GEOLOGICAL RECONNAISSANCE

PRINCETON AREA
AND OUTSIDE PROPERTIES

P.N. 123

1973

Van., B.C.
Apr./74

S.H. Pilcher,
B. Calder, G. McArthur

PRINCETON AREA & Outside Properties, (P.N.123) 92-H
Geological Reconnaissance, S.H. Pilcher, B.C.
B. Calder, G. McArthur, April, 1974.

OUTSIDE PROPERTIES

Jon Claims (Deadman Creek Area)	92-P-2
Gavin Lake Property (Horsefly Area)	93-A-5
Mitchell Bay Property (Horsefly Area)	93-A-6
C-Z Group (Horsefly Area)	93-A-6
London Claims (Indian River Area)	92-G-10
Weaver Lake Area (Harrison Lake Area)	92-H-5

NTS 92-H

GEOLOGICAL RECONNAISSANCE

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Calder, McArthur & Pilcher

April, 1974

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(In Pocket)

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INTRODUCTION

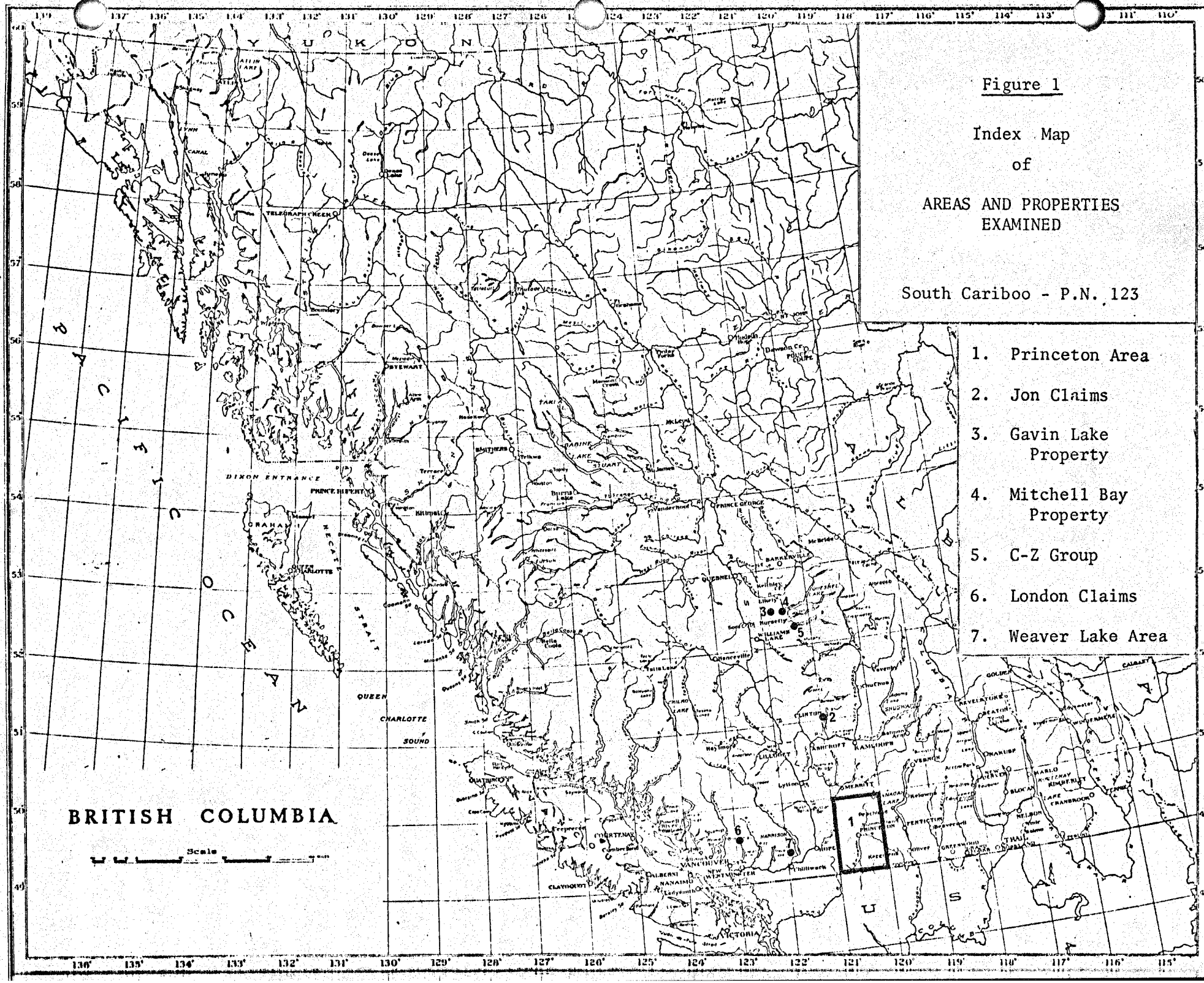
PURPOSE - Reconnaissance mapping was carried out over a geologically favourable section of Nicola group rocks (Figs. 1, 2, 3) and associated intrusives within the Princeton map sheet for the purpose of 1) determining the character of the Nicola rocks with a view towards interpretation of environments of deposition, 2) evaluation of known mineral occurrences and determination of possible ore controls, 3) prospecting for new mineral occurrences. Several properties outside the Princeton area were also examined.

PREVIOUS WORK - The area was first mapped by Rice in 1946 on a scale of 4 miles to the inch. Since that time detailed mapping has been done over several small areas within the Princeton map sheet. These include the Aspen Grove area by Christopher, the Quilchena area by Schau, and a section of the Eagle granodiorite near Skaist Mountain by Anderson.

AREA COVERED - The most complete mapping coverage completed during the 1973 field season includes N.T.S. 92H, sheets 7, 10, and 15 (Fig. 2). This covers a large portion of the area underlain by Nicola rocks between Princeton on the south, Merritt on the north, the Eagle granodiorite on the west, and the Osprey Lake granodiorite on the east. Some 40 properties were examined during the course of the mapping.

METHODS - Mapping was done on half-mile-to-the-inch base maps using pace and compass traverses. Air photos were of only limited value because of the relatively heavy forest cover. By using a combination of 4-wheel-drive vehicles and trail bikes most of the ground could be reached on foot. The trail bikes proved indispensable and they were in almost constant use.

CREW - A three-man crew was used during most of the season. A small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Index Map
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AREAS AND PROPERTIES
EXAMINED
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4. Mitchell Bay Property
5. C-Z Group
6. London Claims
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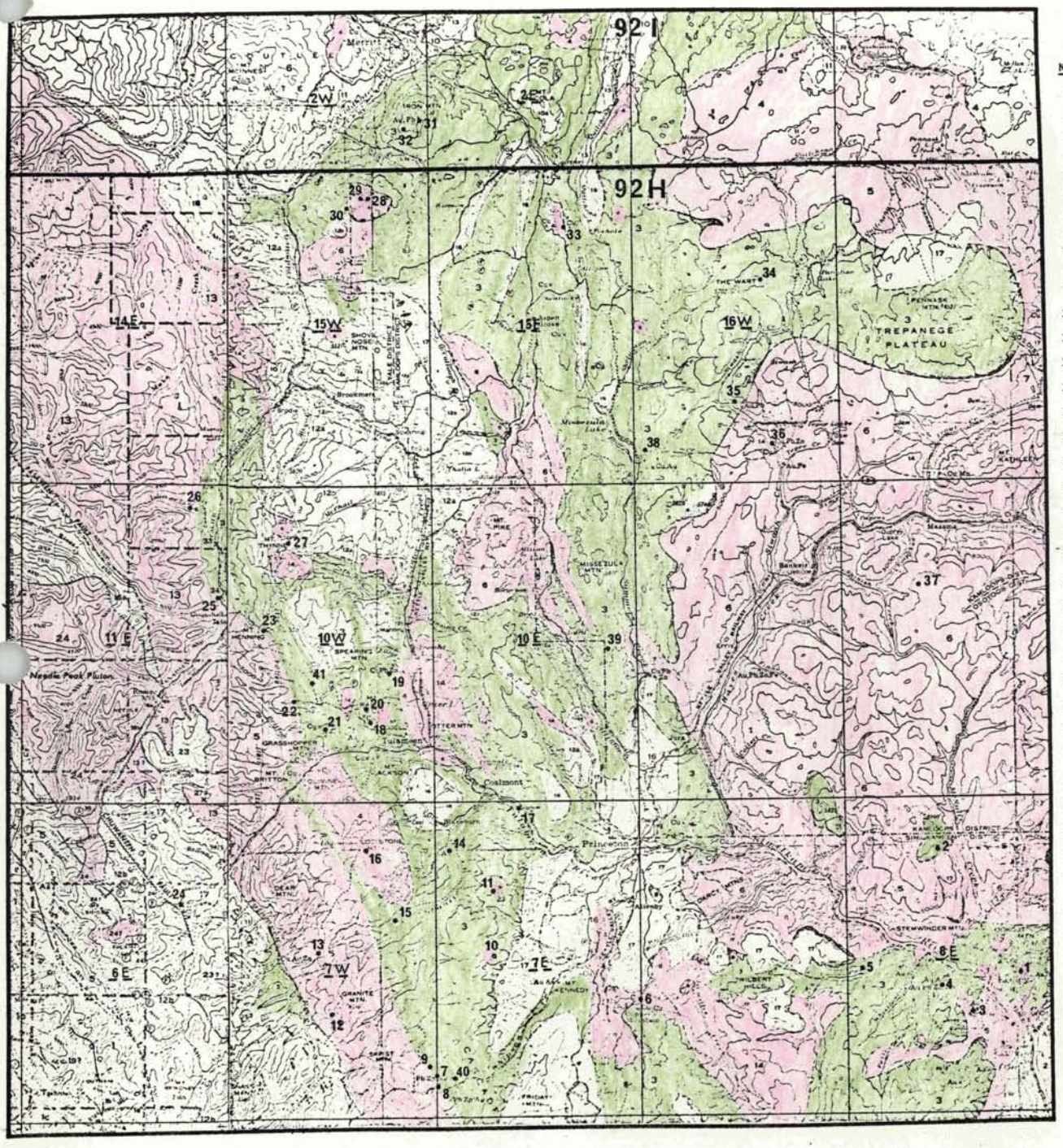
YUKON
PACIFIC OCEAN
DIXON ENTRANCE
QUEEN CHARLOTTE SOUND
HECATE STRAIT
PRINCE RUPERT
PRINCE GEORGE
VANCOUVER
VICTORIA
QUESNEL
KAMLOOPS
KELOWNA
PENTICTON
CRANBROOK
CALGARY



No.	Property Name
1	HEDLEY GOLD CAMP
2	JOSCO MINING LTD.
3	FLINT CLS. (MISSION GP)
4	POLLOCK, SNOWSHOE, PATSY
5	VENT, ILE CLS.
6	COPPER MTN, INGERBELLE
7	WHIPSAW CREEK MINES
8	AMAX, NEWMONT, TEXAS GULF
9	MJ CLS.
10	WILMAC CLS.
11	DON CLS.
12	GRANITE SCHEELITE CLS.
13	BB CLS.
14	HIGHLINER CLS.
15	POLARIS CLS.
16	LODESTONE MTN
17	MAGPIE CLS.
18	LODE CLS.
19	COUSIN JACK, GOLD RIVER
20	RABBITT MTN
21	GRASSHOPPER MTN
22	IRA, IR CLS.
23	INDEPENDENCE CLS.
24	TREASURE MTN
25	KEYSTONE CLS.
26	JM CLS.
27	DAWN, BR CLS.
28	SELISH MTN GABBRO
29	SELISH MTN Cu SHOWING
30	GOLD RIVER-SELISH MTN CLS.
31	MAKELSTIN CLS.
32	JUDY, APACHE CLS.
33	ASPEN GROVE
34	TOE CLS
35	SIWASH CREEK
36	AMANDA CLS.
37	EMPRESS CLS.
38	PRIMER GP.
39	ADONIS MINES
40	HUFF SHOWINGS
41	SKWUM CR. RIDGE

Figure 2

INDEX MAP OF PRINCETON AREA

Nicola Group Rocks

Various Intrusive Rocks

10 E N.T.S. No. of Sheet Mapped

•7 Properties Examined

Scale: 1" = 9.2 miles

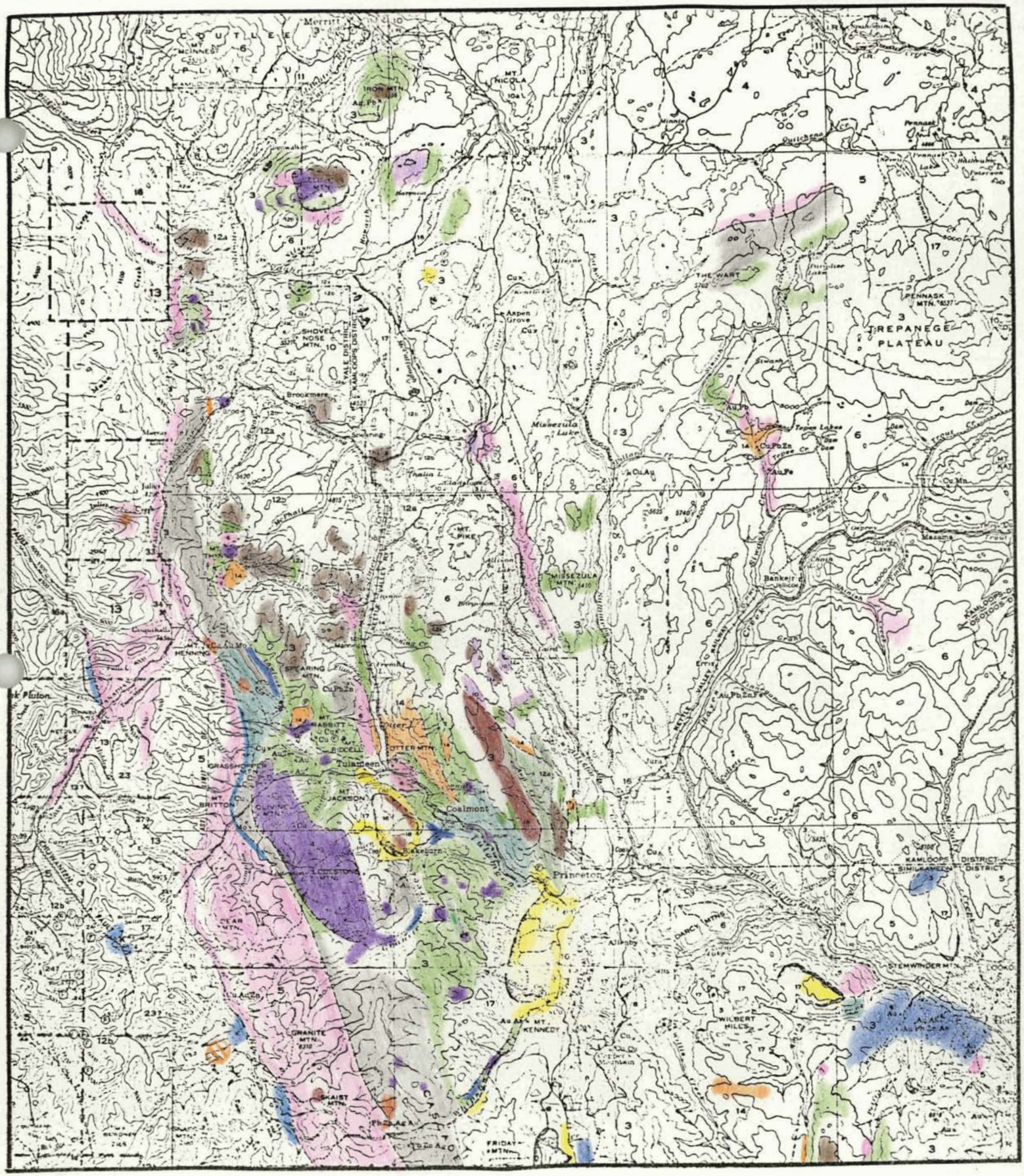


Figure 3

GEOLOGICAL COMPILATION OF FIELD MAPPING

(see plate 12 for legend)

Scale: 1"=6.5 mi. (approx.)

house was rented in Princeton to use as a base of operations. This provided accommodations for the crew while they were working within travelling distance of Princeton. For the more distant areas tent-trailers were used.

PHYSICAL FEATURES

PHYSIOGRAPHY - Most of the map-area lies within the Thompson plateau, the most southern portion of the Interior plateau. However, near its southern and western boundaries, it also includes part of the Cascade Mountains. A zone of transition separates the two physiographic areas. The Thompson plateau is a gently rolling upland of low relief, mostly between 3000 and 4000 feet in elevation, but to the west Mt. Thyme and Lodestone Mountain reach 6000 feet. The plateau region to the south loses much of the table-like character it possesses further north. Here dissection has to a great extent obscured the level surface. There is a very marked difference between the rugged crags of the Cascade mountain ranges on the west and the broad, rounded timber-covered peaks of the plateau region. Drainage within the area is mainly by two systems, one predominantly east-west and the other north-south. Glaciation and fault movement have been recent sources of disturbance in the drainage patterns.

The more recent physiographic history of the area includes the following events: (1) the erosion in pre-glacial time of the land surface to that of a mature, gently-undulating plain, (2) uplift of the area as a whole, and rejuvenation of the drainage, (3) active erosion by the rejuvenated streams, resulting in deepening of the main valleys, (4) advent of glaciation, with the consequent dislocation of drainage, overdeepening in some valleys, incomplete filling of others, (5) re-establishment of drainage, with active erosion of valley bottoms, and development of post-glacial canyons.

GLACIATION - The entire map area was at one time buried under a continental ice sheet which covered most of British Columbia in Pleistocene times. Ice moved in a relatively broad sheet, almost due south, over most of the area. During the waning stages of continental glaciation there was a period of valley glaciation, as indicated by cirques on the higher peaks. The most noticeable effect of the

glacial period has been the deposition over the greater part of the area of a mantle of detritus, generally from 2 to 6 feet in thickness. In a few areas this cover reaches thicknesses of greater than 40 feet.

GENERAL GEOLOGY

INTRODUCTION - Rocks in the map area range in age from Upper Triassic to Tertiary (Table 1) and include sedimentary, volcanic and igneous types. Sedimentary rocks are much less widespread than the others.

A thick sequence of volcanic material together with minor interbedded sediments accumulated during the Mesozoic. Within the map area most of these rocks are part of the Triassic Nicola group. These Triassic rocks are cut by various intrusions, many of which are now unroofed by erosion. Intrusive rocks range in age from Triassic to Tertiary. The majority of these are Jurassic in age. Only a few smaller bodies intrude Cretaceous or Tertiary formations.

The Cenozoic era is represented by an accumulation of both sedimentary and volcanic rocks which have only a limited distribution within the map area. Princeton group rocks are present throughout the area covered, whereas the younger plateau basalts occur only in the vicinity of Coalmont.

LITHOLOGIES

Mesozoic Rocks

NICOLA GROUP

The upper Triassic Nicola group covers a large portion of the map area. This group of volcanic and sedimentary rocks is composed of a chaotic mixture of interbedded fine-to-coarse-grained ash, tuff, lapilli tuff, agglomerate, volcanic breccia, flows, sedimentary volcanic wackes, arenites, argillites, minor conglomerate and silty to reefoid limestone. Mappable units of the Nicola used by various workers are shown on Table 2. The volcanic rocks range in composition from basalt to rhyolite with basaltic andesites most abundant. Dykes and sills are difficult to distinguish from flows due to similarity in texture and composition.

TABLE 1: ROCK STRATIGRAPHIC UNITS

ERA	PERIOD/EPOCH	GROUP/FORMATION	LITHOLOGY
CENOZOIC	Pleistocene or Recent		Glacial till, silt, sand gravel.
		UNCONFORMABLE CONTACT	
	Miocene or Later	Valley Basalt	Mainly brown, red, grey vesicular basalt.
		UNKNOWN RELATIONSHIP	
		Plateau Basalt	Mainly black, brown amygdaloidal basalt.
		UNCONFORMABLE CONTACT	
	Miocene or Earlier	Princeton Group	Mainly brown, black, red, green basalt and andesite; grey, mauve, green porphyritic basalt and andesite; - buff fissile fossiliferous shale, sandstone, conglomerate. (coal)
		UNCONFORMABLE CONTACT	
CENOZOIC or MEXOZOIC	Upper Cretaceous or Later	Lightning Creek Stocks	Light grey qtz diorite to diorite.
		PROBABLY CORRELATIVE WITH ABOVE	
		Otter Intrusions Voigt Ck. Sheet	Pink, buff granite and granodiorite. (101-98 m.y.)
		INTRUSIVE CONTACT	
MESOZOIC	Lower Cretaceous	Kingsvale	Multi-coloured agglomerate, vol. bx., brown to green greywacke; green, purple, grey, black andesite and basalt. (Predominant orangish fps.)
		Pasayten Group	Grit, greywacke, fossiliferous argillite, sandstone, conglomerate, purple tuff and lava.
		Spences Bridge Group	Hard, red, purple, buff rhyolite, dacite, basalt, spherulite, porphyritic flow line banding.
		Independence Newmont Porphyry	Granite, dacite and rhyolite fp. porphyry.
	Jurassic or Later	Eagle Complex	METAMORPHISM REGIONAL Foliated qtz diorite, granodiorite, gneiss, migmatite, pegmatite and aplite dykes. (100-143 m.y.)
		Coast Intrusions	Hbd-biotite granodiorite, qtz diorite, diorite, qtz monzonite, granite. (182-160 m.y.)
		INTRUSIVE IN PLACES	
		Tulameen Complex	Dunite, clinopyroxenite, syenogabbro, diorite, hornblendite. (~186 m.y.)
		Hedley-Selish Mtn	Gabbro, diorite.
		Copper Mountain	Syenogabbro, diorite, pegmatite, monzonite, syenite. (av. 193 ± 7 m.y.)
		INTRUSIVE CONTACT	
	Upper Triassic	Nicola Group	Flows, andesite to basalt, minor dacite, rhyolite, pillow basalt. - Fine to coarse tuff; minor lapilli tuff, agglomerate, vol. bx. - Argillites, volcanic sediments, limestone, minor sandstone, conglom.
	Permian-Pennsylvanian	Bradshaw Creek	Cashe Creek equivalent, sediments and minor volcanics.

TABLE 2

MAPPABLE ROCK UNITS IN NICOLA GROUP

A) ASPEN GROVE AREA - Christopher

Upper Triassic

1. Undivided sediment: siltstone, sandstone, and argillite.
2. Limy siltstone.
3. Limestone: grey to dark grey, commonly brecciated.
4. Andesite, grey to green and massive.
5. Volcanic breccia, volcanic conglomerate, and Lahar Deposits.
   a) Massive red sequence.
   b) Layered red sequence.
   c) Red volc. breccia with lapilli size fragments.
   d) Massive green sequence.
   e) Layered green sequence.
   f) Undivided red and green breccia.
6. Autobrecciated augite porphyry - red to maroon with some pillow-like structures.
7. Massive and amygdaloidal augite porphyry (red and green sequence).
8. Volcanic siltstone and sandstone.
   a) Red sequence.
   b) Grey and grey-green sequence.
   c) Conglomerate.
   d) Fossiliferous limy argillite and limestone.

Lower Jurassic

9. Monzonite.
10. Diorite.
    a) Hornblende diorite, porphyritic and foliated.
    b) "Big Kid" breccia.
    c) Diorite: contains pyroxene and amphibole, fine grained, porphyritic and brecciated in places.
    d) Fine-grained diorite, in part recrystallized volcanic rocks.
    e) Hypabyssal rocks of dioritic composition.

B) NICOLA LAKE AREA - Schau

Assemblage P_1 - Altered porphyritic flows of andesitic basalt and altered, relatively coarse pyroclastic rocks (feldspar phenos).

Flow breccias.
Lapilli-bearing crystal and lithic tuffs, as interflow layers.
Sedimentary intercalations of calc. arenite, greywacke, limestone and conglomerate.

Generalized Section -
(breccia
(agglomerate
(tuff
(feldspar porphyry
(flow layered andesite
(feldspar porphyry and greywacke
(greywacke
(limestone

Assemblage P_2 - Agglomerates, breccias, tuffs and lesser amounts of porphyritic flows of basaltic andesite.

Generalized Section -
(limestone
(greywacke
(sedimentary breccia
(conglomerate
(tuff
(tuffaceous breccia
(porphyritic flow
(aphanitic flow
(dyke rock

Assemblage A-1 - Flows, porphyritic and commonly amygdaloidal basalts. Pyroxene phenos, also feldspar. Breccias, agglomerates, and tuffs, and sediments.

Generalized Section -
(augite porphyry
(breccia
(conglomerate
(f.g. greywacke or tuff
(tuff
(limestone, reef, cal. sed.
(agglomerate
(greywacke

Assemblage A-2 - Bedded greywacke and argillite.

C) COPPER MOUNTAIN AREA - Bulletin 59

Nicola Group

Volcanic Rocks

a) Massive andesite, minor basalt and dacite.
b) Pillow lava and/or pillowed andesite.
c) Volcanic breccia and agglomerate.
d) Tuff.

Sedimentary Rocks

a) Volcanic siltstone and sandstone, polymictic conglomerate, minor bioclastic limestone.
b) Calcareous siltstone and sandstone.

D) PRINCETON AREA - Memoir 243

Nicola Group

a) Massive andesite porphyry (px and/or plag. phenos). Usually green to grey.
b) Fine-grained, non-porphyritic andesite, green and purple, brick red.
c) Flow breccias.
d) Tuff, tuffaceous argillite, limestone.
e) Calcareous tuffs, greywackes.

E) NICOLA MAP AREA - Memoir 249

Nicola Group

Fine-grained to coarsely porphyritic volcanic rocks. Green to greenish-grey - also purple, red, and brown.

Tuffs, breccias, and agglomerates.

Porphyries include phenos of feldspar and/or hornblende or augite.

Minor limestone and argillite, conglomerate.

The Nicola group in the map area makes up more than 50% of the rocks mapped. These rocks are of greatest importance economically. For mapping purposes, the Nicola group was broken down into fine and coarse tuff, lapilli tuff, volcanic breccia, agglomerate, purple flows, purple volcanic breccia, basalt and andesite flows, limestone argillite volcanic sediments and chlorite schist. (Fig 3 and Plate 12).

The greatest portion of the rocks encountered were fine to coarse tuffs and flows which are found mostly in the east and central part of the area. Chlorite schists are most abundant in a broad belt paralleling the Eagle contact in the west. The other Nicola units are more restricted in their distribution.

As is typical of the Nicola group most units, though mappable locally, cannot be traced for any great distances and it is therefore not possible to determine stratigraphic relationships between the various units, or to correlate units comparable in time, or to determine regional structural relationships.

A common rock type is a massive andesite or andesite porphyry consisting of medium sodic plagioclase, pyroxene, chlorite, epidote actinolite, secondary quartz, and minor accessory minerals such as apatite, sphere, pyrite, magnetite, and hematite. Phenocrysts of pyroxene (augite to pigeonite), or plagioclase (oligoclase to labradorite) are present and many flows contain both types. The phenocrysts are often trachytically aligned. The common colour of these rocks is deep green to blue-grey. However the colour of the matrix may vary from bluish and greenish near the bottom of some volcanic sequences to black, red, and purplish in the middle to deep purple at the top.

In the Aspen Grove area variably coloured volcanic rocks are common. Green types are present but in subordinate amounts. Most are green and purple, fine grained, non-porphyritic andesites with mottled colours; brick red, basaltic andesites; and porphyritic, dark to light purple, mauve, or red augite andesites and basalts.

Pillow lavas although not abundant are quite distinctive in appearance. They are dark grey-green to bluish in colour. Pillows are poorly to moderately well-formed and have a lumpy appearance. They tend to be squeezed or elongate parallel to bedding. Individual pillows range in size from less than one foot to four feet. A skin or rind of dark green, aphanitic material encloses a vesicular or amygdaloidal rich core. Amygdales are filled with carbonate, epidote, or zeolites. The interpillow matrix is more altered than the pillows themselves and is usually rich in carbonates.

Volcanic ejecta is similar in composition to the flow types previously described. However, the texture is different and highly variable. Ejecta range is size from fine ash to coarse ash and crystal fragments and mixtures of both. These grade to lapilli tuff (> 4mm) and coarser agglomerates (> 32mm) composed of bombs up to a few feet in diameter. The bombs are characteristic of vent areas. Fine to medium grained crystal and lithic tuffs contain abundant broken crystals of plagioclase and augite pyroxene. Because of their porous nature the pyroclastics are easily altered and weathered and their original texture is often destroyed,, making identification difficult.

Surface exposures of flow breccias and agglomerates are rare. They are often variously coloured and contain fragments of most other Nicola rock types. The fragments are subrounded to subangular and range from 5 to 10 centimeters in size. The most abundant type of fragments are porphyritic andesites containing either pyroxene or plagioclase phenocrysts.

The sedimentary portions of the Nicola group have a more restricted distribution than the volcanic members. They are found in fringe basins and are often interlayered with volcanic material. Sedimentary material varies from fine grained argillites and siltstone to boulder conglomerates. The great range of grain size displayed throughout the section, and the common mixing with true pyroclastic material suggests that these sediments were deposited in unstable, relatively shallow basins and that the material was introduced both from nearby volcanic highlands and from falls of ash and coarser ejecta.

Crystal ash falls deposited directly into the sedimentary basins are intercalated with similar reworked material.

The most common rock type is a thinly bedded, well sorted, grey to black volcanic siltstone to sandstone containing 50 to 60 percent crystal fragments. Minor localized limestone members occur in the sequence. These range in composition from pure biogenic reefoid limestone to minor silty calcareous shell debris. Along the Eagle-Nicola contact a recrystallized limestone is present.

Tuffaceous and argillaceous rocks form a more or less continuous belt extending from Mt. Henning to Manning Park. These rocks have been involved in a regional metamorphic event resulting in their alteration to hornblende, actinolite, sericite and chlorite schists.

Most rocks comprising the Nicola group have been subjected to varying styles and degrees of metamorphism which further complicates their identification.

PASAYTEN GROUP

The Pasayten group crops out in the extreme southwest corner of the map area. This late Cretaceous non-marine group is approximately 10,000 feet thick. Rock types encountered include fine grained, dark grey well bedded, shales, interbedded silty sandstone, pebbly mudstone, minor conglomerate and minor porphyritic volcanic flows. This group rests uncomfortably on the Eagle complex and is terminated to the west by the Chuwanten fault.

SPENCES BRIDGE GROUP

The lower Cretaceous Spences Bridge group consists mainly of lavas with minor agglomerate and tuff. Red cherty rhyolite and soft brown basalt are the most common rock types in the mapped area.

The other lavas are varied in colour and include brown, yellow, red, green and grey flows. The most distinctive are red to purple in colour. These rocks are dense, cherty, hard and brittle and are often characterized by conspicuous feldspar phenocrysts, well developed flow lines, and spherulitic texture.

KINGSVALE GROUP

The Kingsvale group, also of early Cretaceous age, is younger than the Spences Bridge group. The rock types include flows, volcanic breccia, sediments, and tuff. The flows have a brown, grey, purple or green matrix and often contain conspicuous orange to salmon coloured phenocrysts of feldspar. The volcanic breccia is very distinctive in that it contains bright multi-coloured fragments. The sedimentary rocks consist of well bedded, olive green greywacke, yellowish brown arkosic sandstone, and argillite. Massive agglomerate and tuffs are also present but in minor amounts.

Cenozoic Rocks

PRINCETON GROUP

The Princeton Group (Miocene or earlier) consists of a sedimentary and volcanic member. The sediments, of shallow water origin, consist of a variously coloured conglomerate, sandstone, shale, coal, red beds, and minor ochre. Abundant fossils occur within the shale and coal units. The sediments are overlain by the volcanic rocks which include trachytoidal hornblende andesite porphyry, massive fine grained brown to black augite basalt, fine grained flaggy andesite, subordinate buff tuff, lapilli tuff, coarse volcanic breccia, and agglomerate.

VALLEY AND PLATEAU BASALT

In the Miocene or later, quiet outpourings of valley and plateau basalt covered local areas. These are generally olivine basalts, vari-coloured, and amygdaloidal or vesicular.

Intrusive Rocks

Within the map area numerous intrusions occur. These include the Triassic to Jurassic basic to ultrabasic intrusions present at Copper Mountain, Selish Mountain, Olivine Mountain and at Hedley; Jurassic to Cretaceous granite to quartz diorite Coast Intrusion comprising the Mount Pike, Pennask, Osprey and Okanagan composite batholiths and the Boulder Mountain, Selish Mountain, Thynne Mountain and Tulameen plutons; the Jurassic to Cretaceous foliated granodiorite to quartz diorite Eagle complex; Jurassic to Cretaceous rhyolite to dacite porphyries at the Newmont property at Whipsaw Creek, Independence property at Mount Henning and at Juliet Creek; Cretaceous granite to diorite Otter Lake intrusions, Verde Creek stocks, and Lightning Creek stocks.

TULAMEEN COMPLEX

The Tulameen Complex (Olivine Mountain) is a composite ultrabasic to basic zoned intrusion that outcrops over a 22 square mile area. It intrudes Triassic Nicola group rocks. A potassium-argon age date of 186 m.y. was obtained from an outlying gabbroic stock to the north (Finlay 69). The complex consists of a syenogabbro and syenodiorite border zone and a later ultramafic core. The syenogabbro is composed of plagioclase, diopside, orthoclase, minor biotite and magnetite. The syenodiorite consists of diopside, hornblende, plagioclase, orthoclase, plus accessory biotite, magnetite, and apatite. Secondary minerals in the gabbroic rocks are hornblende, actinolite, chlorite, epidote, albite and quartz. Structures and textures range from massive hypidiomorphic-granular in fresh stocks to strongly schistose in the highly altered varieties.

The dunite olivine clinopyroxenite, and hornblende clinopyroxenite form elongate nonstratiform bodies whose irregular internal structure is best explained by differentiation contemporaneous with crystallization. Minor amounts of peridotite, hornblende olivine clinopyroxenite, clinopyroxenite, and mafic pegmatite are also present in this ultramafic mass.

The dunite forms a circular pipe-like core 2 square miles in area extending from Olivine Mountain to Grasshopper Mountain. This buff weathering rock is composed of olivine which is partially serpentinized. The dunite is surrounded by an olivine clinopyroxenite hybrid contact zone of diopside,olivine, serpentine, magnetite, and chlorite. These two rocks are medium grained, equigranular to coarsely granular subpoikilitic with aggregates of interstitial serpentinized olivine.

The most abundant rock is a medium to coarse crystalline hornblende clinopyroxenite with poikilitic and tabular hornblende crystals 2 to 3 centimetres in length enclosing diopside. The rock is composed of diopside, hornblende, magnetite minor biotite and apatite.

The ultramafic and gabbroic portions of the complex probably formed from separate intrusions. However, the two suites of rock have sufficient mineralogical and chemical similarities to indicate a petrogenetic link in their parent magmas. The parent magma could have been an alkali basalt which was potassium rich, silica undersaturated, and possibly co-magmatic with Nicola volcanism. A series of similarly aged syenitic intrusions may also be related to this parent magma.

COPPER MOUNTAIN COMPLEX & RELATED INTRUSIVES.

The Copper Mountain intrusive complex is composed of the Lost Horse, Smelter Lake and Voigt Creek stocks. It is a roughly concentric differentiated body grading from an augite diorite, pyroxenite, gabbro border zone to a more monzonitic intermediate zone containing a late stage pegmatitic core. Within the outer dioritic zone a ring of small elongate gabbro to pyroxenite bodies outline the stock.

The Lost Horse stock is composed of a light coloured augite diorite, a pinkish grey biotite monzonite or syenite, and dykes of latite to syenite porphyry. These rocks are fine to medium grained, porphyritic, with grey green to salmon pink plagioclase and varying amounts of orthoclase and clinopyroxene. Alteration includes sericitization, saussuritization, uralitization, albitization, potassium metasomatism, and bleaching. Later phase rocks include partially sericitized latite to trachyite porphyry and porphyritic monzonite to syenite.

The Smelter Lake and Voigt Creek stocks are medium grained, massive, grey-green, biotite, clinopyroxene diorites. These rocks have been dated at between 200 ± 8 to 181 ± 7 m.y. with the average being 193 ± 7 m.y.

The Verde Creek dykes of quartz monzonite to granite composition are medium grained, grey to pinkish, porphyritic rocks. They are dated at 101 ± 4 to 98 ± 4 m.y. and are of similar age to the Otter Intrusions.

Two other intrusions of possible Triassic age and having a close chemical similarity, are at Selish Mountain and Hedley.

At Hedley, the 2 stocks are medium grained, light coloured, and range in composition from quartz diorite to gabbro, with minor augite diorite and syenite.

The Selish Mountain stock is a grey-green, medium grained, gabbro to syenogabbro and contains small dioritic border phases.

COAST INTRUSIONS

The Coast Intrusions, Jurassic in age, are widely distributed as a number of batholithic complexes and single plutons. They are a varied group consisting of biotite, hornblende quartz diorites, granodiorite, quartz monzonites, granites and gabbros. In places they appear subvolcanic and in others show passive as well as forcefull styles of emplacement. These rocks for the most part are poorly dated (160-180 m.y.).

EAGLE COMPLEX

Further to the west, along the western edge of the map area is the Eagle complex. A date of 143 m.y. was obtained from a sample near Tulameen, while a sample from Manning Park was dated at 100 m.y. The Eagle consists of a migmatite, amphibolite core or axial zone flanked by gneiss and unaltered, medium grained, foliated, biotite hornblende quartz diorite to granodiorite intrusions. Quartz, feldspar pegmatite, aplite, and some mafic dykes commonly cross-cut the complex. Locally, fine grained pink almandine garnets are found in muscovite rich zones in the mass. The foliation is quite distinct and has a general northwest trend, paralleling the Nicola-Eagle contact.

OTTER LAKE INTRUSIVES

The Otter Lake intrusions of Upper Cretaceous or later age include several distinct rock types. The most common is a dark pink, hornblende syenite. Euhedral, medium grained, pink to white feldspars, often porphyritic, with minor altered hornblende characterize this syenite. Less common and usually toward the margins are medium to fine grained, unaltered, biotite hornblende diorites.

Included with these rocks are a number of buff coloured, epizonal, miarolitic granite stocks and dykes. These are most abundant in the Willis Creek and Smith Creek areas. They commonly consist of doubly terminated quartz phenocrysts (1-2 cm) in length, set in an aphanitic buff groundmass. A few scattered euhedral feldspars 1-2 mm in length are generally present.

LIGHTNING CREEK STOCKS

Lightning Creek stocks occur in the extreme western portion of the map area and are of a similar age as the Otter intrusions. These rocks are medium to fine grained, grey, dioritic to quartz dioritic in composition.

RHYOLITE TO DACITE PORPHYRY

A number of porphyry stocks and dykes crop out along the Eagle-Nicola contact. These are of interest because they often exhibit alteration and some porphyry type sulfide mineralization.

In the north on Juliet Creek, a composite body of biotite feldspar porphyry of dacitic to rhyolitic composition occurs. It is cut by miarolitic granite dykes similar to the Cretaceous Otter intrusions. Further south, at Mount Henning, a rhyolite to dacite porphyry crops out. It is cut by a similar dyke. Potassium and silica metasomatism (secondary K-feldspar and silicification),quartz veining, and disseminated and vein sulfides are associated with these intrusions.

The Newmont porphyry,farther south at Whipsaw Creek, is in part volcanic and part intrusive. A quartz monzonite to granite stock is here intruded by later rhyolite to dacite feldspar porphyry dykes. Hydrothermal alteration is pervasive but not intense. Quartz-sulfide veinlets and a pyritic halo are associated features.

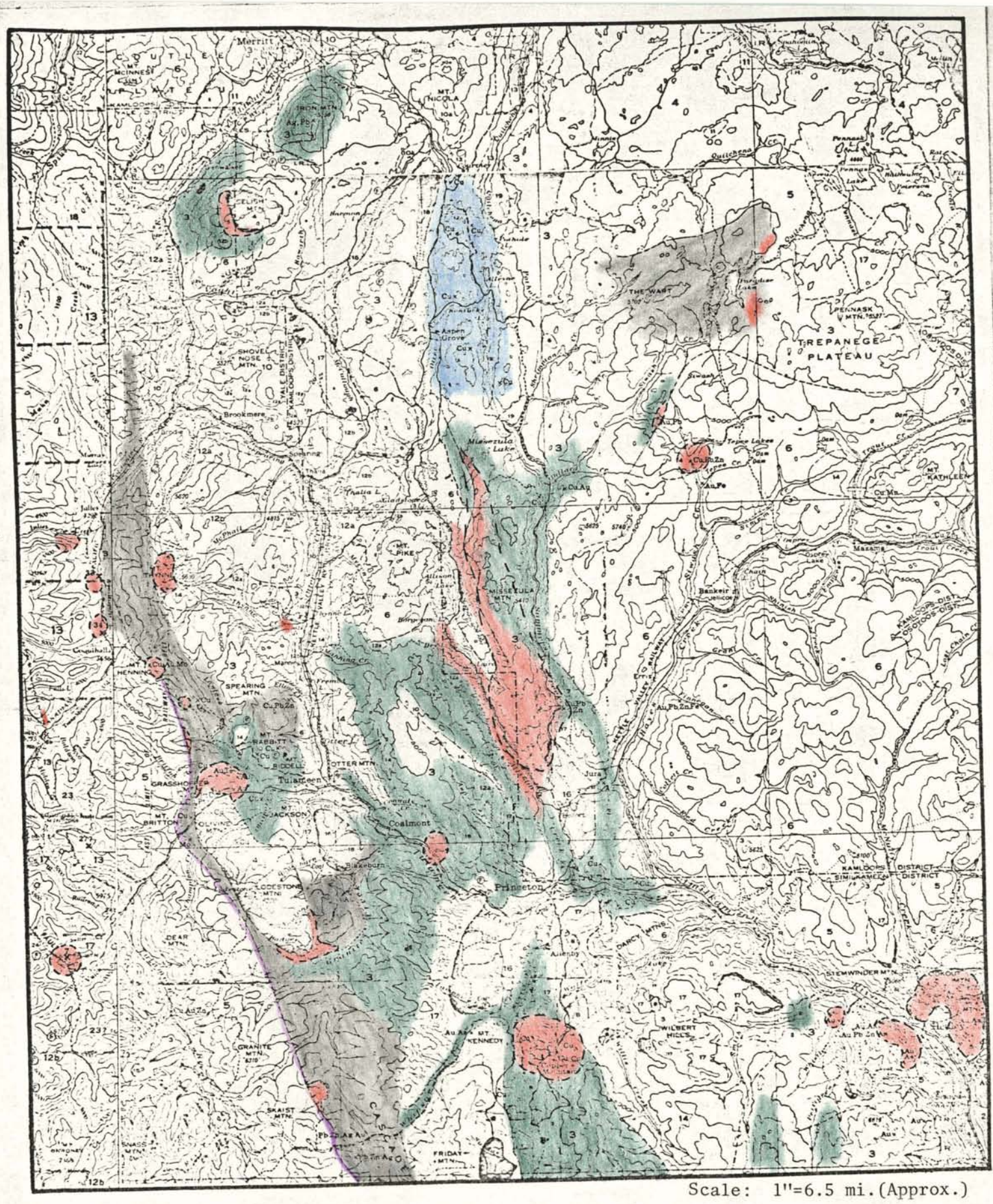
A number of small dykes, perhaps related to the above porphyries, also were found intruding Nicola and Eagle rocks along their contact. These are small dacitic to andesitic dykes with acicular hornblende phenocrysts, porphyritic white feldspar phenocrysts,and biotite,in an aphanitic greyish brown groundmass. No alteration or mineralization were found to be associated with these rocks.

METAMORPHISM

Metamorphism in the map area is pervasive and consists of many types. These include contact thermal events related to the emplacement of intrusions, and regional, burial, thermal and dynamic metamorphism of varying intensity (Fig. 4). Autometamorphism is widespread, but except in the younger rocks it has been upgraded and erased by later metamorphic events. These younger volcanic rocks are relatively unmetamorphosed except for local development of veins of zeolites and pink prehnite. The older Nicola group has been subjected to numerous metamorphic events.

The localized effects of contact metamorphism are best displayed at Hedley and Copper Mountain but they are found in varying degrees of development associated with most intrusive contacts. At Hedley two stocks and numerous dykes and sills of gabbroic rock have intruded and altered the Nicola sediments. Calcareous and siliceous sediments have been thermally metamorphosed, producing a massive aggregate of pyroxene and garnet, a light coloured flinty cryptocrystalline rock resembling a chert, and an exotic suite of sulphide minerals.

At Copper Mountain - Ingerbelle, rocks of the Nicola group exhibit secondary mineral assemblages which are characteristic of greenschist or albite - epidote hornfels facies metamorphism. In general the rocks are characterized by a very mild type of alteration consisting of moderate saussuritization of feldspars and variable degrees of replacement of the matrix by carbonates. Volcanic rocks of basaltic andesite composition nearly everywhere contain epidote, chlorite, sericite, carbonate and commonly tremolite - actinolite. Contact metamorphism overprints this generally widespread earlier alteration.



Scale: 1"=6.5 mi.(Approx.)

Figure 4: GENERALIZED METAMORPHISM IN MAP AREA

- Hornblende, Actinolite, Chlorite, Sericite Schists and Phyllites
- Albite, Epidote, Chlorite, Quartz Greenschist
- Contact Thermal Metamorphism
- Hornblende, Biotite Mafic Schist
- Prehnite-Pumpellite, Zeolite Metamorphism

Volcanic and intrusive rock at Copper Mountain have undergone extensive and locally intense soda, potash and chlorine metasomatism which is physically controlled by the presence and intensity of fractures and by spatial relation to intrusive rock. It ranges from slight bleaching along fractures to intense and pervasive albitization, alkali feldspar alteration, and scapolite veining. This process resulted in the partial or total replacement of minerals and was followed or accompanied by sulphide mineralization.

Low grade metasomatism and metamorphism has affected rocks of the Nicola group in the Aspen Grove area. These effects are distributed in irregular zones of increasing intensity toward the Pennask batholith. Far from the batholith, laumontite and other zeolites fill openings in the rocks. Intermediate plagioclase has been partially albitized over a wide area. Nearer the batholith rare prehnite and pumpellyite, albitized feldspar, ubiquitous chlorite, calcite, epidote, and secondary quartz are developed. Actinolite and hornblende are common close to the contact in schistose rocks. Minor skarn development in calcareous rocks occurs in the vicinity of Paradise Lake.

On the western part of the map area Nicola rocks along the eastern boundary of the Eagle complex exhibit metamorphism which is distributed in somewhat regular zones of increasing intensity toward the contact. Farthest from the Eagle complex, the Nicola rocks have been subjected to a pervasive low grade green schist, (albite-epidote) metamorphism. These rocks have also suffered brittle deformation. Toward the west the rocks become foliated and schistose, and grade to actinolite, chlorite, epidote, albite schists with actinolite giving way to various types of hornblende as the contact is approached. Plagioclase composition varies and aluminum rich hornblende changes colour with increasing metamorphism. Platy minerals have developed with long axis parallel to the contact in the highly stressed rocks.

In some areas near the Eagle contact such as at Skwum and Lawless Creeks to the north, dynamothermal metamorphism gives way to dominantly thermal metamorphism. Here limestone and calcareous sediments have been converted to talc and mica schists, and in some areas to garnet, pyroxene, epidote skarn. Volcanic sediments at Skwum Creek have not developed a schistose or foliated nature. Instead, epidote, carbonate, quartz, and pyrite are developed along bedding.

The Eagle complex itself is a chaotic mixture of gneiss, migmatite and anatectic quartz diorite intrusions. Field relations suggest that anatexis was reached in a zone bordering an intensely deformed migmatite, gneiss core. Flanking this zone are a series of foliated intrusions of quartz diorite to granodiorite composition. This complex resembles an exposed mountain root zone. The mafic minerals hornblende and biotite are aligned by stress related to metamorphism. Later the complex underwent brittle fracturing and was intruded by pegmatite and aplite dykes.

Widespread but localized metamorphism related to cataclastic deformation is present in intensely sheared zones. These are related to periodic movement along major lineaments and structures.

STRUCTURAL GEOLOGY

The structural style of the map area is poorly understood because the Nicola volcanic rocks are often quite massive in character and it is therefore difficult to distinguish between individual flows or units. Also the unknown lateral extent of the flows or beds and the lack of outcrop makes stratigraphic and structural relations difficult to ascertain. However, a few generalities can be stated.

Two major fault systems exist in the map area. One, the Otter Lake fault is characterized by a wide zone of mylonitization, shearing,and silicification. The fault extends northwest, from a point just west of Princeton past Otter Lake and Mount Thynne, a distance of over 30 miles. The second, the Allison Lake fault system, is not a single line of rupture throughout, but is in part a series of several closely related faults. This fault system trends north to northwest, and can be traced from just north of Princeton past Allison Lake and Aspen Grove, a distance of 50 miles.

The occurrence of separate and isolated areas of similar rock types suggests that block faulting may be an important structural feature, however, because of a lack of distinctive marker horizons, such faulting cannot be definitely established.

Jointing within the map area is quite varied but strong northeast and northwest trends predominate. Both joint systems usually have moderate to steep dips and in some cases may be related to local shearing.

Foliation imparted to the Eagle and Nicola rocks during regional metamorphism is well developed. It varies in strike from east-west to north-south but the most common trend is north-westerly. The dip of the foliation is usually steep to vertical in the Eagle rocks. The adjoining Nicola chlorite schists also display a strong northwest trending foliation, but with varied dips. Locally this foliation may trend north-northwest with a flat dip.

GEOLOGICAL HISTORY

The oldest rocks in the area, late Paleozoic, are the Bradshaw and similar formations. These rocks are exposed in a small section east of Hedley and west of the Shuswap Metamorphic terrain. They appear to represent a sedimentary succession of deep to shallow water sediments. Indications are that the detrital material had a source to the west probably the granitic and metamorphic terrain of the Shuswap. Distribution of chert, argillite and limestone in the stratigraphic section indicate a shallowing of the basin through time. In part these rocks are similar to the Cache Creek group (Penn.-Perm.) which occur further north. The uppermost members of these formations interfinger to the west with lowermost Triassic Nicola sediments.

The upper Triassic Nicola group is a complex of overlapping sections, composed of a chaotic mixture of volcanic ejecta, flows and sediments. These rocks represent the growth of a volcanic island arc chain in a shallow sea. Within surrounding fringe basins this volcanic material interfingered with sediments.

There is a general change through time in the volcanic members of the group. The older volcanic rocks are characterized by feldspar phenocrysts whereas in younger volcanic rocks augite phenocrysts are dominant. At least four volcanic cycles have been distinguished and described by Schau (1971) in the Quilchena area. Each cycle is characterized by an increase of iron and manganese through time, resulting in brightly coloured red and purple volcanic rocks towards the end of each cycle. During the waning stages of each volcanic cycle a period of sedimentation and biogenic activity took place in the surrounding fringe basins.

Several intrusions were emplaced into this section of island arc during its development. They include those at Copper Mountain, Olivine Mountain, Selish Mountain, and at Hedley. These are all chemically similar, being alkali rich, silica deficient, and in part syenite.

They may all be variations of a primordial alkali basaltic parent magma which was also the source of Nicola volcanism. Potassium argon age dating, although not complete, shows a distinct age relationship between intrusion and volcanism. The Copper Mountain composite intrusion appears to be of direct volcanic affinity and evidence points to it being the remnant root zone of a Triassic volcano.

During post Triassic times numerous large batholithic quartz-diorite to granite intrusions were emplaced. These include the Boulder Mountain, Tulameen, Selish Mountain, Mount Pike, Pennask, Osprey, Okanagan batholiths and smaller related intrusions. Most of these are composite intrusives ranging in age from 160 to 182 m.y.

To the west the Eagle zoned composite complex appears to be composed of high grade metamorphic migmatite and gneiss flanked by foliated anatectic quartz diorite to granodiorite bodies. It is an elongate body which appears to be more deeply eroded toward the north. Age dating in the Eagle complex, though not complete, suggests a tendency towards younger ages towards the south.

Following this orogeny, Dewdney Creek group sediments were deposited in the western part of the map area. These are non-marine sediments dated as late Jurassic. Their maximum thickness is approximately 1000 feet thick. A northward thickening suggests a highland to the north and east.

To the west the overlying Lower Cretaceous Jackass Mountain group, a marine assemblage has a maximum thickness of about 14,000 feet In general, the section represents a thick wedge of easterly derived sediments intertonguing with and overlapped by a thinner section derived from the west. The distribution of this group indicates the eastern limit of Cretaceous marine transgression.

These rocks are overlapped from the east by beds of the Pasayten group, a non-marine sequence of up to 10,000 feet in thickness. The middle sandy red beds of the Pasayten group records a gradual change from an easterly granitic source to a westerly volcanic and sedimentary one, indicating emergence of the entire area at the end of Early Cretaceous.

In the northwestern portion of the map area a period of volcanism took place during early Cretaceous. This event is represented by the rocks of the Spences Bridge and Kingsvale groups. The Cretaceous volcanism was accompanied by the emplacement of numerous small epizonal miarolitic granites plus a zoned composite batholith at Otter Lake. During this same period Lightning Creek quartz diorite dykes and stocks were emplaced further to the west.

A group of feldspar porphyry stocks of unknown age were emplaced along the eastern boundary of the Eagle Complex. Hydrothermal alteration and porphyry type mineralization are associated with these stocks. They are unfoliated and thus post-date metamorphism. However, at the Independence property, dykes of Otter granite cut the porphyry indicating a probable Early Cretaceous age.

During early Late Cretaceous the entire Mesozoic sequence in Manning Park was severely deformed and shortened by folding and thrusting toward the east. The Hozameen fault was developed and serpentinized alpine ultramafics were emplaced.

During the Cenozoic sedimentation took place in local basins, followed by local volcanic eruptions of acid Princeton volcanic rocks. A final stage of volcanism is represented by the quiescent outpouring of plateau and valley basalt.

Farther to the west, along the western boundary of the Eagle complex a series of granite to quartz diorite plutons (Needle Peak) were emplaced. These are dated at 39 m.y.

Glaciation and subsequent erosion has since modified the topography to its present physiographic state.

MINERALIZATION

GENERAL

The Princeton area has many known mineral showings. Most of the more interesting ones were examined during the field season. These properties are listed in Table 3 with accompanying minerals present, type of mineralization, host rocks and age of host rocks. The tabulation of their general character indicates the diverse nature of the mineralization. Locations and element distribution are indicated in Fig. 5 and Plates 1 through 11.

Many of the mineral showings are associated with the Nicola volcanic rocks. These include the following type:

a) Sulphide veins and replacements in zones of shearing and alteration.
   Example - LODE claims, Tulameen area.

b) Syngenetic pyrite disseminated in volcanic sedimentary basins.
   Example - IR and IRA claims, Skwum Creek.

c) Disseminated pyrite and chalcopyrite in altered tuffs and flows.
   Example - VENT and ILE claims, Smith Creek.

d) Disseminated native copper, bornite and chalcocite in flows and tuffs.
   Example - Aspen Grove area.

The Aspen Grove mineralization may be related to low grade metamorphism with accompanying remobilization of re-existing copper within the Nicola units.

TABLE 3

COMPILATION OF PROPERTY DATA

NO.	PROPERTY NAME	ELEMENTS & MINERALS	TYPE MINERALIZATION Contact	Diss.	Vein	HOST ROCK	AGE
1.	HEDLEY GOLD CAMP	Au. Cu. Ni. Bi. As.	x		x	Limestone, Syenogabbro	U. Tr.
2.	JOSCO MINING LTD.	Py. Cu.	x			Sediments	U. Tr.
3.	FLINT CLS, MISSION GP.	Pb. Zn. Au. Cu. As.		x	x	Altered Intrusive	Jr.
4.	POLLOCK, SNOWSHOE, PATSY 2 CLS.	Au. As. Py.			x	Sediments	U. Tr.
5.	VENT, ILE CLS.	Py. Cu.		x		Tuffs & Flows	U. Tr.
6.	COPPER MTN. INGERBELLE	Cu. Py.	x	x	x	Tuffs & Syenogabbro	U. Tr. Jr.
7.	WHIPSAW CR. MINES	Pb. Zn. Ag. Cu. Py.			x	Chlorite schist	U. Tr.
8.	AMAX, NEWMONT, TEXAS GULF	Cu. Mo		x		Porphyry	Tert.
9.	MJ CLS.	Py. Cu.		x		Coast Range Intrusive	Jr.
10.	WILMAC CLS.	Py. Cu.		x		Hornblendite	U. Tr.
11.	DON CLS.	Py. Cu.		x	x	Pyroclastic RX	U. Tr.
12.	GRANITE SCHEELITE CLS.	Pb. Zn. Cu.			x	Dyke	Jr.
13.	BB FRACTION	Cu. Mo.		x		Coast Range Intrusive	Jr.

NO.	PROPERTY NAME	ELEMENTS & MINERALS	TYPE MINERALIZATION			HOST ROCK	AGE
			Contact	Diss.	Vein		
14.	HIGHLINER CLS.	As. Au. Py. Cu.			x	Flows	U. Tr.
15.	POLARIS, ASTRACK CLS.	Fe.		x		Ultrabasic	U. Tr.
16.	LODESTONE MTN.	Fe. Pt. Cu.		x		Ultrabasic	U. Tr.
17.	MAGPIE CLS.	Py. Cu.		x		Altered Intrusive	Jr.
18.	LODE CLS.	Py. Cu. Pyh.		x		Flows	U. Tr.
19.	COUSIN JACK, GOLD RIVER CLS.	Pb. Zn. Ag. Cu. Au.		x	x	Flows	U. Tr.
20.	RABBITT MTN.	Cu. Au. Te.			x	Flows	U. Tr.
21,	GRASSHOPPER MTN.	Au. Cu. Te. Py.			x	Flows	U. Tr.
22.	IRA, IR CLS	Cu. Mo.		x		Coast Intrusive	Jr.
23.	INDEPENDENCE CLS.	Cu. Py. Pyh. Mo.		x		Porphyry	Tert.
24.	TREASURE MTN.	Pb. Zn. Ag. Cu. Py. As.		x	x	Sediments	Jr.-Cret.
25.	KEYSTONE CLS.	Pb. Zn. Cu.			x	Altered Intrusive	Tert.(?)
26.	JM CLS.	Cu. Mo.		x		Porphyry	Tert.
27.	DAWN, BR. CLS.	Py. Cu. Fe.	x			Flows - Coast Intrusive	U. Tr.-Jr.
28.	SELISH MTN. GABBRO	Fe. Cu.		x		Ultrabasic	U. Tr.
29.	SELISH MTN. COPPER SHOWING	Cu.		x	x	Flows & Tuffs, Dyke	U. Tr.
30	GOLD RIVER SELISH MTN. PROPERTY	Cu. Mo.		x		Coast Intrusive	Jr.(?)

NO.	PROPERTY NAME	ELEMENTS & MINERALS	TYPE MINERALIZATION			HOST ROCK	AGE
			Contact	Diss.	Vein		
31.	MAKELSTIN CLS.	Pb. Zn. Ba. Cu.		x	x	Flows & Tuffs	U. Tr.
32.	JUDY, APACHE CLS.	Fe. Cu.		x	x	Flows & Tuffs	U. Tr.
33.	ASPEN GROVE	Cu. Fe.		x		Flows & Tuffs	U. Tr.
34.	TOE CLS.	Py. Cu.		x		Flows	U. Tr.
35.	SIWASH CREEK	Cu.	x	x		Flows - Coast Intrusive	U. Tr.-Jr.
36.	AMANDA CLS.	Pb. Zn. Cu. Py.	x		x	Granite (Otter Lake)	U. Cret.
37.	EMPRESS CLS.	Cu. Mo.		x		Coast Intrusive	Jr.
38.	PRIMER GP.	Cu. Py.	x	x		Flows - Coast Intrusive	U.Tr.-Jr.
39.	ADONIS MINES	Cu. Mo. Fe.		x		Rhyolite Breccia	U. Tr.(?)
40.	HUFF SHOWINGS	Py. Zn. Pb. Ag. Cu. Mo.			x	Chlorite schist	U. Tr.
41.	SKWUM CR. RIDGE	Cu.		x		Altered Porphyry	Tert.(?)

Other types of mineralization appear to be related to various intrusives and associated alteration. Included in this group are the following types:

a) Disseminated chalcopyrite, magnetite and platinum in ultrabasics.
   Example - Olivine Mtn. Ultrabasic Complex.

b) Disseminated chalcopyrite, bornite and molybdenite in porphyry-type environments.
   Examples - Copper Mtn. - Ingerbelle, Skaist Mtn., Adonis.

c) An exotic suite of minerals accompanying a syenogabbro intrusion and related skarn and vein development.
   Example - Hedley.

d) Lead-zinc mineralization in a series of parallel shears in altered stocks of Otter intrusives.
   Example - Siwash Creek.

e) Lead-zinc hydrothermal veins in Pasayten sediments
   Example - Treasure Mtn.

f) Lead-zinc-(barite)- qtz. hydrothermal veins in Nicola flows, tuffs, and chlorite schist.
   Examples - Huff adits, Comstock, Cousin Jack.

g) Gold-qtz. hydrothermal veins in Nicola argillites.
   Examples - Highliner claims, Granite Creek.

h) Disseminated chalcopyrite and molybdenite within small Tertiary(?) porphyries,occurring along the Eagle granodiorite - Nicola chlorite schist contact.
   Examples - Newmont, Independence.

A comparison of elements present with age of host rock is shown below :

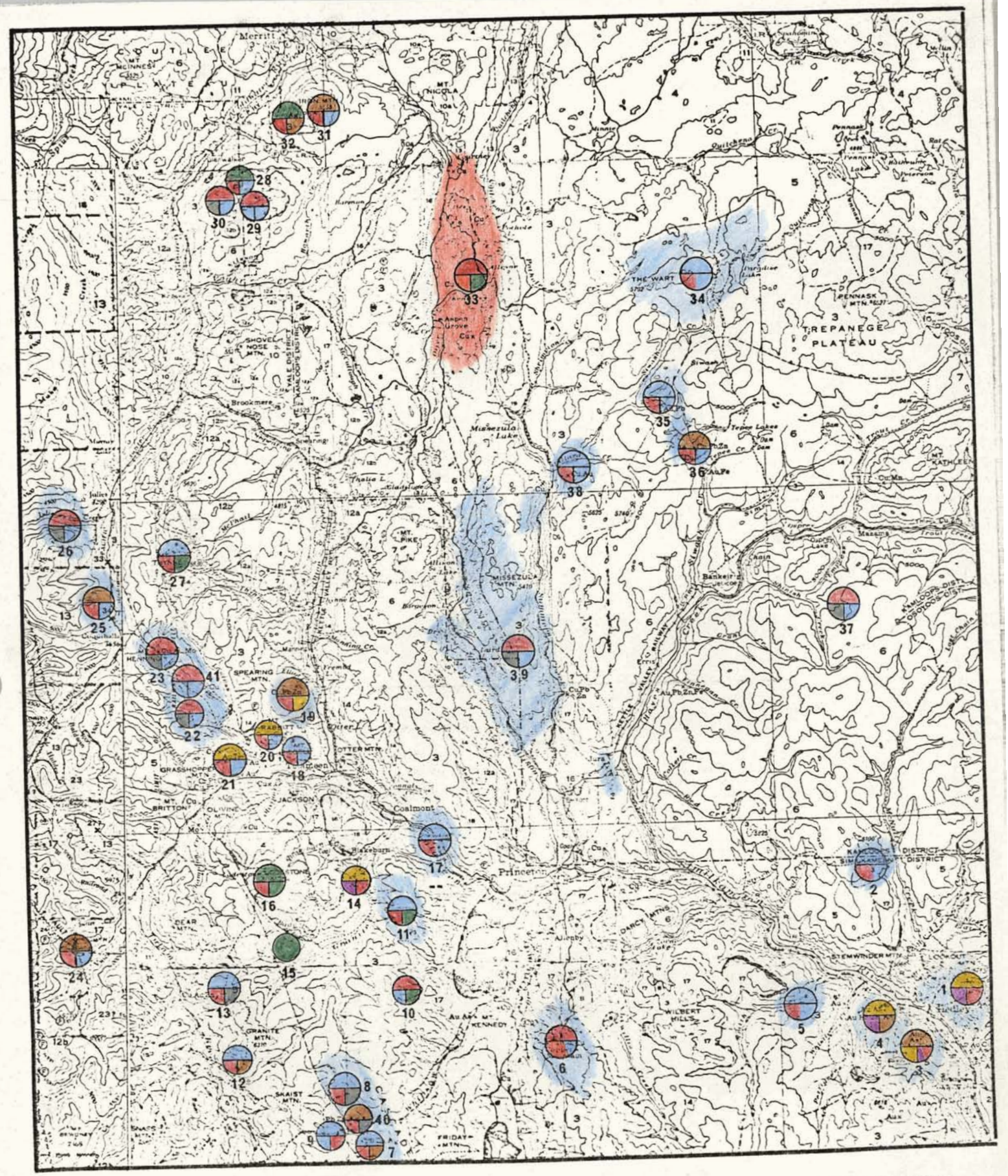


Fig. 5: SULPHIDE AND ELEMENT DISTRIBUTION FROM PROPERTIES EXAMINED IN MAP AREA

Scale:
1"=6.5 mi.
(Approx.)

- Gold (Au)
- Lead-Zinc (Pb-Zn)
- Copper (Cu)
- Iron (Fe)
- Molybdenite (Mo)
- Arsenic (As)
- Pyrite
- Bornite-Chalcocite (Bn-Cc)

Age	Major Elements Present
Upper Triassic	Copper Iron Gold-Arsenic Some Lead-Zinc
Jurassic, Cretaceous, Tertiary	Copper Molybdenum Lead-Zinc

Based on this data it can be said that iron (magnetite and hematite) and gold-arsenic mineralization are confined to the Triassic period of mineralization whereas molybdenum occurs only in association with Late Mesozoic or Tertiary rocks.

PROPERTY DESCRIPTIONS

HEDLEY NICKEL PLATE MINE NO.1

In order to facilitate better exploration in the Hedley area, the old Nickel Plate Mine was visited to acquaint the field crew with the geology and mineralization. However, the property has been thoroughly described in the literature, and no further mention is required in this report.

JOSCO MINING CO. NO.2

Josco Mining Co., holds a group of claims in an area north of Hedley. The claims are probably the 56 GRS claims located 8½ miles north-northwest of Hedley and west of McNulty Creek. Access is via the Princeton-Hedley highway, and the Stemwinder Mtn.-McNulty Creek road which branches from the highway about 3 miles west of Hedley. R. Ridgway visited the property on Oct. 2, 1973.

No known previous work has been done on the property. Work this summer included line cutting, road construction, and at least 4 percussion drill holes. No outcrop was seen in the area of drilling.

Cuttings examined consisted of a green altered rock of unknown original composition. The cuttings from all 4 holes were assayed for copper. Results are as follows :-

DDH #	PPM Cu.
1	100
2	106
3	198
4	345

Outcrop south of the property consists mainly of Nicola sedimentary units, and the property appears to be located in the vicinity of a Coast Range intrusive - Nicola contact. However, there is no indication of mineralization of sufficient intensity to be of interest.

MISSION GROUP NO.3

The 28 Mission Group claims (NEWT, HANH, STONE, FLINT and ROCK) are located 3 miles southwest of Hedley, on the west side of Jamieson Creek, between the elevation of 4500 and 5300 feet. Access is via the Princeton-Hedley highway and the east fork of the Whistle Creek road. The property was visited by G. McArthur and R. Ridgway in late May, 1973.

The present owner is Austro-Can Explorations Ltd., Previous work includes the sinking of two small shafts, some hand trenching, approximately 2000 feet of bulldozer trenching, and the stripping of an area of about 200 feet by 300 feet. A grid has been constructed on the property and possibly some geochemical and geophysical work was also done.

Outcrop on the property includes a medium grained Coast Range (?) biotite granodiorite that has intruded Nicola argillites. Several shear and fracture zones cut the intrusive and these have controlled mineralization and alteration. Mineralization is evident in the stripped region, and is exposed in an area of 100 feet by 200 feet. The alteration in the intrusive is intense and the rock is now mostly a mixture of quartz, feldspar, chlorite and sericite. Mineralization consists mainly of arsenopyrite as disseminations and as arsenopyrite-pyrite-quartz veinlets. Some pyrite is also present as disseminations. Minor amounts of sphalerite and galena are found in the sheared areas. Minor amounts of disseminated chalcopyrite occur within a fairly fresh biotite granodiorite which crops out a short distance from the main showings. Gold values are quite low, and the mineralization appears to be very localized.

3 HEDLEY AREA CLAIM GROUPS NO. 4

Three old showings in the Hedley area were investigated and grouped together because of their geological similarities. These groups are the SNOWSHOE, the PATSY, and the POLLOCK. All three are situated approximately 3 miles east-southeast of Hedley, on the south side of the Similkameen River, between the elevations of 3000 and 4300 feet. Access is via the Princeton-Hedley highway and the Whistle Creek road, which branches from the highway about 4 miles west of Hedley.

The Snowshoe and the Patsy appear to be open at the present, and the Pollock is on a Crown grant. No new work has been done on the properties for several years. Original exploration started im the early 1900's and considerable work was done on the properties in the 1920's and 1930's. The numerous old pits and adits are evidence of this early work.

Outcrop includes sedimentary beds of the Nicola group, predominantly argillites, plus some cherty members, and a few thin beds of calcareous argillites. Diorite, similar to that at the Nickel Plate Mine occurs as irregular stock-like bodies. However, the diorite is not a complex of basic intrusions as at Nickel Plate. No metamorphism is apparent, except locally in the immediate vicinity of the intrusions. Quartz occurs as veinlets and as a matrix in breccias developed in shear zones in the argillites close to the diorite contacts. Minerals associated with the quartz include arsenopyrite, pyrite, sphalerite, minor chalcopyrite and galena. Some gold is also present.

The showings are all small and quite localized and are of no further interest.

ILE AND VENT CLAIMS NO.5

The 10 ILE and 12 VENT claims are located on the north side of Smith Creek at an elevation of between 4200 and 4500 feet, 2.5 miles upstream from the Similkameen River and 15 miles south-east of Princeton. Access is via an old logging road 3.2 miles from the Princeton-Hedley highway. B.Calder and G. McArthur visited the property on Oct. 5, 1973.

The ground has been held by Kariba Mines Ltd. since 1967. Both sets of claims expired this year, the ILE on March 22, and the VENT on Sept. 10, 1973.

Previous work includes line cutting, a geochemical survey, a magnetometer survey, an EM survey, an induced polarization survey, and diamond drilling. The drilling was done in 1972 and consisted of 4 holes of the following lengths; 445 feet, 595 feet, 155 feet and 280 feet.

The property covers a Nicola-Coast Range intrusive contact, however, the outcrop is very limited. The Coast intrusive is a medium grained, hornblende granodiorite. The Nicola volcanic rocks are mainly altered, fine grained, dark green andesites with minor intercalated fine grained green tuffs. A propylitic-type alteration is present in all the volcanic rocks.

No mineralization was seen in outcrop, however, an occasional zone of fine grained pyrite is present in some of the drill core.

Drilling was done to test several geophysical anomalies apparently nothing of interest was found.

COPPER MOUNTAIN NO. 6

At the start of the field season, the exploration crew visited the old Copper Mountain Mine to acquaint themselves with some of the rock types, the mineralization and the alterations. This property has been thoroughly described in the literature, therefore no mention is made here.

KERRY CLAIMS NO.7

The Kerry claims (approximately 35) are adjacent to the Texas Gulf WHIP, SAW etc. claim group (No. 8) on its east side. G. McArthur visited the property on July 6, 1973.

The owner is Whipsaw Creek Mines Ltd. Their claims are in good standing at the present.

Previous work includes building of access roads, trenching, and the driving of an adit with later underground diamond drilling.

The outcrop consists of fine grained, dark green, Nicola chlorite schists that have been cut by thin carbonate-quartz veins. Mineralization in the veins includes pyrite, galena, sphalerite, and chalcopyrite.

Further investigation on the property is not recommended.

WHIP, SAW, PICK, AXE, CLAIM GROUPS NO.8

The 28 WHIP, SAW, AXE and PICK claims, 16 miles southwest of Princeton are located on the north side of Whipsaw Creek east of Skaist Mountain, at approximately 5500 feet in elevation. Access is via the Hope-Princeton highway and the Whipsaw Creek road. G.McArthur visited the property on July 6, 1973.

The present owner of the remaining claims (SAW, PICK) is Texas Gulf Sulphur Co. The PICK claims were due to expire on July 21, 1973, and the SAW claims are in good standing until July 21, 1975. Previous operators on the property (through option agreements with Texas Gulf) include Amax Potash Ltd. and Newmont Mining Corp. Work was done over all four claim groups. Previous work includes the following :

1968 - Texas Gulf	- geochemical soil survey, trenching, 4 diamond drill holes totalling 1500 feet.
1971 - Newmont	- surface geological mapping including some detailed at 1" = 200', a geochemical soil survey, an induced polarization survey, and trenching.
1972 - Newmont	- trenching, approximately 10 diamond drill holes, overburden sampling study.
1973 - Ray Let	- biogeochemical study.

The property includes rocks of the Nicola group, the Eagle intrusive and a later porphyry. The Nicola varies from a fine grained dark green chlorite schist, near the intrusive contact, to a distinctly foliated, dark green andesite to the east. The Eagle consists of a

strongly gneissic, medium grained, biotite granodiorite. A biotite-quartz-feldspar porphyry with accompanying gneissic sills and dykes has intruded the Nicola volcanics near the contact.

Epidote and chlorite alteration is quite common in fractures, especially near mineralized areas. Mineralization is mainly as disseminations and includes abundant pyrite, some chalcopyrite and malachite, and minor molybdenite. Pyrite is especially extensive within the Nicola chlorite schist; however, sulphide mineralization is found in all of the rock types on the property. Proven tonnage of the orebody is approximately 20 million tons of .2% copper.

MJ CLAIMS NO.9

The MJ claims (approximately 45) are adjacent to the Texas Gulf WHIP, SAW etc. claim group (No. 8) on its west side. G. McArthur visited the property on July 6, 1973.

The present owners are Skaist Mines Ltd. Some of the claims are in good standing until Nov. 4, 1974. Previous work includes road building,trenching, and diamond drilling. In addition, an alteration study of the Eagle granodiorite was done by P. Anderson, for his B.Sc thesis (1972).

The outcrop consists of the Eagle granodiorite. Mineralization is sparse and includes disseminated pyrite and minor chalcopyrite. Mineralization is too weak to be of any interest.

WILMAC CLAIMS NO.10

The WILMAC group (originally 30 claims) are located about 9½ miles SW of Princeton, just north of Corral Creek at approximately 5500 feet in elevation. Access is via the Hope-Princeton highway, the Whipsaw Creek road (1½ miles), and the Corral Creek road (3½ miles). The property was visited by R. Ridgway on July 7, 1973.

The claims, now expired, were owned by William Wilkinson of Princeton.

Previous work includes an airborne magnetometer survey, and about 6000 feet of trenching. The mineralization occurs at a Nicola volcanics - pyroxenite contact. The intrusive is a medium grained, slightly sheared hornblende clinopyroxenite, with gneissic margins and a coarsely crystalline core. The pyroxenite is generally unaltered, however, the mafics are slightly chloritized. The Nicola rocks consist of schistose, skarnified, coarse grained tuffs and flows, which are heavily iron stained at the contact. Mineralization in the form of fracture fillings, includes pyrite with minor malachite and chalcopyrite.

Mineralization is extremely sparse and no further work is recommended.

DON CLAIMS NO.11

The 36 DON claims are located on top of and on the western flank of Bromley Mountain, 5.75 miles south-southeast of Coalmont. Access is via a 6 mile logging road which intersects the Hope-Princeton highway approximately 4 miles south of Princeton. G. McArthur and R. Ridgway visited the property on separate occasions during the summer.

The claims, which expired on April 2, 1973, were held by Darkhawk Mines Ltd., The ground was restaked in the middle of July. Previous work includes trenching and blasting of the various showings. At the top of Bromley Mountain, disseminated pyrite with minor chalcopyrite occurs in quartz veins cutting a Nicola coarse grained tuff. This showing is exposed by several small trenches. Downhill to the west, quartz veins cut a medium grained gabbro and associated hornblendite breccia. Several quartz veins are exposed here, the largest being about 1-3 feet thick and containing clots of chalcopyrite.

Earlier hand pitting and recent trenching have exposed the largest vein for about 50 feet along strike. The strike of the vein is approximately east-west. Also, near the gabbro-Nicola contact and in a zone of silicified lapilli tuff, pyrite and minor chalcopyrite occur as disseminations. These showings are very small and not significantly mineralized.

GRANITE-SCHEELITE NO.12

The 10 Granite Scheelite claims are located 18 miles southwest of Princeton, on the west slope of Granite Mountain at approximately 6000 feet elevation. Access is via the Hope-Princeton highway and the Whipsaw Creek road. The claims are located about 25 miles from the junction of the two roads. The property was visited by G. McArthur in early June, 1973.

The present owner is Silver Tip Explorations Ltd. The claims are apparently still in good standing. Previous work on the property includes 10 miles of road construction, approximately 1000 feet of hand trenching, and 2000 feet of bulldozer trenching. In addition, there is an old adit on the property of approximately 150 feet in length. This is now caved.

There are 2 separate showings on this ground. The older showing on which the adit was driven consists of a fine grained dacite porphyry dyke cutting Eagle granodiorite. Associated with the dyke is a 3 foot wide, northwesterly striking quartz vein containing chalcopyrite, sphalerite, pyrite, and marcasite, with minor galena and scheelite (?). The second showing, located approximately 1/4 mile to the northwest, consists of disseminated chalcopyrite and pyrite in an altered biotite rich phase of the foliated Eagle granodiorite.

Both showings are small localized occurrences.

BB CLAIMS NO.13

The 14 BB claims are 18 miles west-northwest of Princeton in the vicinity of Wells Lake which is located just north of Granite Mountain. Access is via either the Hope-Princeton and Whipsaw Creek rodd or by the Princeton-Tulameen and Coalmont-Lodestone Mountain road. The property was visited by G. McArthur and R. Ridgway on July 25,1973.

These claims, owned by W.A. Blows, have now expired. Previous work includes blasting and hand trenching of two small areas. The host rock is unaltered foliated Eagle biotite granodiorite. Mineralization is weak and includes chalcopyrite and minor molybdenite as fracture fillings and as clots in quartz veinlets. The showings are quite limited in size and there is little potential for additional mineralization.

HIGHLINER CLAIMS NO.14

The 16 HIGHLINER claims are located approximately 4 miles southwest of Coalmont and can be reached via the Coalmont-Blakeburn road. B. Calder visited the property with Mr. Barry Stenhouse (One of the owners) on July 17, 1973.

The claims were staked in early July, 1973 by Apex Mining, and they cover an old adit on Granite Creek. Work was done on the property in the early 1900's by Coalmont Gold Mines; and it included the driving of at least one adit on a quartz vein. Subsequently, a few diamond drill holes were put down to test the main vein. No assays of this core are available.

Proposed assessment work included the driving of a 10 foot adit on the main quartz vein for the purpose of obtaining a good assay sample across the vein. Geological mapping and a magnetometer survey were also planned.

The showings consist of four quartz veins which cut Nicola argillites and schistose andesites. The argillites, outcropping in Granite Creek, are overlain by fine grained dark green andesite. The original adit was driven in the argillites on the main vein. This vein is continuous vertically into the overlying andesites. The four veins are basically parallel and vertical, and strike approximately west to west-southwest, with the northernmost and southernmost being approximately 1000 feet apart. The main vein is about 6 feet wide at Granite Creek and 2 feet wide approximately 500 feet vertically above the creek. Mineralization at the creek includes pyrite, chalcopyrite, arsenopyrite and minor malachite. No gold assays were available at the time of the visit. The other three veins are about 2 feet wide and barren. Unless the gold assays are extremely high, the property appears to have little potential.

POLARIS CLAIMS NO.15

The 49 POLARIS claims are approximately 14 miles west-southwest of Princeton, and west of the Badger Creek-Arrastra Creek junction, between the elevations of 4000 and 5200 feet. The Granite Creek road is now washed out in several places and access to the property is via the Coalmont-Lodestone Mtn. road and the Badger Creek road down to Granite Creek. The Badger Creek road is passable only by motorbikes. B. Calder visited the property on July 27, 1973.

The claims, previously held by Anaconda American Brass, have now all expired. In 1968, Anaconda did detailed geological mapping, an induced polarization survey, a magnetometer survey, a geochemical survey, and 1400 feet of trenching on the property.

Outcrop in the mineralized areas consists of a medium to fine grained, dark green hornblende pyroxenite containing considerable interstitial magnetite. Chalcopyrite was reported to occur as disseminations in the intrusive, however, none was seen by the writer. Considerable fracturing and shearing is evident in the pyroxenite exposed in one of the trenches; however, these structures occur only within a localized area.

This property is of no further interest.

LODESTONE MOUNTAIN NO.16

The LODESTONE MOUNTAIN property consists of about 100 claims, including the HG, IRON, DB, EV, CB plus other claim groups. The property is in the Lodestone Mtn.-Olivine Mtn. area, 15 miles west of Princeton. Access is via the Princeton-Tulameen highway to Coalmont, then via the road past Blakeburn and on to Lodestone Mountain.

The owner is Imperial Metals and Power Ltd. who have held the property since 1960. Previous work includes an induced polarization survey, a magnetometer survey, considerable trenching, detailed geological mapping, several thousand feet of diamond drilling and approximately 10,000 feet of percussion drilling. Additional diamond drilling was done here in the late summer of 1973. Imperial Metals also owns some coal showings in the area and hopes to combine this with the iron (magnetite) to achieve an economic iron pellet plant.

The geology consists of a large body of pyroxenite enclosing 1 or possibly 2 bodies of peridotite-dunite, with feldspathic rocks occurring along the northeast and southwest boundaries of the mass. The peridotite-dunite grades into the pyroxenite in some parts, but also intrudes into it in other parts. The feldspathic rocks intrude both the pyroxenite and peridotite-dunite.

Mineralization is mainly magnetite with some reported platinum and chromium, plus minor concentrations of copper along shears and quartz veins. The magnetite occurs as individual grains disseminated through the rock and as lenses or vein-like bodies. The bulk of the magnetite is found in the pyroxenite.

A feasibility study apparently will be undertaken on the project in the near future.

MAGPIE CLAIMS NO.17

The 8 MAGPIE claims are on the north side of the Tulameen River, 5½ miles west-northwest of Princeton, at an elevation of 2500 feet. Access is via the Princeton-Coalmont road, approximately 10 miles from Princeton, The claims were visited by the field crew several times during the summer.

The claims are owned by Texas Gulf Sulphur Co., and are in good standing until June 18, 1974. In 1971, Texas Gulf's assessment work included surface geological mapping (1" = 400'), a geochemical soil survey, and a talus fines survey.

A large gossan, about 4000 feet wide and exposed 1000 feet vertically occurs at the contact of a Coast Range intrusive with Nicola volcanic rocks. The intrusive is probably a fine to medium grained granite; however, very little unaltered material remains for positive identification. The Nicola volcanic rocks include lapilli tuffs, coarse to fine grained tuffs, and flows. The alteration is intense and extensive, and both the volcanics and intrusive are bleached and silicified into a sericite, gypsum, limonite and clay-rich rock which contains abundant fine grained pyrite. Weak chalcopyrite mineralization is also in evidence, especially along fractures in the intrusive. The size, type, and intensity of the alteration make this a most interesting property. However, it could only be properly tested by deep drilling. Based on surface indications, and on similar mineral occurrences in the area, it is doubtful that copper grades would be sufficient to be of interest.

LODE CLAIMS NO.18

The 24 LODE claims are about 2½ miles northwest of Tulameen and are accessible by logging roads from the Tulameen-Coquihalla road. B. Calder, G. McArthur, and M. Oliver visited the property on May 20, 1973.

The claims have been owned by Copper Mountain Consolidated Limited since 1961. The assessment work will keep the claims in good standing until Aug. 4, 1979 for Lode 1 & 2, and Sept. 8, 1981 for Lode 3 to 24.

Previous work by the owners centres on one showing and includes trenching over a relatively restricted area (500 feet by 300 feet). Two small trenches, each approximately 200 feet long, were found to the southwest of the main showing. These expose extensive outcrop. Also, several parallel cuts, up to 700 feet in length were made in regular intervals downhill to the north of the main showing. However, bedrock was only exposed in a few isolated places.

Outcrop on the property consists of the Nicola group rocks and a medium grained pyroxenite-gabbro. The Nicola consists mainly of massive, dark green andesite, fine grained green tuffs, and augite porphyry andesite interbedded with minor slate and limestone.

Abundant disseminated pyrite and minor pyrrhotite are found throughout the volcanic rocks on the property. The main showing consists of a mineralized quartz-filled shear within fine grained green tuff. The exposed shear is about 15 feet long and 1 to 2 feet wide. Mineralization in the shear includes abundant pyrite, some chalcopyrite, malachite, chalcocite (?) and minor fine grained sphalerite. Epidote and chlorite alteration as stringers and fracture fillings is common throughout the property, and it is particularly intense around the main showing. Trenching at the showing exposes the shear zone which appears to be faulted.

The copper mineralization is confined to the shear zone, and the property is of no further interest.

GOLD RIVER CLAIMS NO.19

The 61 claims (HOPE, WORTH, PIT, HAWK, etc.) and Crown Grants (including COUSIN JACK) are located on Boulder Mountain approximately 4½ miles north-northwest of Tulameen and west of Otter Lake. Access is via a 3 mile property road which branches from the Tulameen-Thalia road about 3½ miles north of Tulameen. B. Calder and G. McArthur visited the property on Aug. 13, 1973.

Since 1970, the claims have been held by Gold River Mines. In the early 1900's, trenches, pits and adits were put in to explore quartz veins on the crown grants. Gold River Mines have done soil sampling, geological mapping, an induced polarization survey, an electromagnetic survey,, a ground magnetometer survey, extensive trenching, and have put in numerous diamond drill holes.

Nicola rocks on the property consits of porphyritic to siliceous greenstones, augite porphyry, and chlorite-sericite schists. On the southeast part of the property, Coast intrusives crop out.

Quartz veins up to 6 feet in width and cutting Nicola rocks, occur on the east side of the property on the Crown Grants. These veins contain sphalerite, chalcopyrite, minor galena, and carry minor values in gold and silver. Across the central part of the property there are 3 small zones of massive pyrite-chalcopyrite mineralization, some of which appear conformable to the volcanic flows.

The property had been visited several times by Dr. S.H. Pilcher, and the purpose of this visit was to find out what new work had been done. Extensive trenching had been done on a geochemical copper anomaly east of the Cousin Jack silver lead-zinc quartz veins. However no mineralization was seen in these trenches. Also, several diamond drill holes had been put down in this area. No work was being done at the time of the examinatiom.

B. CLAIMS NO.20

The approximately 20 "B" claims are located 4½ miles northwest of Tulameen, on the summit and south slope of Rabbitt Mountain. Access is via the Princeton-Tulameen road, and the Tulameen-Coquihalla road. R. Ridgway visited the claims on July 18, 1973.

The claims are owned by T. Rolston and were staked in late November of 1972. No previous work is known, however a diamond drill was set-up on the roadway during the summer.

The outcrops consist of weakly foliated, green Nicola andesite containing some blebs of disseminated pyrite and malachite stains along some fractures. Epidote and chlorite are common, especially along small shears and fractures. Nicola chlorite schist is also found on the property, often with disseminated pyrite and irregular slightly pyritic quartz veinlets.

Nothing of interest was found on the property.

GRASSHOPPER MOUNTAIN NO.21

An old property on top of Grasshopper Mountain was visited by R. Ridgway on Aug. 8, 1973. The showing is about 6½ miles west of Tulameen on the Western summit of Grasshopper Mtn. Access is via the Princeton-Tulameen road and the Tulameen River road.

The present owners (if any) are unknown. Previous work includes the driving of a short adit (no caved), and considerable hand trenching.

The outcrop is a dark green, fine grained Nicola chlorite schist that has been slightly silicified. Calcite along fractures is quite common. An adit was driven along a northward trending, 1-2 feet wide quartz vein which cuts the schist. Pyrite and minor

malachite occur within the vein at the adit but appear in lesser amounts towards the north where the vein is exposed in a series of trenches.

The property is of no further interest.

IRA, IR CLAIMS NO.22

The approximately 100 IRA and IR claims are located about 9 miles northwest of Tulameen, at the headwaters of Skwum Creek and to the southeast of Henning Mountain. Access is via the Princeton-Tulameen road, the Tulameen-Coquihalla road, and the Skwum Creek road. R. Ridgway visited the property during August of 1973.

The claims owned by Copper Range Exploration Co., are in good standing until June 16, 1974. Previous work includes 3 miles of road construction, at least 500 feet of trenching, and some diamond drilling.

Within the claim group, a small porphyry intrusive of unknown dimensions cuts the Nicola chlorite schist. Mineralization consists of minor disseminated chalcopyrite and molybdenite within the intrusive. The geology is similar to the old Independence Mine to the northwest except that the mineralization is extremely weak.

Lack of outcrop limits evaluation of the property, but the mineralization appears sparse.

INDEPENDENCE NO.23

The old INDEPENDENCE mine is approximately 20 miles northwest of Princeton at an elevation of about 5400 feet. Access is via the Princeton-Coldwater road through either Coquihalla Lakes or Skwum Creek. B. Calder, G. McArthur and R. Ridgway visited the property in early August, 1973.

The present owner is Fort Reliance Minerals Ltd., who hole four Crown Grants covering the original showing plus a large number of claims surrounding the old property. They have staked a new block of claims to the southeast of the showings.

The showing was discovered in 1901. The old workings include an adit of over 1300 feet in length, and a large number of open-cuts and shallow pits. Recent exploration consists of considerable trenching, an induced polarization survey, a magnetometer survey, a geochemical survey, and at least 1800 feet of diamond drilling. During the 1973 field season, prospecting and trenching was carried out on the newer claims to the southeast.

The original showing consists of a quartz-feldspar-biotite porphyry granite that has intruded the Eagle Complex. The Eagle is a slightly foliated, medium grained granodiorite. Nicola chlorite schists and slightly foliated, dark green andesites occur immediately to the north of the intrusives. The porphyry has been extremely fractured and contain sericite and calcite. Quartz veinlets are abundant.

Mineralization within the fractured porphyry consists of chalcopyrite, pyrite, pyrrhotite, with minor malachite, molybdenite, and chalcocite. The ore minerals occur mainly along fractures and within the quartz veins, but are also found as disseminations in the porphyry (see also Geological Rec. - South Cariboo - 1972).

Fort Reliance's 1973 field work centred on the Nicola chlorite schists - Eagle intrusive contact. However, no mineralization was seen in this area by the writer.

Although the mineralization and alteration on the main showing are extremely interesting, sufficient work has no doubt been done by previous owners to thoroughly test the property.

TREASURE MOUNTAIN NO.24

The TREASURE MOUNTAIN area is located about 25 miles west-southwest of Princeton and is accessible via the Tulameen River road. The property was first visited by G. McArthur and then by G.McArthur, B. Calder and R. Ridgway on June 11, 1973.

Numerous showings occur throughout the entire Treasure Mtn. area. The property includes the old Dornberg Mine (also called Mary E or Silver King or Silver Chief), and the Jensen Mine.

The owners of the property are not known, and little work has been done in the area in recent years. Copper Range did have a short option on the old Dornberg Mine in 1970.

Mineralization was discovered in the early 1900's and considerable work was done during the 1930' and 1950's. This work consisted mostly of drifting on the various veins exposed. Most of the adits are now caved, however the dump material gives a fair indication of the character of the mineralization.

Outcrop consists of the Pasayten Group rocks in fault contact with the Dewdney Creek Group rocks. The Pasayten includes grey, massive, medium grained arkose; black, thin bedded argillites, and minor amount of conglomerate. The Dewdney Creek consists of agglomerates, argillites, tuffs, and breccias.

The mineralization consists of veins, mostly less than 2 feet in width, that occur within the Dewdney Creek and Pasayten groups; especially along the fault contact. Mineralization is also present along major fracture and brecciation zones. The sulphides include abundant sphalerite, with lesser amounts of galena and pyrite, minor chalcopyrite and arsenopyrite. Silver is reported to be significant, probably associated with the galena. The gangue consists of quartz and siderite (?)

Mineralization in the area is characteristically sporadic and though some of the ore ran fairly high in silver, the potential for sizeable orebodies is poor.

KEYSTONE CLAIMS NO.25

The old KEYSTONE claims are now broken up into the following claim groups - 118 claims called RIP, HOPE, LUCKY, RANDY and others. These claims are located about 3 miles north of the Coquihalla Lakes on the west side of the Coldwater River between 3400 and 4500 feet elevation. Access is via a 1/2 mile property road which branches from the Coldwater River road. B. Calder and G. McArthur visited the property on Aug. 22, 1973. At that time, the property was under option to Noranda Exploration Ltd., who were conducting a drilling programme there. Noranda people on the property were Don Peek (geologist), Cam Lee and Bill McFarlane.

Previous work includes surface geological mapping, a geochemical survey, extensive trenching, diamond drilling, plus the driving of the old Keystone adits. Noranda's work in 1973 included a ground magnetometer survey and the drilling of 3 diamond drill holes.

The host rock is a highly altered intrusive which may or may not be a part of the Eagle Complex. It consists of sericite, quartz, and altered feldspar and contains disseminated pyrite throughout. Several westerly striking quartz veins cut the altered intrusive. These carry pyrite, sphalerite galena, and chalcopyrite in a gangue of quartz and rhodochrosite.

This property, though interesting in regards to the widespread alteration and occurrence of pyrite, has probably had sufficient work done on it by Noranda and previous owners to thoroughly test the mineralization.

JM CLAIMS NO.26

The 20 JM Claims and fractions are about 6½ miles north-northwest of the Coquihalla Lakes, on the south side of Juliet Creek, between 3600 and 5000 feet in elevation. Access is via a poor 3 mile road along the north side of Juliet Creek. B. Calder, G. McArthur and R. Ridgway visited the property on Aug. 17, 1973.

The original owners were K.W. Livingstone and J.S. Christie of Richmond, B.C. Their claims had lapsed, however, it appears that new work, possibly re-staking or survey work, was done in late October, 1972.

Previous work included a geochemical soil survey, a ground magnetometer survey, plus at least four trenches which total approximately 1000 feet.

The host rock is a foliated, medium grained granodiorite to quartz diorite, a part of the Eagle intrusive complex. Near the showings, the rock is extensively faulted, silicified and chloritized. The granodiorite is cut by several quartz veins (usually 2-3 feet wide), pegmatites, mafic dykes and biotite-feldspar porphyries. Mineralization consists mainly of pyrite which occurs as disseminations and fracture fillings. Minor chalcopyrite occurs within the granodiorite, porphyries, and quartz veins. The quartz veins also contain minor sphalerite and traces of molybdenite.

Mineralization exposed here is quite localized and consists mostly of pyrite. There are no indications of any size or grade potential.

DAWN, B-R CLAIMS NO.27

The 49 DAWN and B-R claims are located 15 miles north-northwest of Tulameen, northwest of the summit of Mt. Thynne, at an elevation of between 5500 and 6000 feet. Access is via a logging-microwave station road that branches from the Spearing Creek road one mile east of Brookmere. B. Calder, R. Ridgway, and M. Oliver visited the property on June 22, 1973 and R. Ridgway did later investigation on Aug.30, 1973.

The claims were originally owned by R.E. Dale and Barbara Dale. They were later sold or optioned to Joy Mining. The claims have now expired.

Previous work includes about 5000 feet of bulldozer trenching, some hand trenching, and approximately 1/2 mile of road construction.

The property covers a contact zone between Nicola group rocks and Coast Range intrusive. The Nicola includes fine grained, dark green, sheared andesites and tuffs with some chlorite schists and minor limestone pods. The intrusive consists of a fine to medium grained quartz monzonite, and a medium grained gabbro. Epidote has extensively filled the fractures in both rock types and has locally flooded some of the matrix of the Nicola rocks. Trenching has exposed the intrusive-Nicola contact for about 1000 feet. Mineralization is mainly within the Nicola volcanics and consists of disseminated pyrite with minor magnetite and sparse chalcopyrite. This property is of no further interest.

SELISH MOUNTAIN GABBRO PROPERTY NO.28

This is a magnetite-copper prospect, located on the southern slope of Selish Mountain, 8 miles south-southeast of Merritt at an elevation of 5200 feet. B. Calder and G. McArthur visited the property on Sept. 1, 1973.

The history and previous owner of this property are not known. A number of trenches and considerable diamond drilling has been done here, especially within a gabbro intrusive.

The host rock is a medium grained gabbro to syenite, containing some mafic-rich sections. Mineralization includes abundant interstitial magnetite with very minor disseminated chalcopyrite.

Based on the amount of core stored on the property, it would appear sufficient work has been done to thoroughly test the ground.

SELISH MOUNTAIN COPPER SHOWING NO.29

A small copper showing occurs on the western summit of Selish Mountain at an elevation of 5500 feet. B. Calder and G. McArthur visited the property on Sept. 1, 1973.

It is not known who the previous owners of this ground were. Work on this property, all done several years ago, includes several 200 foot trenches and at least 4 diamond drill holes. The host rocks are Nicola flows and fine grained tuffs that have been cut by a 2 foot wide feldspathic dyke. Calcite-epidote alteration is quite intense throughout the dyke and adjacent Nicola rocks. Minor chalcopyrite, malachite, and azurite occur as disseminations within the altered zone. The showing is quite small and doesn't appear to have any lateral extent. Therefore no further work is recommended.

GOLD RIVER-SELISH MTN. PROPERTY NO.30

The Selish Mountain property of Gold River Mines is located about 8½ miles south-southwest of Merritt, on the western slope of Selish Mountain, between the elevations of 4400 and 4600 feet. Access is via the Coldwater River road and then via the Selish Mtn. road. B. Calder and G. McArthur visited the property on Sept.1, 1973.

The history of the property is unknown, however Gold River started work on the claims during the middle of 1973. Previous work by other owners includes several 100 foot trenches and at least 3 percussion drill holes. Work during 1973 included approximately 550 feet of new trenching plus at least two diamond drill holes. One of these holes was drilled to a depth of 497 feet.

The host rock is an unmapped, medium grained, hornblende-biotite granodiorite to quartz diorite. The outcrops, weakly fractured, are fairly fresh; however some drill core examined indicated moderate albite-epidote alteration at depth. Mineralization consists of clots and blotches of chalcopyrite replacing mafics and also as fracture fillings accompanied by malachite. Minor molybdenite, associated with pyrite, occurs as veinlets and smears on shear faces. Mineralization is quite intense in a few small outcrops. Weaker mineralization occurs over an area of several hundred feet.

Mineralization here is generally very weak and limited in extent.

MAKELSTIN CLAIMS NO.31

The 59 MAKELSTIN claims and 3 fractions are approximately 5 miles southeast of Merritt, on the summit and southern slopes of Iron Mountain, between 4500 and 5500 feet in elevation. Included on the property, is an old showing near the summit which has been called the COMSTOCK, or LUCKY TODD, or LEADVILLE. Access is via the Coldwater River road and then via the C.N. microwave tower road for 6½ miles. B. Calder, G. McArthur and R.Ridgway visited the property on Aug. 28, 1973, and B. Calder revisted it on Sept. 11, 1973.

The claims, now lapsed, were held by Acaplomo Mining and Development Co., The original showing was discovered in 1927 and a 100 foot vertical shaft was driven on the vein. At 100 feet, a fault is supposed to have displaced the vein. A headframe and ore bin were built in the late 40's and about 36 tons of ore were shipped.

Previous work on the property includes line cutting, a magnetometer survey, an EM 16 survey, a geochemistry survey, and diamond drilling.

Nicola volcanics are the host rocks on the property. The volcanics include fine and coarse grained tuffs, with intercalated andesites, rhyolite, and volcanic breccias. The original showing is a quartz-barite-galena vein containing some specular hematite, pyrite, sphalerite, bornite, azurite, and malachite.

Another mineralized area was discovered by Acaplomo in 1968, approximately 2000 feet northeast of the vein. Considerable trenching has exposed weak copper oxide and sulfide mineralization. The host rocks are Nicola volcanics consisting of fine grained, purple, laminated tuffs, a light buff, fine grained rhyolite and a purple feldspar porphyry flow. Mineralization, consisting of chalcocite and malachite plus azurite, is mostly confined to narrow shear zones and quartz veinlets and stringers. The shear zones are about 1 to 3 feet wide and only extend for several feet along strike. Malachite and azurite also occur in a breccia zone in the feldspar porphyry. Work on this showing consists of approximately 1000 feet of trenching, numerous "Cat" ripped areas, hand trenching, plus at least 1 diamond drill hole.

Copper mineralization here is weak and of limited extent.

JUDY AND APACHE CLAIMS NO. 32

The JUDY and APACHE groups (originally 79 claims) are located approximately 4½ miles south of Merritt on the southwest slope of Iron Mountain, at an elevation of 5000 feet. The property covers the original IRON MTN. prospect. Access is via the Coldwater River road and then via the C.N. microwave tower road for about 6 miles. B. Calder visited the property on Sept. 11, 1973.

The most recent owners appear to have been Marengo Mines Ltd. The claims have now expired. Previous work on the property includes the sinking of an inclined shaft, line cutting, a geochemical soil survey, geological mapping, considerable trenching, and several diamond drill holes.

The host rocks are Nicola volcanics, mostly coarse grained tuffs and lapilli tuffs, with some intercalated flows, and at least one limestone bed. Mineralization appears to be limited to northeast trending zones of fracturing and shearing. Individual mineralized shears vary in width from less than one inch up to several feet. Mineralized shear or fracture zones range from a few inches up to several hundred feet in width. Mineralization is found over a strike length in excess of 7500 feet. Specular hematite, minor chalcopyrite and malachite occur along the shears and along quartz-filled fractures. The mineralization is very spotty and weak. It pinches and swells over very short distances, leaving only isolated zones of mineralization along the structures. The property is of no further interest.

ASPEN GROVE AREA NO.33

An examination was made of several known copper occurrences in the Aspen Grove area, using Peter Christopher's British Columbia Dept. of Mines map as a guide. The Aspen Grove area is 32 miles north of Princeton and west and northwest of Kentucky Lake and east of the Princeton-Merritt highway. Access is via the Kentucky Lake road from the Princeton-Merritt highway. The area was visited by B. Calder, G. McArthur and R. Ridgway on Aug. 11, 1973.

The showings have been known since the early 1900's and considerable work, including prospecting, hand trenching, "Cat" trenching, geophysical surveys, geochemical surveys, detailed mapping, and drilling, has been undertaken on the properties.

The outcrop consists mainly of Nicola red and green, massive, amygdaloidal or autobrecciated augite porphyry, red and green volcanic breccia, and some Nicola sedimentary units. Also present are fine grained Coast Range (?) diorites which intrude the Nicola rocks in the northern portion of the area.

Mineralization consists of chalcocite, bornite, chalcopyrite, native copper, malchite and hematite. These occur around the Nicola-diorite contacts and within the Nicola units in fractures, brecciation zones, and in veins. Epidote is a very common alteration mineral asoociated with the mineralization. Prehnite-pumpellyite are also present in minor amounts.

All the showings examined are too small to be of further interest.

TOE CLAIMS NO.34

The approximately 50 remaining TOE claims are on the north slope of the Wart Mountain, west of Paradise Lake, and 32 miles north-northeast of Princeton. Access is via either the Merritt-Kamloops highway, and the Paradise Lake road, or via the Princeton-Merritt highway, the Kentucky Lake road, and logging roads north of Quilchena Creek. G. McArthur visited the property on Sept. 26, 1973.

The owner was International Marina Resources. The claims expired on Oct. 18, 1973. Previous work on the much larger original TOE group included line cutting, an induced polarization survey, a magnetometer survey, a geochemical survey, geological mapping, trenching, and diamond drilling. None of the trenches were found during the visit to the property.

Only unmineralized, foliated, green augite porphyry flows and foliated, fine grained tuffs were seen on the property. Apparently disseminated chalcopyrite and molybdenite do occur in the Nicola volcanics somewhere on the property.

From the description it would appear that sufficient work has been done to thoroughly test the known mineral occurrences.

SIWASH CREEK AREA NO. 35

Two properties located at the headwaters of Siwash Creek were visited by B. Calder and G. McArthur on Oct. 4, 1973. Both claim groups are about 20 miles north-northeast of Princeton on the northeast side of the creek. Access is via the Princeton-Osprey Lake road and the Siwash Creek road.

The first group are the 16 SIWASH claims owned by D.E. Ager. They expire on July 5, 1975. Previous work includes about 1500 feet of trenching and some blasting, especially on claim SIWASH #3. The showings are at the contact of altered Nicola flows and tuffs and a diorite to granodiorite intrusive. The outcrops are highly fractured and contain some secondary siderite and quartz in the altered regions. Mineralization is mainly within the volcanic units and along the contact, and consists of malachite and disseminated chalcopyrite. However, the copper mineralization is generally very weak and limited in extent.

The second group of unknown name and owner, is located approximately one mile southeast of the above claims. Previous work included the driving of 3 short adits (now caved). Recent work this summer included 500 feet of overburden stripping and the clearing of 2 of the portals by front end loader. Outcrop indicates a contact zone between altered Nicola flows and a quartz-feldspar porphyritic granite. The volcanic rocks have been extensively bleached at the contact. These bleached zones are clay rich and contain pyrite and minor chalcopyrite as disseminations. The showings are too small to be of further interest.

AMANDA, PACO, AMIE CLAIMS NO. 36

The 24 AMANDA, 2 AMIE and 20 PACO claims are on Siwash Creek, 6 miles northwest of Bankier and 24 miles northeast of Princeton, between the elevations of 3600 and 4200 feet. Access is via an old logging road which branches from the Osprey Lake road just west of Bankier. The property was visited on July 8, 1973 by B. Calder, G. McArthur and R. Ridgway.

The claims are owned by Diana Explorations Ltd. The Amanda claims are in good standing until Jan. 23, 1975. The claims include the old Snowstorm or Renfrew showings which were originally worked on in the 1920's.

Previous work includes 52 miles of line cutting, collection and analysis of 1250 geochemical soil samples, 6500 feet of trenching, reconnaissance geological mapping, a magnetometer survey, and the drilling of at least 4 diamond drill holes. Earlier, at least 3 adits were driven on the property. To the north, now on the Amanda claims, a 1½ mile trench was put in on a previous claim group.

The main showing (Snowstorm adit area) is in a silicified area in a medium grained, biotite granodiorite (Otter Lake intrusive). An intensely silicified, mineralized zone, of about 3 feet in width, strikes approximately east-west. A weaker silicified halo around the zone extends for several hundred feet in all directions. Small breccia and shear zones with accompanying argillic alteration occur within the halo. Mineralization in the intensely silicified zone includes pyrite, chalcopyrite, malachite, hematite, with minor galena and sphalerite. One of the other adits was driven on a quartz vein containing pyrite and sphalerite. Other small veins with minor galena and pyrite occur, but are quite local in extent. This property seems to have been adequately tested.

EMPRESS CLAIMS NO.37

The 54 EMPRESS claims are 3 miles southeast of Osprey Lake at the eastern headwaters of Empress Creek, between the elevations of 4,500 and 6,100 feet. Access is by an 11 mile long property road which runs south from the western end of Chain Lake, located on the Osprey Lake road. B. Calder, G. McArthur and M. Oliver visited the property on May 25, 1973.

The claims are owned by Anaconda American Brass Ltd., and are in good standing until June 25, 1976.

Previous work in 1968, 1969 and 1970 included geological mapping, topographic mapping, induced polarization, magnetic and seismic surveying, collection and analysis of over 5000 soil and stream sediment samples, over 10,000 feet of trenching in bedrock and overburden, and 3600 feet of diamond drilling.

Outcrop on the property consists of Coast Range intrusions of medium grained, biotite quartz monzonite and alaskite. Molybdenite, associated with pyrite and magnetite, occurs in fractures and quartz stringers and as disseminations in the intrusive. The rocks have undergone slight sericite, chlorite, and kaolinite alteration. Mineralization appears to be extremely weak and limited in extent. Sufficient work has been done on this property to thoroughly test it.

OD, OB, OC CLAIMS NO. 38

The 30 OD, 40 OB, and 40 OC Claims are located 22 miles north of Princeton, north of Dillard Creek and east of the southern end of Missezula Lake, at an elevation of between 4000 and 5000 feet. Access is via the Princeton-Merritt highway, and the Summers Creek road to Missezula Lake. The property was visited in Sept. 1973.

The owner is Primer Group Minerals Ltd., who have held the claims for a number of years. Originally the claims were part of the King George Group. At present, all the claims are in good standing, but will expire as follows; OD expire May 10, 1974, OB expire March 22, 1976 and OC expire April 10, 1976.

Previous work includes geological mapping, a geochemical survey, a magnetometer survey, an EM survey, an IP survey, at least 1500 feet of trenching, approximately 10,000 feet of diamond drilling, and about 2500 feet of percussion drilling.

Outcrop consists mainly of fractured Nicola volcanic rocks, including tuffs, flows and breccias. Some diorite (probably Coast Range) and dioritized Nicola volcanics are also present. Mineralization, mainly restricted to the fractured volcanic rocks, consists of chalcopyrite, bornite, pyrite and malachite as fracture fillings and fine disseminations. No figures on grade or tonnage have been released.

Based on the amount of work done, this property has apparently been adequately tested.

ADONIS MINES LTD. NO.39

The approximately 100 claims (including AXE, BOSS, VENT, JOY, plus others), held by Adonis Mines are located about 12 miles north-northwest of Princeton, east of Laird Lake and south of Missezula Mountain, at an elevation of about 4500 feet. Access is via the Princeton-Merritt highway, and either by a property road from Laird Lake or by a second property road which intersects the Summers Creek road. The property was visited by R. Ridgway in early Oct. 1973.

All the claims are presently in good standing. Previous work includes geological mapping, an IP survey, an EM survey, road construction, at least 2500 feet of trenching, about 3500 feet of stripping, plus some diamond drilling. During the 1973 season additional diamond drilling and possibly other exploration was carried out on the property.

Outcrop consists mainly of Nicola units which include andesite, rhyolite breccia, argillites, tuff and limestone. These Nicola rocks have been intruded by granodiorite (probably Coast Range). The rhyolite breccia with associated extensive fracturing has provided the site for mineralization.

Mineralization as disseminations and fracture fillings, includes chalcopyrite, chalcocite, bornite, molybdenite plus minor pyrite, magnetite and hematite.

Three ore zones have been reported and include the following;

South Zone - 41,000,000 tons at 0.48% Cu.
West Zone - 6,400,000 tons at 0.47% Cu.
Adit Zone - 16,000,000 tons at 0.56% Cu.

This property is now controlled by Jim Pattison.

SAM HUFF SHOWINGS NO.40

During the summer of 1973, a local prospector-miner-logger named Sam Huff did limited exploration work on 3 adits located along Whipsaw Creek. The adits were visited by G. McArthur during the early part of June, 1973. All are reached via the Hope-Princeton highway and the Whipsaw Creek road.

One adit is located approximately 4 miles along the Whipsaw Creek road from its junction with the highway. The adit, located on the north side of the creek, is about 15 feet long and it cuts a sheared, fractured, epidote-altered Nicola tuff. A small gabbroic dyke, heavily iron stained, crops out near the adit. Huff has also done some diamond drilling in the vicinity of the portal. Mineralization consists mostly of disseminated pyrite. Some gold values have been reported from this locality; however there is some question as to the source of the gold. There is a possibility that the gold was originally in the overlying till, and that it was subsequently hydraulically introduced in the cracks and fractures of the tuffs.

The second adit is located about 12 miles along the Whipsaw Creek road on the south bank of the creek. The adit has been driven on the Nicola-Eagle granodiorite contact. Quartz stringers along the contact contain galena, sphalerite, pyrite and minor silver values. Some diamond drilling was also done in the adit.

The third adit is on the north side of the creek, approximately one mile west-northwest from the second adit. Here a shear zone cuts Nicola chlorite schist. The shear contains a 3 to 5 foot wide north-northwesterly striking quartz vein which contains galena, sphalerite, molybdenite, chalcopyrite and pyrite. Several other smaller parallel quartz veins with similar mineralization were found close to this adit. Huff has previously driven adits on at least two of these other shear-vein zones.

All these showings are relatively small and local occurrences, and as such they are of no further interest.

SKWUM CREEK RIDGE NO.41

During the mapping of Nicola and associated intrusive rocks, a small quartz-eye rhyolite porphyry (100 feet by 50 feet exposed) was discovered on the ridge to the northeast of Skwum Creek and east of the Copper Range (IRA, IR) claims. The rhyolite cuts foliated dark green Nicola chlorite schist. Heavy iron staining and minor disseminated chalcopyrite occur in the intrusive. Outcrop is limited in the area, and a second outcrop of a similar looking porphyry was located 2000 feet to the east. This outcrop was found to be barren. The area was thoroughly prospected and only the one mineralized outcrop was found. Mineralization appears to be weak and quite limited in extent.

GEOCHEMISTRY

During the 1973 field season 270 silt samples were collected in the map area. Most of these were analyzed for copper only. Background values in streams draining Eagle rocks were found to be approximately 20 p.p.m., whereas those from Nicola terrain averaged 40 p.p.m. in background copper (plates 1 thru 11). Anomalous values were obtained from the vicinity of known mineralization; however no new anomalous areas were found.

The value of geochemical work in the eastern portion of the map area is questionable. This area is part of the interior plateau characterized by little relief, semi-arid climate, poor drainage, abundant overburden, and the development of caliche and alkaline soils.

CONCLUSIONS

The Princeton area covered during reconnaissance mapping and exploration during 1973 consists mostly of Triassic Nicola group basic flows and pyroclastics which have been cut by intrusives varying in composition from ultrabasic to granite and in age from Triassic to Cretaceous. This geological situation is well known to be favourable for porphyry type copper occurrences.

It was originally hoped that some basic understanding could be obtained concerning the structure and stratigraphy of hhe Nicola rocks. Because of a lack of distinctive marker horizons this could not be done. Most of the individual units mapped are probably fairly limited in their extent and therefore correlations over considerable distances are not possible.

The area has been heavily prospected for many years and most mineral occurrences, large or small, have been located. No new showings were found during the 1973 field season.

The known showings are of various types, and they include veins, shears, skarns, stockworks, primary (?) disseminations in volcanic rocks, and porphyry deposits. Over 40 of these showings were examined. The great majority of these showings are too small to be of interest. The most promising are those controlled by intrusive-Nicola contacts. Most of these however have had sufficient work done on them to thoroughly test the grade and tonnage potential. Most of the porphyry type occurrences examined are related to small porphyry dykes and stocks which occur in the vicinity of, and are apparently related to the Eagle-Nicola contact. These have also been thoroughly explored. Although pyrite is abundant in these, copper mineralization is relatively weak, and the overall grades and tonnages determined are too low to be economic.

No further work is recommended in the area.

OUTSIDE PROPERTIES EXAMINED

JON CLAIMS

This property, owned by Calgary International Energy Ltd. of Calgary, was examined on September 20-22. It is located approximately one mile west of Mowich Lake on the Deadman Creek road. At the time of the examination none of the maps or reports were available to the writer. However, almost the entire area of interest, as indicated on the maps, (Fig. 6) was covered.

The government geological map (Bonaparte River map sheet) indicates the area to be underlain by rocks of the Nicola group and Tertiary plateau basalts.

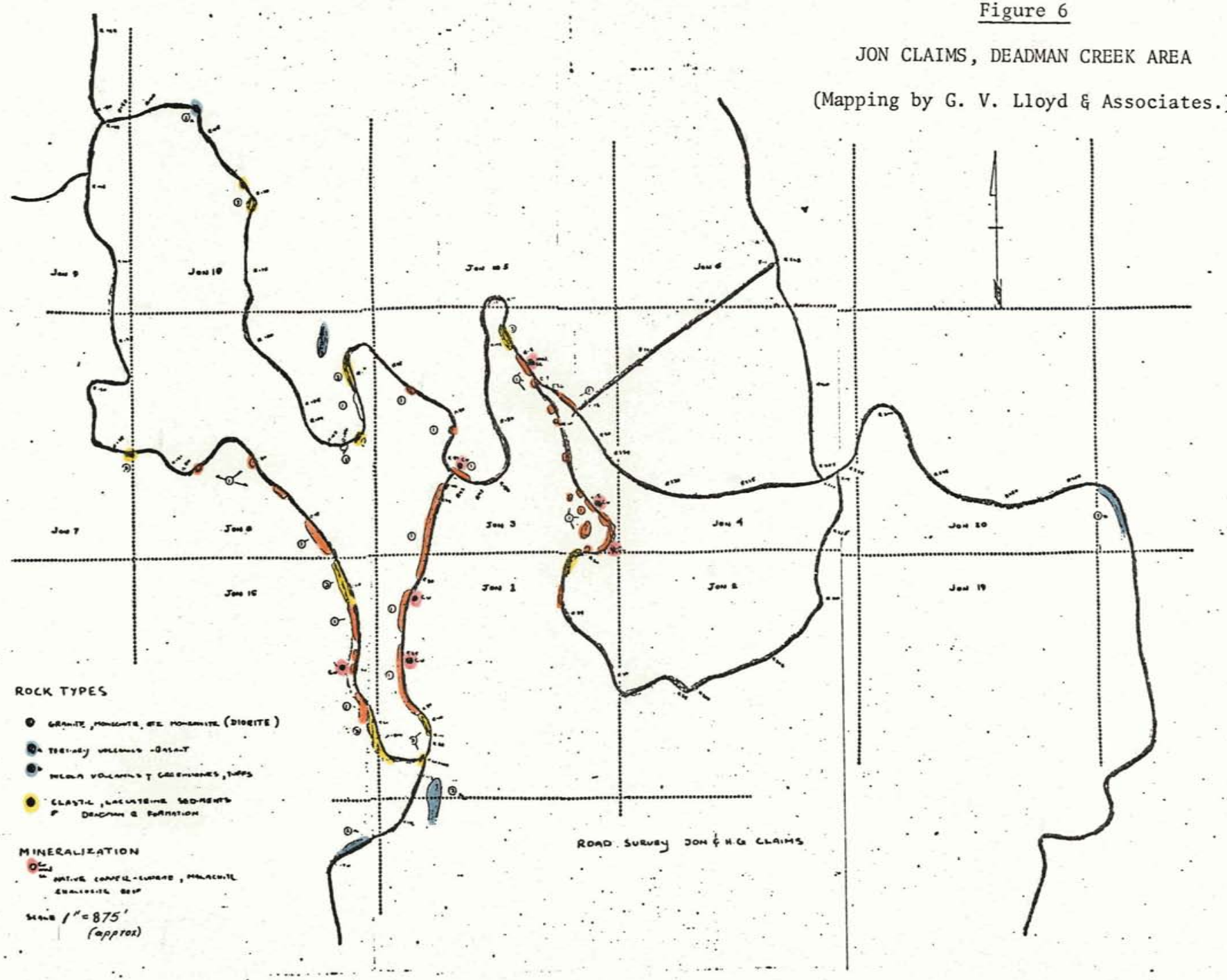
Over an area covering approximately 4 claims (Jon 1, 3, 8, 16) intrusive rock is exposed in sparse outcrops and more abundantly along logging road cuts. This rock probably intrudes the Nicola but no contacts were observed. In some areas the road cuts expose the intrusive almost continuously for several thousand feet. Exposure is therefore adequate for a general evaluation.

In almost all exposures the intrusive rock is deeply and intensely weathered, resulting in a crumbly and friable grit. In the few scattered outcrops which are unweathered, the rock is a fresh coarse-grained, biotite-hornblende diorite containing up to 40% mafics. In these exposures there is no evidence of any hydrothermal alteration. Most of the weathered material was originally of this composition. A few widely-scattered dykes and irregular zones are more acidic in composition, possibly granodiorite to quartz monzonite.

Figure 6

JON CLAIMS, DEADMAN CREEK AREA

(Mapping by G. V. Lloyd & Associates.)



The mineralization observed is present sporadically and in only trace amounts. Traces of malachite were noted in a few outcrops of the deeply weathered material and as minor coatings on some of the fresh diorite. A few specks of chalcopyrite were seen in one 6" acid dyke which cuts the weathered diorite. Extreme fine-grained native copper was found in a few outcrops of weathered diorite. On the whole most of the exposures are completely barren.

Based on the lack of alteration in the fresh rock, and on the extreme weakness of the known mineralization, there is no apparent potential for economic mineralization on this property.

HORSEFLY LAKE AREA

Considerable staking activity has taken place in the Horsefly area. These claim blocks are shown on Figure 7 and are listed numerically below.

1. Gavin Lake Moly - Carl Zuber
2. Carl Zuber
3. Carl Zuber
4. Peter Fox - Newconex Syndicate
5. Peter Fox - Newconex Syndicate
6. Hudson Bay Oil & Gas
7. Peter Fox - Newconex Syndicate
8. CZ Group - Carl Zuber
9. Hudson Bay Oil & Gas
10. Hudson Bay Oil & Gas
11. Carl Zuber
12. Hudson Bay Oil & Gas
13. Peter Fox - Newconex Syndicate
14. Newmont

The majority of these claims have been staked over aero-magnetic highs as is indicated on the map. These all occur within a series of Jurassic andesitic agglomerates, breccias and flows. Numerous small syenitic bodies intrude the volcanic series.

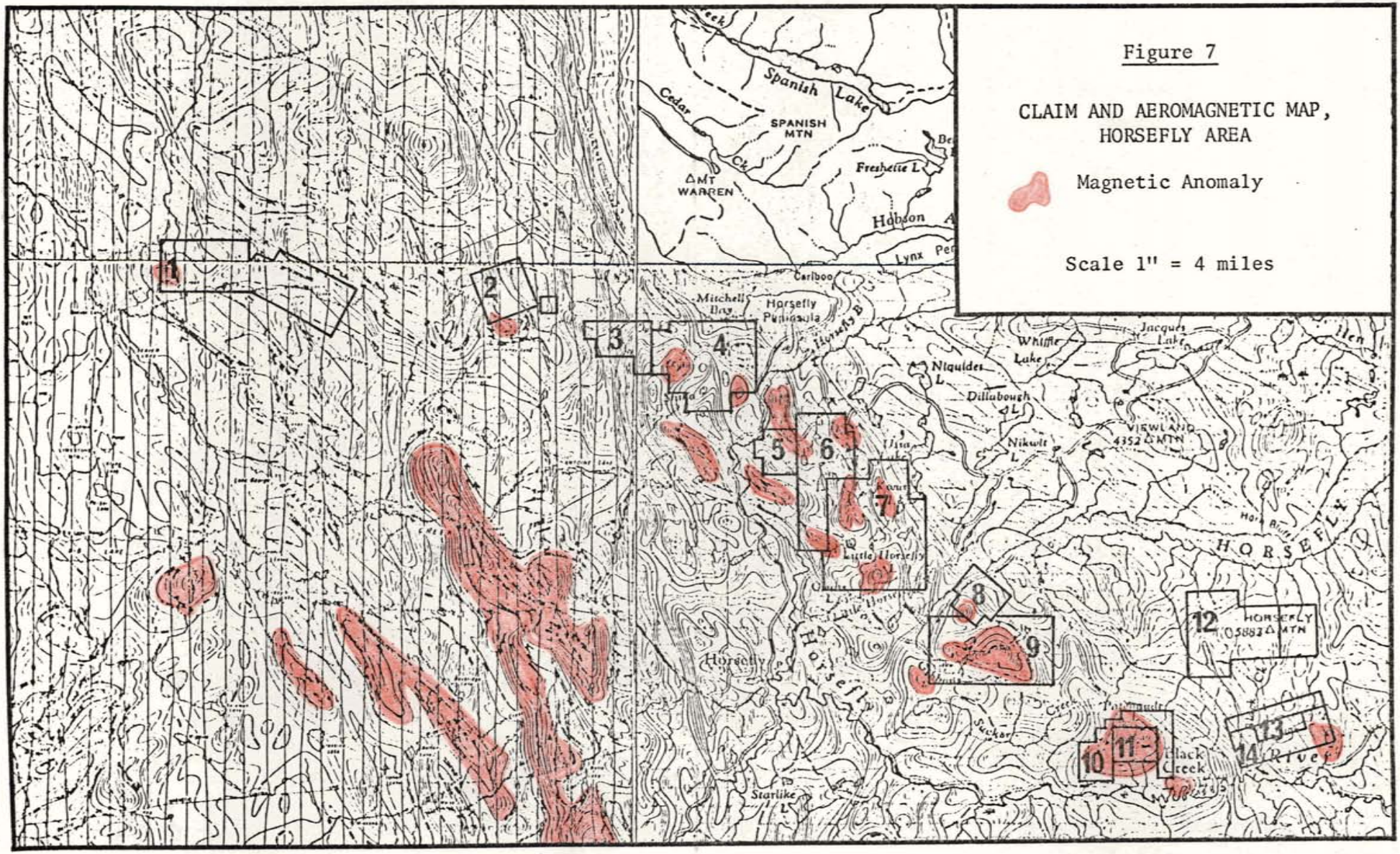


Figure 7

CLAIM AND AEROMAGNETIC MAP,
HORSEFLY AREA

Magnetic Anomaly

Scale 1" = 4 miles

The writer examined the properties numbered 1, 4 & 8 in the company of Mr. R. Westervelt - consultant, and Mr. Carl Zuber - owner of several of the properties listed.

GAVIN LAKE (NO.1)

Amax had an option on the southeast half of this property. They completed a mapping and geochemical program but apparently dropped the option because they could not at that time make a deal on the northwest half where the geology is also favourable. Zuber now controls the entire claim group.

The rock of interest is a good quartz monzonite porphyry which towards the southeast forms a series of dykes cutting basic volcanic rocks, siltstones, and argillites. Towards the northwest the quartz monzonite becomes more massive and stocklike.

Large sections of the intrusive are intensely quartz veined. These are generally 1/8" and less in thickness and form a random pattern. Over the entire area of quartz veining examined only traces of pyrite, chalcopyrite, and molybdenite were observed by the writer.

Numerous geochemical soil anomalies are present throughout the property with values of up to 300 p.p.m. Mo. Some of these are definitely swamp accumulations. Other anomalies occur within areas of sedimentary rock. Since the quartz monzonite is all probably molybdenum-rich (in trace amounts), the value of the geochemical data is doubtful.

The best exploration approach here would be an I.P. survey followed by some drilling in the intensely quartz-veined areas and in any interesting I.P. anomalies if they should turn up. Zuber however wants a $15,000 down payment, and the mineral indications are not sufficient to warrant such a payment.

MITCHELL BAY (NO.4)

This property is one of several staked by the Newconex Syndicate under the direction of Mr. Peter Fox. It was primarily through the activities of Mr. Fox and crew that the recent interest in the area has developed.

Mr. Fox indicates that he is looking for a Copper Mountain type of geological situation (i.e. a differentiated syenite-diorite stock cutting porous tuffaceous pyroclastic rocks), and this property apparently has the characteristics which he is looking for. On the west is a syenite, monzonite, diorite complex and on the east the rocks are a sequence of submarine volcanics and fragmentals. Fox claims the main sulfide zone trends west-northwest across the northern end of the property and is defined by an 80 millesecond I.P. anomaly. The trenches examined in this area, both in intrusive and in fine-grained pyroclastics are not impressive. They contain minor pyrite and generally only traces of chalcopyrite. However, these rocks contain heavy concentrations of magnetite which would mask any chalcocite it it were present. This property has not as yet been drilled.

C-Z GROUP, HORSEFLY LAKE (NO.8)

Mr. Zuber staked this property on the basis of weakly mineralized float which he found along road cuts.

Newmont optioned this ground and did mapping, I.P. and magnetometer surveys.

Outcrops are sparse, but there appears to be a central core of syenite with some peripheral outcrops of diorite. These are surrounded by basic volcanic rocks, some of which are cut by veinlets of syenite. In the southwest part of the claims some green, possibly tuffaceous rocks crop out.

The ground magnetics show generally a central low surrounded by higher values which tend to form long and linear patterns. This configuration corresponds to the geology, the intrusive being the central low and the surrounding volcanics the highs.

A 70 millesecond I.P. anomaly measuring approximately 2000' x 3000',corresponds reasonably well with the magnetic low. Another linear anomaly, trending northwest, is present towards the southeast part of the claims in the general area of the tuffaceous rocks.

The several trenches examined within the central I.P. anomaly contain mixed basic volcanic rocks and diorite, both cut by syenite veins and dykes. These rocks are weakly mineralized with pyrite, and contain only traces of chalcopyrite. The total sulfides present do not seem sufficient to account for the anomaly. One small but highly pyritic zone was observed in a trench cutting the tuffaceous rocks and within the linear anomaly.

Newmont dropped its option before attempting any drilling, much to the chagrin of their geophysicists. Noranda picked up the option and drilled 4 holes. These apparently hit only pyrite and now they have also dropped the ground. One area still remains to be tested. No drilling was done within 1000 feet of the syenite outcrops, even though they occur within the I.P. anomaly. If the mineralization is in any way related to this syenite plug, a possibility exists for pyrite-chalcopyrite zoning around the plug, in which case copper values would increase towards the syenite-Nicola contact. This possibility could be easily tested with a few drill holes.

LONDON CLAIMS - INDIAN RIVER

General - The London Claims are Crown Grants purchased by St. Eugene Mining Co., in 1954. The claims, located on the Indian River midway between Squamish and the head of Indian Arm, are accessible by 4-wheel-drive vehicle from Squamish, a distance of about 15 miles.

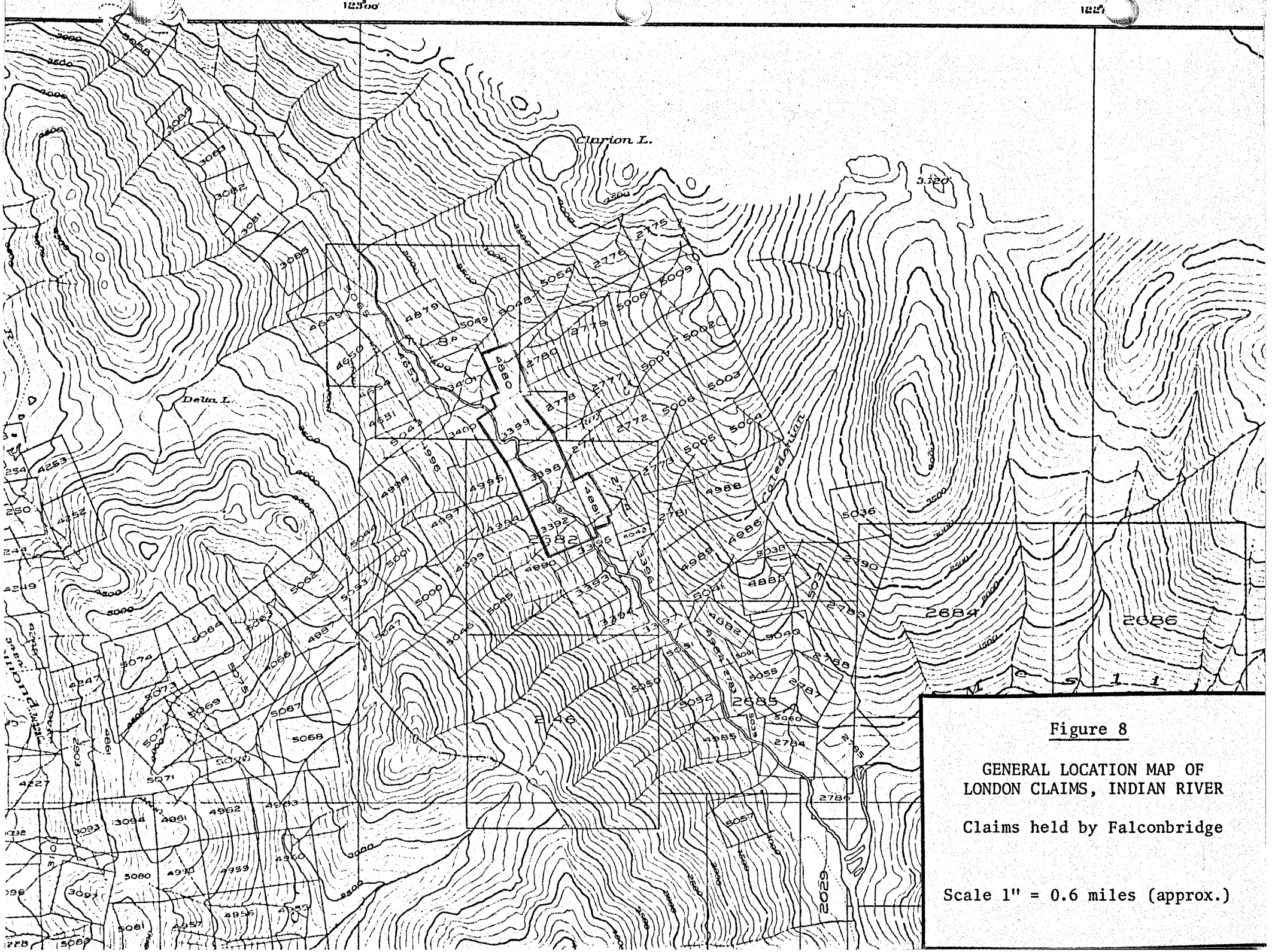


Figure 8

GENERAL LOCATION MAP OF
LONDON CLAIMS, INDIAN RIVER

Claims held by Falconbridge

Scale 1" = 0.6 miles (approx.)

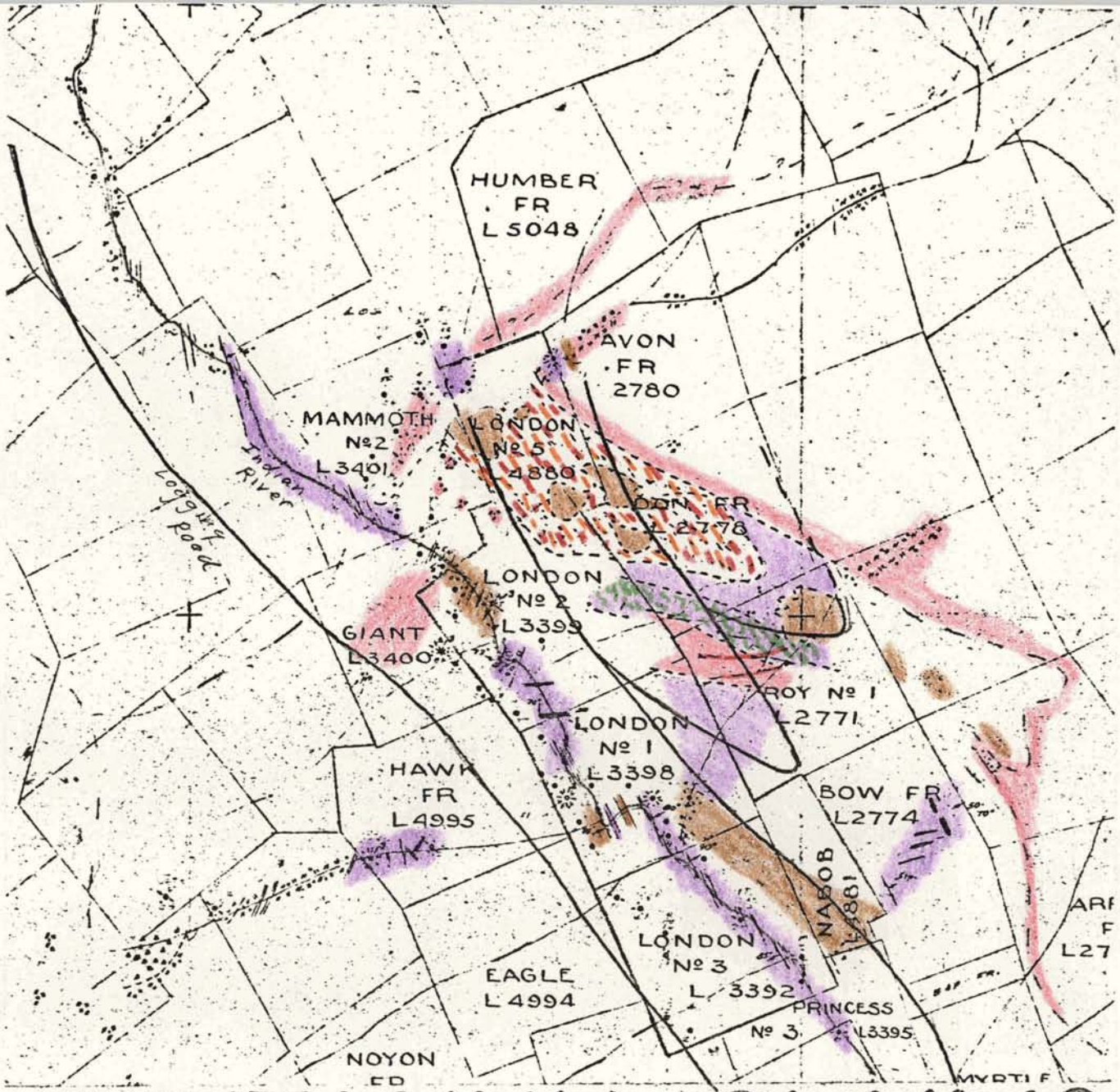
The claims, lot numbers, and yearly taxes are listed below. Their locations are indicated on Fig. 8

Claim	Lot Number	Annual Tax (as per 1973)
London 1	3398	$12.50
London 2	3399	13.00
London 3m	3392	13.00
London 5	4880	7.25
Nabob	4881	4.50
		$50.25

Work to Date - The earliest work done on the property consists of a 100 foot adit (now caved) driven into a mineralized bluff on the London #2 claim (Figs. 9 & 10). In 1964 Anaconda, who own the adjoining claims, took a 4 month option on the London Group. They mapped the property and drilled 2 inclined and one vertical hole from one set-up located just southeast of the adit. Of the 2231 feet drilled, 1554 feet were on the London 2 claim, the remainder being on Anaconda's Don Fraction.

Geology - Most of the rocks exposed on the property belong to the Gambier group and are part of a tongue of mixed volcanic and sedimentary rocks surrounded on the east and west by granodiorite and quartz diorite of the Coast Plutonic complex. These rocks are dated as Upper Jurassic to Lower Cretaceous.

The geology of the area of interest as interpreted by Anaconda geologists is shown on Figures 9 & 10. After examining the various units the writer would put a different interpretation on some of the indicated rock types. All the units named tuffaceous argillite, quartzitic tuff, and andesite (other than dykes) are actually all tuffs of various compositions. The "andesites" are



BRITANNIA CLAIMS

EAST HALF

Figure 9

SCALE: 1" = 1330' (Approx)

RECONNAISSANCE

Altimeter - Brunton Control

Geochemical Samples: Feb 64 L.A.H.

Background

Mo P.P.M.

20-40 × 60-80 * 100-120 * times 2 = 200

Cu P.P.M.

50- 50-100 150-200 times 2 = 600

Zn P.P.M.

100- 100-200 300-400 times 2 = 1000

Sediments:

Tuffs & quartzitic Argillite Shale

Felsite & Porphyry:

Dark Andesitic Light Dacite & Rhy. Basic w/ plag. & Fold.

Equigranular:

Qty. Diorite Granodiorite Basic w/ Plag. & Fold.

Alteration & Mineralization:

Qty. Sulphides Chlorite

tuffs which have undergone chloritic alteration. The unit mapped as light dacite and rhyolite is in all areas examined a true rhyolite. The unit indicated as a quartz-flooded quartz diorite is in all cases seen by the writer at least, so badly altered that the original unaltered rock type is questionable. The rock is silicified, chloritized, and sericitized in varying degrees.

Relatively fresh granodiorite to quartz diorite crops out along the northern section of river shown in Figure 9 and along the logging road just east of the river. Exposures along the southern part of the river consist mostly of highly sheared tuffs which are heavily pyritized in places.

Mineralization - The mineralization consists of pyrite and chalcopyrite as disseminations and as fracture fillings and of molybdenite generally in irregular quartz veinlets and along slips. These minerals seem to be confined to the unit mapped as "quartz-flooded quartz diorite".

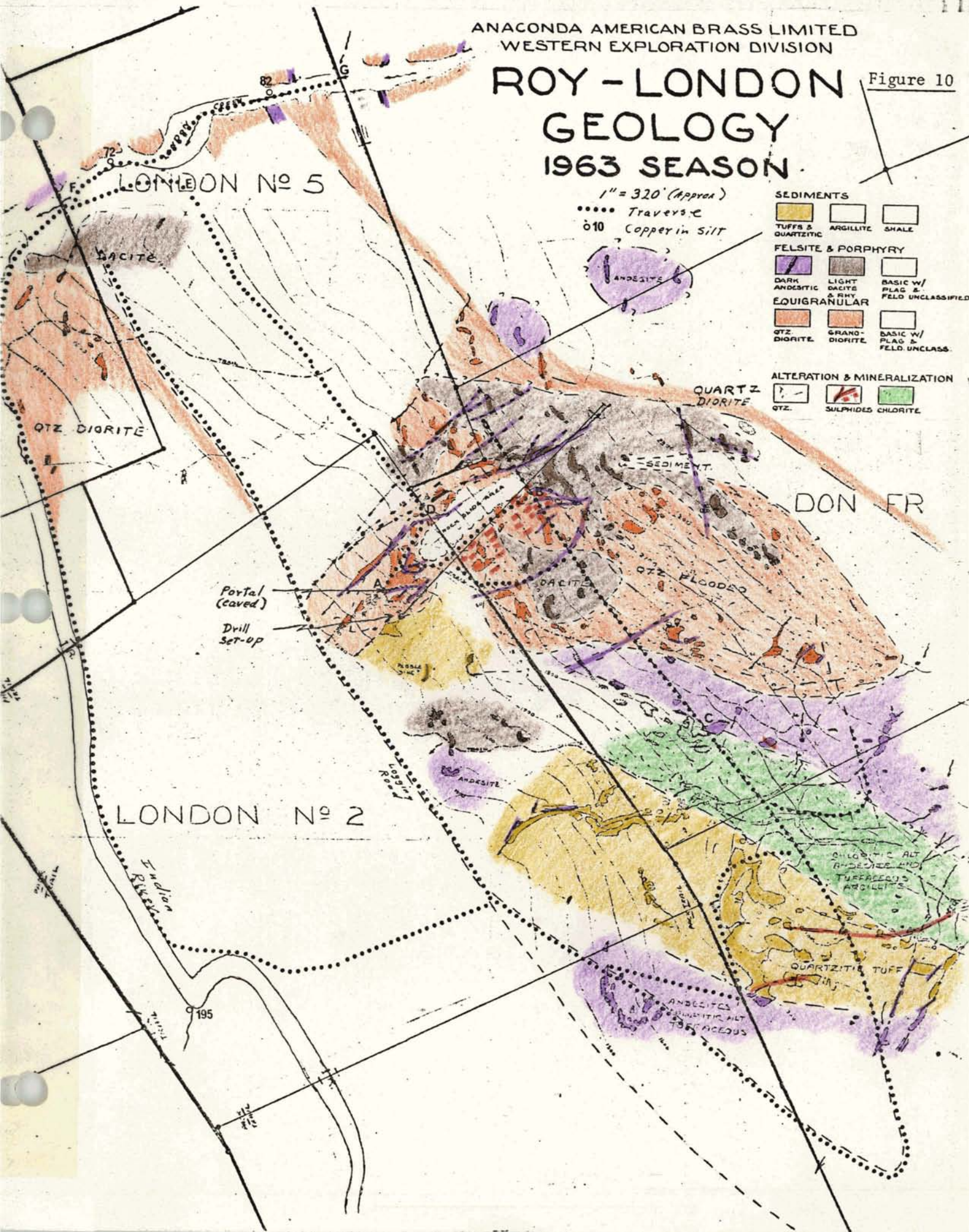
The best mineralization exposed on surface extends from the portal (point A - Figure 10) to point B along the general bearing of the two inclined drill holes.

The adit itself is reported to average 0.3% Cu over its 100 foot length. An intermittent chip sample collected by the writer between points A and D assayed 0.35% Cu. and 0.031% Mo. The vertical drill hole (No. 2) was put down to a depth of 569 feet. It cut mineralization from 65 to 195 feet which averaged 0.14% Cu. and 0.008% Mo. Hole No. 3, drilled at a 65^{o} angle for 665 feet, cut mineralization throughout, though the grade did decrease with depth. The section 0 to 335 feet averaged 0.29% Cu. and 0.018% Mo. Hole No. 1 drilled at 35^{o} for 997 feet cut 0.34% Cu. and 0.009% Mo. across the section 90 to 190 feet. The remainder of this hole was also weakly mineralized.

ANACONDA AMERICAN BRASS LIMITED
WESTERN EXPLORATION DIVISION

ROY - LONDON GEOLOGY
1963 SEASON

Figure 10



Between points B and C the rock is heavily iron-stained. Pyrite and minor to moderate amounts of chalcopyrite are present throughout this section. Molybdenite occurs sporadically here also. The eastward extent of the mineralization on Anaconda's ground is not known. The westward extent on the London 2 claim is not known because of talus cover; however, outcrops of relatively fresh quartz diorite along the logging road indicate that it does not continued very far west of the portal. Towards the north, along traverse D-E, scattered outcrops indicate that the "quartz-flooded quartz diorite" continues in this direction but the mineralization here consists mostly of pyrite. The same was noted on traverse F-G along London Creek. Intermittent chip samples collected here averaged 0.02% Cu. and 0.002% Mo.

Geochemistry - Only a few silt samples were collected from the area. Two from London Creek gave values of 72 and 82 p.p.m. Cu. (Fig.10). A third sample collected from a small tributary stream draining eastward into Indian River at its bend carried 195 p.p.m. Cu. The source of this anomalous copper is not known since most of this area is covered. The only outcrop, located at the junction of the river and creek, is a highly sheared tuff which is heavily coated with limonite. The presence of limonite in the creek sediments indicates that the limonite on the outcrops is transported and its source as well as that of the copper is upstream to the southwest.

Conclusions - Most of the known mineralization occurs on claims held by Anaconda; however some does extend to the west and northwest onto the London No.2 and No.5 claims. Though the grade and tonnage on these two claims is too low to be of interest they should be held because of their proximity to the main zone of mineralization located on the claims held by Anaconda. For that matter the present cost of retaining all the claims is so low that the entire group should be held for the time being. In the writer's opinion more drilling is warranted on the Anaconda claims. Also the source of the copper anomaly on the London No.2 claim should be investigated.

During a recent discussion with R. Ramsier, chief geologist at Brittania, he mentioned that they are still interested in their claims in this area and are planning some work there in 1974.

WEAVER LAKE PROPERTY

General - This property, owned by Aaron Mining Co., is located just north of Weaver Lake (Fig. 11). It was previously examined by D.H. Brown and G. Harper (see report dated June 22, 1972), who at that time recommended optioning the property if funds were available. Additional information (mapping, geochem and drill data) has since become available and a brief examination was made in July 1973 by the writer and D.H. Brown.

Bethlehem Copper optioned this ground in 1970 and did a reconnaissance mapping and geochem program. They also put down 2 vertical diamond drill holes for a total of 1,436 feet. In 1972 the present owners drilled 8 percussion holes totalling 2,020 feet.

Geology - The majority of the rocks here belong to the Jurassic Harrison Lake Formation and consist of rhyolite, dacite, andesite, tuff, cherts, and pyroclastics. These have been intruded by dykes of andesite and diorite, a small plug of feldspar porphyry and a larger one of granodiorite. Due to a lack of distinctive marker horizons very little is known about the structure and stratigraphy in the immediate area. In fact for a correct interpretation of even the basic geology a much more detailed mapping job is required.

Mineralization - Pyrite is present as veinlets and disseminations over a wide area, possibly several square miles. Deep weathering and alteration of this material has produced numerous large gossans. Within the pyritic zone several 2"-6" fractures were observed containing sphalerite, pyrite, and minor chalcopyrite. Minor amounts of chalcopyrite were also noted in widely-scattered hairline fractures.

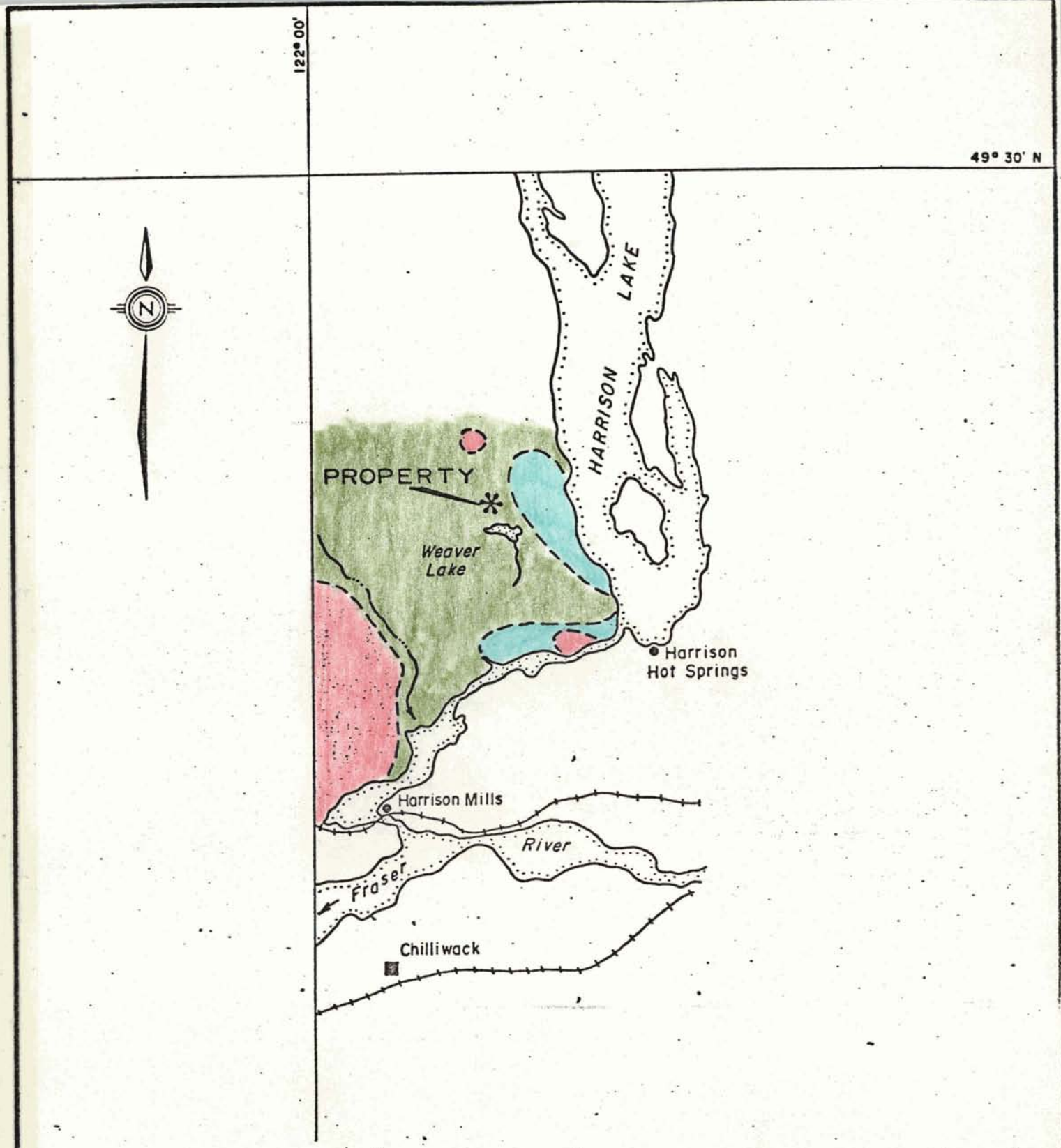


Figure 11

MIDDLE & UPPER JURASSIC

Tuffs, tuffaceous argillites

Lavas: tuff, breccia, agglomerate

JURASSIC (?) & LATER

Granitic intrusives

G.S.C. Hope Sheet 737 A

AARON MINING LTD.
WEAVER LAKE PROPERTY
GENERAL GEOLOGY
NEW WESTMINISTER M.D., B.C.
SCALE 1"=4 Miles

No significant values were encountered in the 2 holes drilled by Bethlehem. One of the percussion holes, apparently drilled along a mineralized fracture, gave values of 0.67% Cu. and 4.15% Zn. over 50 feet.

Conclusions - The geology here is similar to that on the Zenith property, located a few miles to the west and within the same formation. In the Weaver Lake area the potential certainly exists for similar massive sulfide volcanogenic-type mineralization and the property definitely warrants at least a detailed mapping job.

GEOCHEMICAL TRAVERSE - HARRISON LAKE TO PEMBERTON

A traverse was run up the west side of Harrison Lake and silt samples were taken from streams draining other areas underlain by Harrison Lake Formation (Fig. 12). Brett, Cartmell & Hall Creeks gave anomalous zinc values. These areas are heavily staked and it is questionable whether or not these anomalies should be followed up.

Additional samples were taken north of Harrison Lake along the road towards Pemberton. One of these samples collected from a small stream just south of Roger Creek gave an anomalous zinc value. This particular stream drains a contact area between Coast Intrusive and Fire Lake group rocks. The Fire Lake group, Jurassic in age, consists mostly of greenstone, slate, chlorite schist, and various sedimentary units. The significance of this anomaly is not known, and if time permits a follow-up will be made.

S. Pilcher

FALCONBRIDGE NICKEL MINES LIMITED

PLATE I

Project 123 (South Cariboo)

LOCATION:

Princeton E ½

TYPE OF MAP:

Geology

WORKING PLACE: Princeton Area

BASED ON: Field Mapping

DATE OF WORK: 1973	SCALE: 1" = ½ mile	FIG. NO.:
DRAWN BY: R.R.		
DATE: January 1974	N.T.S. NO.: 92H/7E	

FALCONBRIDGE NICKEL MINES LIMITED

PLATE 2

Project 123 (South Cariboo)

LOCATION:

Princeton W ½

TYPE OF MAP:

Geology

WORKING PLACE: Princeton Area

BASED ON: Field Mapping

DATE OF WORK: 1973	SCALE: 1" = ½ mile	FIG. NO.:
DRAWN BY: R.R.		
DATE: January 1974	N.T.S. NO.: 92H/7W	

FALCONBRIDGE NICKEL MINES LIMITED

PLATE 3
Project 123 (South Cariboo)

LOCATION: Tulameen E 1/2

TYPE OF MAP: Geology

WORKING PLACE: Princeton Area

BASED ON: Field Mapping

DATE OF WORK: 1973	SCALE: 1" = 1/2 mile	FIG. NO.
DRAWN BY: R.R.		
DATE: January 1974	N.T.S. NO.: 92H/10E	

Plate 12

LEGEND

(Taken from: GSC Map 888A by H. M. Rice,
Map 12-1969 by J. Monger,
Map 886A by W. E. Cockfield,
and Falconbridge 1973 field work.)

CENOZOIC

TERTIARY

MIOCENE OR LATER

Plateau basalt.

MIOCENE OR EARLIER

PRINCETON GROUP

Shale, sandstone, conglomerate and varicoloured andesite and basalt.

CRETACEOUS OR TERTIARY

UPPER CRETACEOUS OR LATER

OTTER INTRUSIONS: pink and grey granite and granodiorite.

CRETACEOUS

LOWER CRETACEOUS

KINGSVALE GROUP

Volcanic breccia, latite to andesite and basalt porphyries.

PASAYTEN GROUP

Mainly grit and shale, some greenish grey flows.

SPENCE BRIDGE GROUP

Hard, reddish andesite and basalt.

PORPHYRY STOCKS: quartz feldspar porphyry.

JURASSIC OR LATER

COAST INTRUSIONS (A):
Foliated Eagle biotite, granodiorite with migmatitic or gneissic varieties; minor aplite or pegmatite dykes.

COAST INTRUSIONS (B): Granite, granodiorite and quartz monzonite.

Dunite, pyroxenite, gabbro or hornblendite.

MESOZOIC

TRIASSIC

UPPER TRIASSIC

NICOLA GROUP

(A) VOLCANICS

Andesite to basalt flow.

Dacite flow

Agglomerate

Lapilli tuff and volcanic breccia.

Coarse to fine grained tuff.

Chlorite and sericite schist.

Andesite flow with purple matrix.

Aspen Grove Area

Volcanic breccia with purple matrix.

(B) SEDIMENTS

Argillite.

Limestone.

Volcanic sediments.

MAPPING SYMBOLS

Rock outcrop, approximate area of outcrop	
Stations: (A) Geological	⊙
(B) Stream sediment (with copper assays in parts per million)	▫ 25
(C) Soil (with copper assays in parts per million)	● 12
Geological boundary (defined, assumed)	
Bedding (inclined, vertical)	
Schistosity, gneissosity, cleavage, foliation (inclined, vertical)	
Jointing (inclined, vertical)	
Fault	
Lineament	
Mine or prospect	⚒
Shaft, adit	◥A
Trench, approximate scale	
Drill hole	●dh
Rock types questionable	?

Some geological boundaries and faults taken from maps mentioned above.

Figure 12

Geochemical Traverse

Harrison Lake to Pemberton Area

Cu•Zn Silt Sample - Values in ppm

Scale 1" = 4 miles

92 H/11E

1:50,000

Joins 92H/14

121°15' 49°45' 10' 05' 121°00' 49°45'

13250 122 · 13250 123 · 13250 124 · 16664 66 · 67

Creek · Juliet · Tp 9 R 23 W 6 M · NICOLA PULP · JULY MTN 6925± · HARVESTING

East Anderson River

R-291 · R-290 · FOREST · 73A · 73B · 73C · River

13250 129 · 13250 128 · 13250 127 · 16558 43 · C-253 · Tp 8 R 23 W 6 M · 73D · C-252

CASCADE

Coldwater River · Coquihalla · R-292 R-294 · R-295 · R-269A · R-293 · R-269 · R-268 · C-244 · C-246 · R-270 · R-271 · C-241 · Falls Lake · C-242 · R-266 · R-267 · R-272 · C-243 · Baldwin Creek

MOUNTAINS

Joins 92H/11W · Anderson River · 16558 42 · 16558 41 · 16558 10 · Joins 92H/10

13250 211 · 13250 212 · NEEDLE PEAK · Bar Creek · Needle Creek · Hidden Creek · RANGE

Vaulter Creek · Boston Creek · R-273 · R-273A · 19 · Tp 6 R 24 W 6 M · 13245 96 · 13245 95

FALCONBRIDGE NICKEL MINES LIMITED

PLATE 5

Project 123 (South Cariboo)

LOCATION: Spuzzum

TYPE OF MAP: Geology

WORKING PLACE: Princeton Area

BASED ON: Field Mapping

DATE OF WORK: 1973	SCALE: 1:50,000	FIG. NO.:
DRAWN BY: R.R.		
DATE: January 1974	N.T.S. NO.: 92H/11E	

121°15' 49°30' 10' 05' 121°00'

Joins 92H/6

SPUZZUM

92 H/11 E

YALE DIVISION OF YALE DISTRICT

BRITISH COLUMBIA

SCALE 1:50,000 ÉCHELLE

Miles 1 0 1 2 3 Miles

Metres 1000 500 0 1000 2000 3000 4000 Metres

Yards 1000 500 0 1000 2000 3000 4000 Yards

92 H/16

N I C O L A P U L P

H A R V E S T I N G

F O R E S T

FALCONBRIDGE NICKEL MINES LIMITED

PLATE 6

Project 123 (South Cariboo)

LOCATION:

Paradise Lake

TYPE OF MAP:

Geology

WORKING PLACE: Princeton Area

BASED ON: Field Mapping

DATE OF WORK: 1973	SCALE: 1:50,000.	FIG. NO.:
DRAWN BY: R.R.		
DATE: January 1974	N.T.S. NO.: 92H/16	

PARADIS

BRITISH C

SCALE 1:50,0

FALCONBRIDGE NICKEL MINES LIMITED

PLATE 7

Project 123 (South Cariboo)

LOCATION:

Aspen Grove E ½

TYPE OF MAP:

Geology

WORKING PLACE: Princeton Area

BASED ON: Field Mapping

DATE OF WORK: 1973	SCALE: 1" = ½ mile	FIG. NO.:
DRAWN BY: R.R.		
DATE: January 1974	N.T.S. NO.: 92H/15E	

FALCONBRIDGE NICKEL MINES LIMITED

PLATE 8

Project 123 (South Cariboo)

LOCATION: Aspen Grove W 1/2

TYPE OF MAP: Geology

WORKING PLACE: Princeton Area

BASED ON: Field Mapping

DATE OF WORK: 1973

DRAWN BY: R.R.

DATE: January 1974

SCALE: 1" = 1/2 mile

N.T.S. NO.: 92H/15W

FIG. NO.:

92 H/14 E

1:50,000

92 H/14 E

121°15′ 10′ Joins 92-I/3 05′ 121°00′

50°00′

Joins 92H/14W

Joins 92H/15

Joins 92H/11

BOSTON BAR 92 H/14 E

YALE DIVISION OF YALE DISTRICT

BRITISH COLUMBIA

SCALE 1:50,000 ÉCHELLE

Miles 1 0 1 2 3 Miles

Metres 1000 500 0 1000 2000 3000 4000 Mètres

Yards 1000 500 0 1000 2000 3000 4000 Verges

FALCONBRIDGE NICKEL MINES LIMITED

PLATE 9

Project 123 (South Cariboo)

LOCATION:

Boston Bar

TYPE OF MAP:

Geology

WORKING PLACE: Princeton Area

BASED ON: Field Mapping

DATE OF WORK: 1973	SCALE: 1:50,000	FIG. NO.:
DRAWN BY: R.R.		
DATE: January 1974	N.T.S. NO.: 92H/14E	

49°45′ 121°15′ 10′ 05′ 121°00′

FALCONBRIDGE NICKEL MINES LIMITED

PLATE 10

Project 123 (South Cariboo)

LOCATION:

Merritt

TYPE OF MAP:

Geology

WORKING PLACE: Princeton Area

BASED ON: Field Mapping

DATE OF WORK: 1973	SCALE: 1:50,000	FIG. NO.:
DRAWN BY: R.R.		
DATE: January 1974	N.T.S. NO.: 92I/2	

Joins 92H/15

MERRITT 92-I/2
BRITISH COLUMBIA

SCALE 1:50,000 ÉCHELLE

Miles 1 0 1 2 3 Miles

Metres 1000 500 0 1000 2000 3000 4000 Mètres

Yards 1000 500 0 1000 2000 3000 4000 Verges

1:50,000

KAMLOOPS DIVISION OF YALE DISTRICT
SIMILKAMEEN DIVISION OF YALE DISTRICT

SIMILKAMEEN

NINE MILE CREEK I R 4

WOLF CREEK I R 3

Wolfe Lake

BROMLEY ROCK PROVINCIAL PARK

LULA I R

KIGA

RIVER

STEMWINDER PROV. PARK

CHUCHUWAYHA INDIAN RESERVE

CASCADE MOUNTAINS

WILBERT HILLS

RANGE

C-310 C-236 C-235 C-234 R-238 R-237 R-236 R-235 R-234 R-233 R-356 R-355 R-354 R-353 G-250 G-251 G-252 G-253

FALCONBRIDGE NICKEL MINES LIMITED

PLATE II

Project 123 (South Cariboo)

LOCATION:

Hedley

TYPE OF MAP:

Geology

WORKING PLACE: Princeton Area

BASED ON: Field Mapping

DATE OF WORK: 1973	SCALE: 1:50,000	FIG. NO.:
DRAWN BY: R.R.		
DATE: January 1974	N.T.S. NO.: 92 H/8	

HEDLEY 92 H/8
BRITISH COLUMBIA

SCALE 1:50,000 ÉCHELLE

Miles 1 0 1 2 3 Miles

Metres 1000 500 0 1000 2000 3000 4000 Mètres

Yards 1000 500 0 1000 2000 3000 4000 Verges

FALCONBRIDGE NICKEL MINES LIMITED		
PLATE 4 Project 123 (South Cariboo)		
LOCATION: Tulameen W ½		
TYPE OF MAP: Geology		
WORKING PLACE: Princeton Area		
BASED ON: Field Mapping		
DATE OF WORK: 1973	SCALE: 1" = ½ mile	FIG. NO.:
DRAWN BY: R.R.		
DATE: January 1974	N.T.S. NO.: 92H/10W	