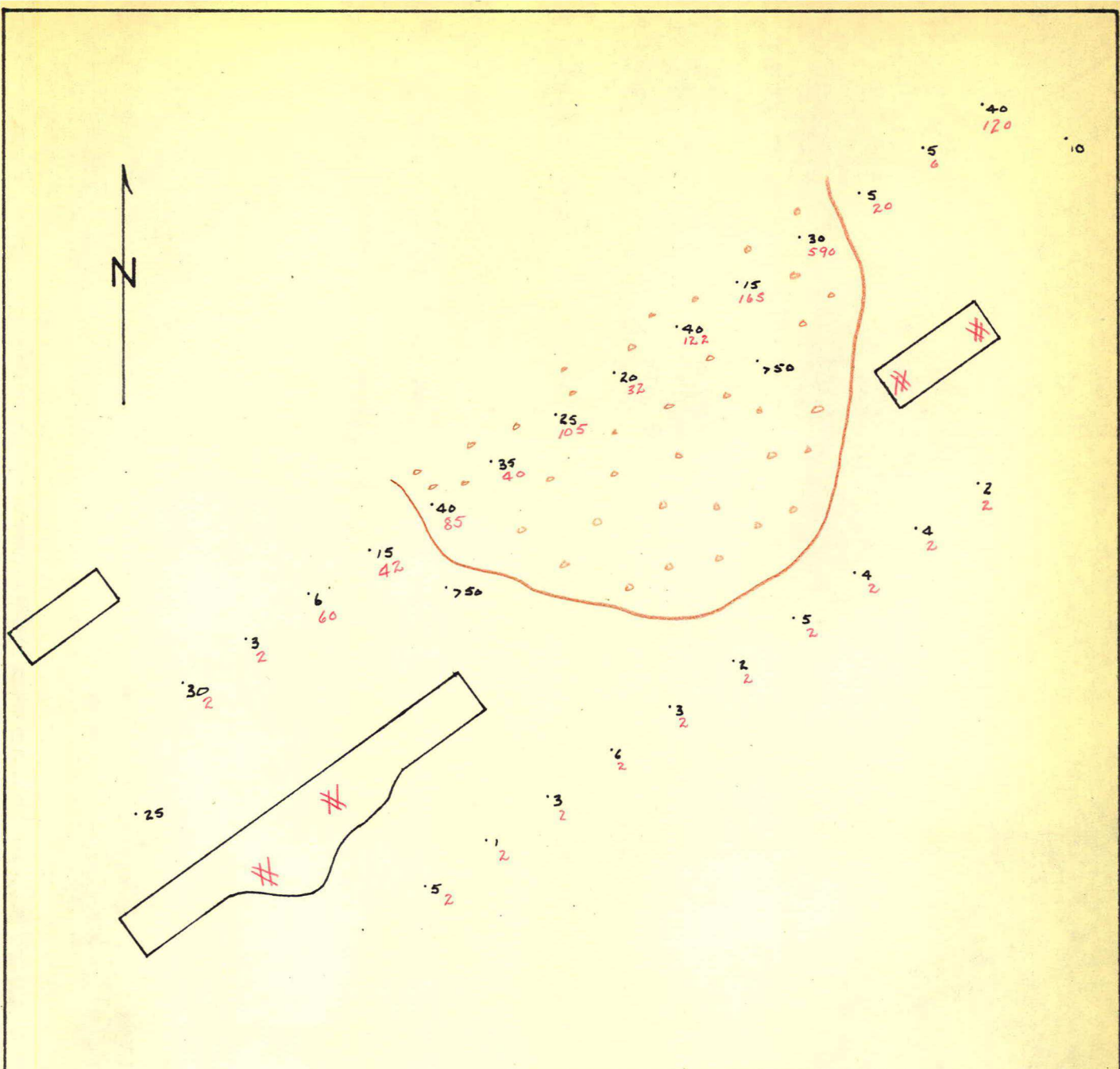
i) Arsenic Anomaly (Figure 9)

The arsenic anomaly occurs on a steep, grass-covered slope northwest of Burgis Creek. Soil from here used for analyses is mixed with volcanic ash and blocks of crystal tuff. Supergene carbonate coats many of these blocks.

Detailed sampling during 1966 outlined a small highly anomalous area which was hand trenched and sampled. No sulphides or quartz veins were found in the trench. Assays yielded gold values of .005 ounces per ton.

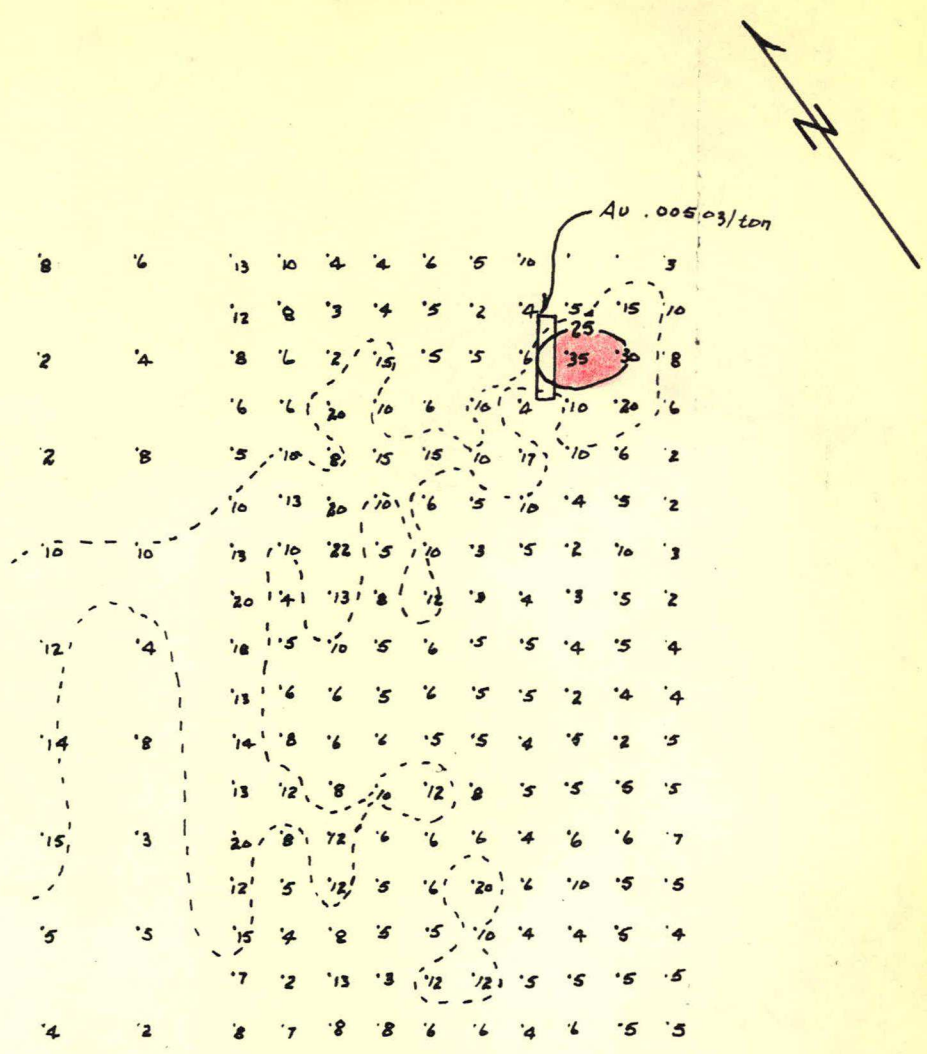
ii) Heavy Metals Anomaly (Figure 10)

The heavy metals anomaly to the northwest of Burgis Creek follows a low swampy area. Geochemical results from several superimposed debris and soil horizons in the trench show that the draw is collecting zinc ions from adjacent slopes. The trenching did not reach bedrock and no mineralization could be found on the adjacent slopes.



Coranex Project - Klazan Group	
Multimetals Anomaly	
Arsenic	• ppm
Molybdenum	• ppm
Quartz-molybdenite veins	#
Trench	[]
Gossan	()
Scale: 1" = 20'	
Drawn by: C. Campbell, Nov. 1966.	

Figure 4



Coranex Project - Klazan Group

Arsenic Anomaly

Sample site	'ppm
25 ppm contour	
10 ppm contour	
Trench	

Scale: 1" = 100'

Drawn by: C.Campbell, Nov. 1966.

Figure 9

iii) Multi-Metals Anomaly

This anomaly to the southeast of Burgis Creek includes the contact between the post-"ore" porphyry stock and the rhyolitic quartz porphyry. Minor sphalerite was found in the post-"ore" stock near this contact. Quartz stockwork and molybdenite occur in the quartz porphyry near the contact. The anomaly occurs over a gossan and an area of shallow overburden.

B. Molybdenum Geochemistry

(a) Soil Survey (Figure 8)

In considering the total molybdenum soils map (Figure 8) the large anomaly to the southeast of Burgis Creek is its outstanding feature. Upon close examination of this anomaly one finds that all of the anomalous samples were taken from the restricted gossan or from adjacent areas of little overburden. Quartz-molybdenite veinlets were found in the gossan zone. The lack of anomalous values to the east of the gossan area and molybdenum anomaly should not be interpreted as lack of mineralization because most of the area is a topographic low covered by alluvium and permafrost.

No good molybdenum anomalies appear to the northwest of Burgis Creek in the area of the good quartz stockwork. However rock samples from the good quartz stockwork contain up to 95 ppm molybdenum. The effect of the volcanic ash, which contains minor carbonate, and of the supergene carbonate along fractures near the quartz stockwork is unknown. The carbonate may produce alkaline conditions which allow leaching of molybdenum from the surface. The volcanic ash which contains only 2 ppm molybdenum mixes with soil on the steep slopes and probably has a dilution effect (in one place we have a surface soil sample which runs 7 ppm whereas a soil sample from four feet below the surface runs 55 ppm molybdenum).

(b) Rock Survey (Figure 7)

The anomalous molybdenum values in rock form a pattern elongated in an east--west direction, roughly following the alteration zone. Included in this elongate anomaly are three areas:

i) Portions of the quartz stockwork to the northwest of Burgis Creek with molybdenum values up to 95 ppm.

ii) The mineralized zone of quartz porphyry with molybdenum values up to 325 ppm (0.05% equivalent MoS_2).

iii) Part of the quartz monzonite porphyry stock with up to 95 ppm molybdenum.

There are also several erratically anomalous rock samples, mainly crystal tuffs, with up to 80 ppm molybdenum. More detailed rock sampling may explain these erratic values.

CONCLUSIONS

(1) Geochemical methods were successful in finding the general area of interest but are of limited use in outlining the mineralized zone, especially where recent alluvial cover is present.

(2) Most of the area of interest is obscured by overburden, much of which is frozen. Observations and rock samples are mostly float from narrow zones along both sides of Burgis Creek and along the west side of Etches Creek, 4500 feet further east.

(3) The sericitization of plagioclase is widespread and in places, including parts of the quartz monzonite porphyry stock, is complete.

(4) Rock analysis for molybdenum indicates an anomalous area that probably extends off the claim group to the southeast.

(5) Part of this anomalous area is a quartz monzonite porphyry stock, mapped as granite by Bostock. It is therefore possible that the quartz monzonite and hence the interesting area could extend up to two miles to the southeast of the Klazan Group.

(6) The silt samples from the Big Creek area are now being re-run in the North Vancouver laboratory using a more complete digestion than we had in the field laboratory. The new results show a small molybdenum anomaly just south of the most southerly part of Bostock's "granite".

(7) The only place we have observed molybdenite is in the highly sheared and weathered bank on the southeast of Burgis Creek and the best value obtained here was 325 ppm molybdenum (0.05% equivalent MoS_2). However the zone of hydrothermal alteration and of quartz stockwork appears, from our limited work to be at least 7000 feet long and it is largely covered.

Colin J. Campbell
Colin J. Campbell

November 28th, 1966

CORANEX LIMITED

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November 30, 1966

Mr. J. J. Rankin
Suite 904, 85 Richmond Street W
Toronto, Canada

Dear Joe:

Enclosed are five copies of Colin Campbell's report on the Klazan property, Yukon Territory. Recommendations for further work, including bulldozer stripping to aid in geological and geochemical mapping, will be made in my annual report.

As Colin has mentioned, the information is from float or small weathered outcrops, so there will probably be some major changes in our interpretation when we get more data.

Yours very truly,



J. R. Woodcock

JRW:mb
encl.

ASARCO
samples { 1 to 6 E Side of Burgis Creek
7 to 14 W Side of Burgis Creek
15-18 - W side of Etches Creek.