

REPORT

800010

on

LOUDEL CLAIMS

Hazelton Area B. C.

April 26, 1968

Douglas Parent P. Eng.

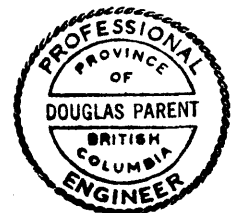


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1. INTRODUCTION

This report deals with the Loudel Claim, Crown Grants and Leases owned by Louis Parent, Delcourt Parent and Douglas Parent, and described under the heading of "Property". The report presents the results of an investigation of published literature covering the area claimed as well as field examinations made on July 8, 9 and 10, 1965 and August 6, 1967, by the writer.

2. PROPERTY

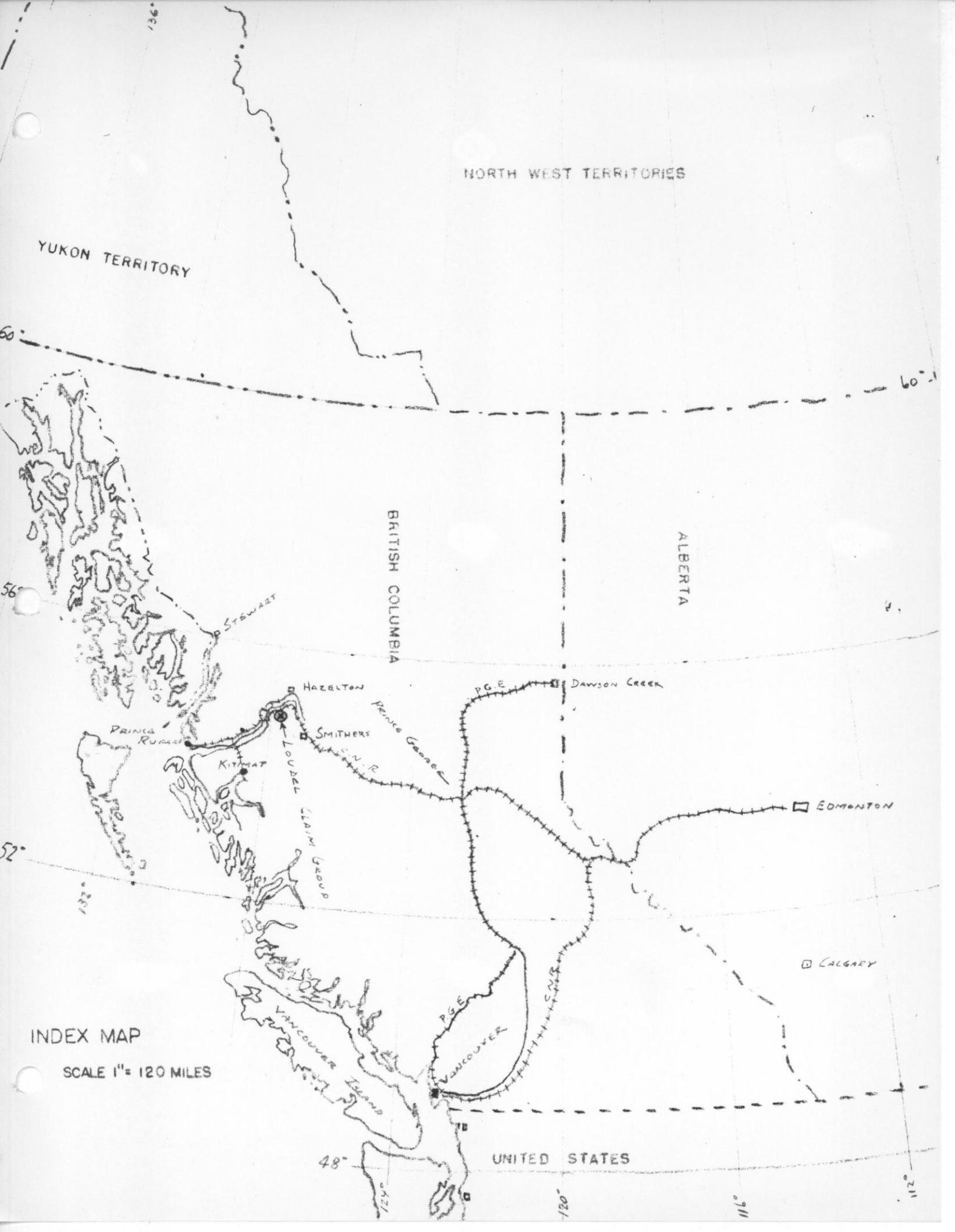
The Property consists of 52 mineral claims staked in one contiguous block and 14 crown grants and leases. Three leases cover mineral showings in the body of the main claim group. Eight leases adjoin the claim group to the east and the last three leases are located some 1,500 feet east of the main group and separated from it by the adjoining Victoria group of crown grants.

<u>Claim No.</u>	<u>Tag No.</u>	<u>Record No.</u>	<u>Staked</u>	<u>Recorded</u>	<u>Recorded At</u>
1	709 750	51465	July 14/67	July 17/67	Smithers
2	51	66	"	"	"
3	52	67	"	"	"
4	53	68	"	"	"
5	54	69	"	"	"
6	55	70	"	"	"
7	56	52453	July 28/67	Aug. 4/67	"
8	57	54	"	"	"
9	58	55	"	"	"
10	59	56	"	"	"
11	60	57	"	"	"
12	61	58	"	"	"
13	62	59	"	"	"
14	68	52990	Aug. 8/67	Aug. 18/67	Smithers

<u>Claim No.</u>	<u>Tag No.</u>	<u>Record No.</u>	<u>Staked</u>	<u>Recorded</u>	<u>Recorded At</u>
15	709 764	52991	Aug. 8/67	Aug. 18/67	Smithers
16	65	92	"	"	"
17	66	93	"	"	"
18	67	94	"	"	"
19	68	95	"	"	"
20	69	96	"	"	"
21	696 501	97	"	"	"
22	02	98	"	"	"
23	03	99	"	"	"
24	834 601		Jan. 7/68	Jan. 18/68	New Hazelton
25	02		"	"	"
26	04		Jan. 7/68	Jan. 18/68	New Hazelton

Claims 27 to 52 staked March and April 1968, recorded at Smithers.

<u>Mineral Lease No.</u>	<u>Mining Receipt</u>	<u>Lot No.</u>	<u>Name</u>	<u>Rental Paid To</u>
M - 51		L-4272	Mandon	
M - 52		L-4273	Huckleberry	
M - 79	4257E	L-3322	Golden Wonder	Oct. 26/68
M - 80	4258E	L-3309	Homestake	Oct. 27/68
M - 80	"	L-3310	Red Cross	"
"	"	L-3311	Patriotic	"
"	"	L-3313	Monoplane	"
"	"	L-3314	Mascot	"
"	"	L-3319	Little Helen	"
"	"	L-3320	Copper Hill	"
"	"	L-3321	Skeena	"
M - 86	16407E	L-605	Summit	Dec. 13/68
M - 86	16407E	L-606	Skeena	Dec. 13/68



NORTH WEST TERRITORIES

YUKON TERRITORY

BRITISH COLUMBIA

ALBERTA

INDEX MAP

SCALE 1" = 120 MILES

UNITED STATES

EDMONTON

CALGARY

VANCOUVER

HAZELTON

SMITHERS

DAWSON CREEK

STEWART

PRINCE RUPERT

KITIMAT

LOUBEL CLAIM GROUP

Pacific Gas & Electric

C.N.R.

P.G.E.

P.G.E.

C.N.R.

136°

60°

60°

56°

52°

132°

48°

120°

121°

122°

123°

124°

125°

126°

127°

3. LOCATION AND ACCESS

The claim group is approximately  $4\frac{1}{2}$  miles south-south-west of South Hazelton and less than a half mile south of paved Highway No. 16, located in the Omineca Mining Division of the Cassiar District of British Columbia. The group covers part of the north-west flank of Rocher Deboule Mountain, Skeena River slope, between elevation 1,000 feet and 6,000 feet with the bulk of area in the 2,000 feet to 3,500 feet range.

Carnaby siding, opposite claim group is on the Prince Rupert branch of the Canadian National Railway and is 171 miles north-east of Prince Rupert or 114 miles north-east of the port of Kitimat. The Skeena River, approximately  $1\frac{1}{2}$  miles north of the Group, is the main drainage of the area.

5. HISTORY

With the construction of the railway line from Prince Rupert to Edmonton in 1913, the Hazelton area became the center of attraction for prospectors with the resultant discovery of copper, lead, zinc, silver, tungsten and molybdenite in the Rocher Deboule area.

6. CLIMATE AND VEGETATION

The Hazelton area being 120 miles due east of the Pacific Ocean, enjoys a moderate climate throughout the year. The average snowfall for the winter is about three feet, with permanent snow falling in late November and breakup beginning in early March.

Summer season is pleasant with much sunshine and long rain-free periods. The Bulkley, Skeena and Kispiox Valleys are being developed into range lands for cattle raising.

Cedar poles, saw logs and pulp wood have been cut for years and large stands of timber still cover the valleys and mountain slopes.

## 7. SUMMARY OF MINING ACTIVITIES

The following mines in the Hazelton Area have been producers at one time and are:

- (a) Rocher Deboule - copper, silver gold, zinc; produced raw ore and concentrates.
- (b) Red Rose - tungsten, copper, silver, gold; production exceeded 1,500,000 pounds scheelite concentrates.
- (c) Silver Standard - has extracted 160,000 tons ore, grading 0.10 oz. Au., 45.00 oz. Ag., 8.00 % Pb., 4.00% Zn., and also values in cadmium.
- (d) The Sunrise Silver lead property is in the exploration stage.
- (e) Silver Standard property is now under lease and shipping run of mine ore to the smelter at Trail, B. C.

## 8. GEOLOGY

### General:

The claim area is underlain by a volcanic and sedimentary series of rocks, known as the Hazelton Series of Upper Jurassic and Lower Cretaceous epoch, have been intruded by a pluton of the Buckley Group of Upper Cretaceous epoch, during the Mesozoic era.

The Hazelton Group consists of volcanic and marine and non-marine sediments, mostly of Middle and Upper Jurassic age, but include some lowermost Cretaceous rocks. The volcanic rocks are predominantly intermediate in composition and variably coloured. Characteristically, they are porphyritic andesite flow breccias, some 4,000 feet to 6,000 feet thick. The sedimentary rocks are in large measure of volcanic derivation and many belong to the greywacke suite. Argillaceous rocks predominate, but sandy conglomeratic rocks are common. Coal and carbonaceous sediments occur in the upper part of the group. These sediments are some 7,500 feet to 8,200 feet thick.



(Geology Continued)

Intrusives:

The Buckley Intrusions consist of diorite dykes. An intrusive known as the Rocher Deboule stock, consisting of a homogeneous porphyritic granodiorite phase, was followed later by a slightly variable fine grained quartz - monzonite phase. Final intrusives consisted of felsite dykes. The Rocher Deboule stock underlies about 27 square miles, is well exposed over a vertical distance of 6,500 feet and appears to have invaded the Hazelton series in a relatively passive fashion, stopping its way into place.

Thermal Metamorphism:

Has developed a 2,000 feet to 5,000 feet aureole of outwardly decreasing intensity about the intrusive stock. The shales and siltstones in particular exhibit the greatest change and have been converted to dense hornfels. Andesites and greywackes, apart from being generally hardened, have been little affected.

Dykes:

The following dykes have been reported:

Aplite, pegmatite, granitoid, porphyritic andesite, felsite and basic.

Folds:

Folding is very moderate with bedding dips as a rule less than 45 degrees, but details of the pattern are complicated. An east-west cross-section through the range shows formations to dip generally eastward. A northerly section, however, indicates that at the north-western edge of the Rocher Deboule intrusion the Hazelton formations have been upfolded and caused to overlap the granodiorite; this feature is structurally important and has a direct bearing on ore making possibilities in this particular claimed area.

(Geology Continued)

Faults:

Three parallel northerly striking normal faults divide the range into four blocks known as the Western, West Central, East Central and Eastern fault blocks. These faults from west to east are known as the Cap or Brian Boru, Chicago Creek and Pangea. The Mill fault, having a north-westerly strike, is parallel to Red Rose Creek and is thought to be older than the three northerly striking faults; the Mill fault is cut by the Chicago Creek fault to the east and also cut on the west by the Cap fault. The westerly extension of the Mill fault, thought obscured by overburden, is thought to underly the south-east branch of Comeau Creek. These deep rooted faults and extensions are no doubt the channelways through which mineralizing solutions travelled to permeate the host rocks.

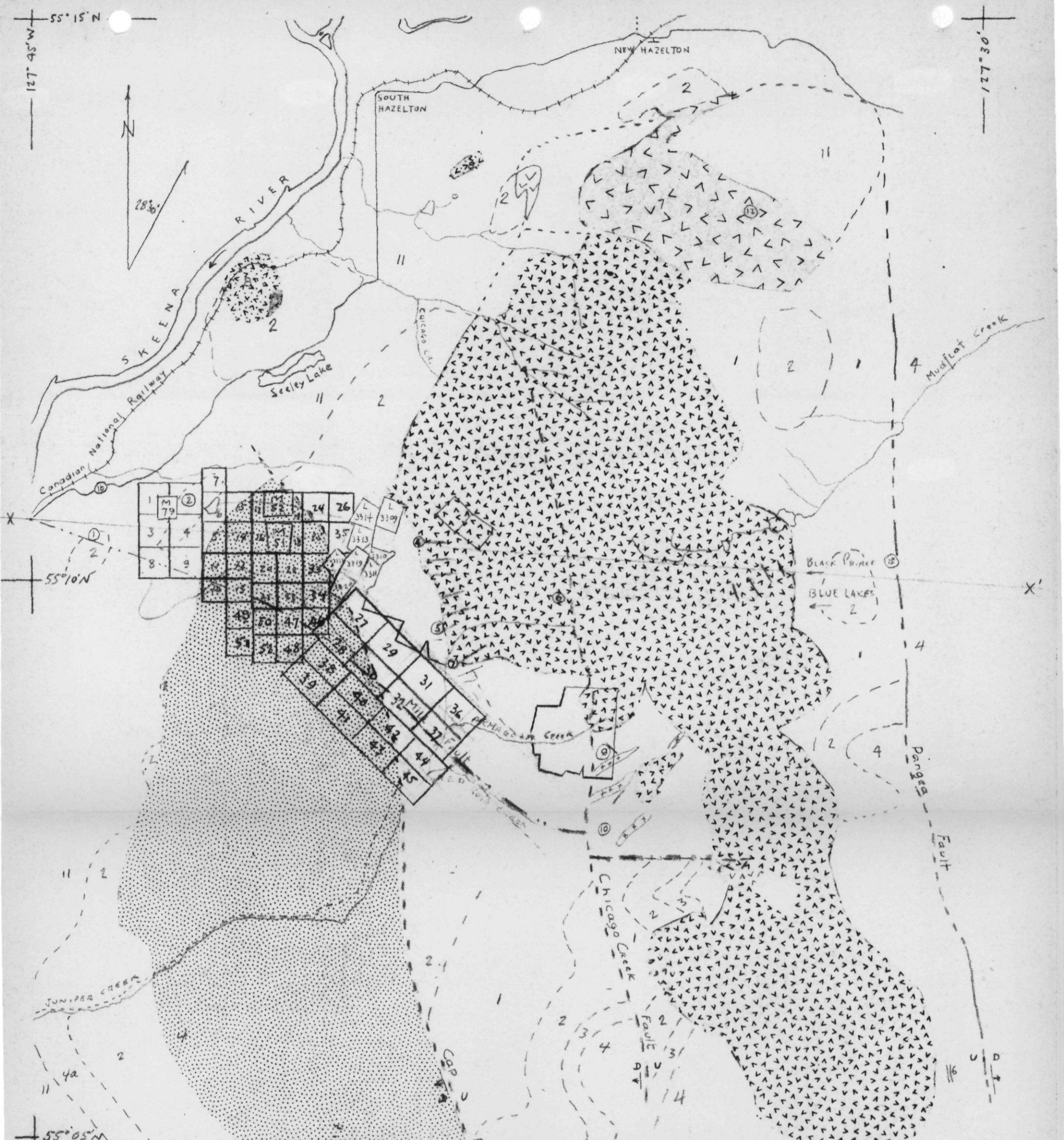
Joints:

In general there are three sets of joints, of which two are most pronounced and regular. These are:

- (a) parallel to the contact.
- (b) normal to the contact and making a horizontal trace on the contact surface (cross joints).
- (c) radial, with vertical dips.

Mineral Deposits:

The known mineral deposits in the western half of the northern dome of the Rocher Deboule Range are the Victoria, Rocher Deboule and Great Ohio, within the porphyritic granodiorite mass, and the Brunswick, Red Rose, Armagosã, Cap and Golden Wonder in the adjacent sedimentary volcanic series to the west.



**GEOLOGICAL MAP  
OF THE  
ROCHER DEBOULE RANGE**

HAZELTON MOUNTAINS  
CASSIAR DISTRICT, BRITISH COLUMBIA.

Geology by A Sutherland Brown 1952-1955  
British Columbia Department of Mines and Petroleum Resources.

**LEGEND**

**LIST OF PROPERTIES**

- ① Three Hills
- ② Golden Wender
- ③ Cap
- ④ Victoria
- ⑤ Rocher DeBoulé
- ⑥ Highland Boy
- ⑦ Great Ohio
- ⑧ Armagosa
- ⑨ Red Rose
- ⑩ Brunswick
- ⑪ Brian Boru
- ⑫ Daley West
- ⑬ Black Prince
- ⑭ Blue Lake
- ⑮ Lone Star
- ⑯ Sultana

- PLEISTOCENE AND RECENT**
- 11 Drift and alluvium
- PALEOCENE OR LATER**
- 10 Andesite, basalt flows and dykes
- PALEOCENE**
- 9 Greywacke, shale, conglomerate, coal.
- CRETACEOUS**
- BULKLEY INTRUSIONS (5-8)**
- 6-7 ROCHER DEBOULE STOCK: 6-porphyrific granodiorite 7-quartz monzonite
- 8 Undivided.
- 5 Diorite dykes
- UPPER JURASSIC AND LOWER CRETACEOUS**
- HAZELTON GROUP (IN PART) (1-4)**
- 4 BRIAN BORU FORMATION: varicoloured porphyritic andesitic flows and breccias, tufts, minor volcanic sandstone and conglomerate.
- RED ROSE FORMATION (1-3)
- 3 MEMBER D: conglomerate, greywacke, shale, and hornfelsic equivalents.
- 1-2 1-MEMBER B: shale, siltstone, and hornfels. 2-MEMBERS A and C: greywacke, shale, siltstone, and hornfelsic equivalents; minor conglomerate and coal.
- 4a Related silt.

1" = 1 Mile  
Date: April 1968

(Geology: Mineral Deposits, Continued)

All the known deposits are veins filling minor shears, or, less commonly, tension fractures. These Veins occur as discrete bodies within fairly continuous shears of minor movement that follow joints related to the cooling history of the stock. Formation of the veins took place in three stages and involved three types of mineralization. The mineralogy of the main stage varies systematically with distance from the contact.

Presently known veins beyond the periphery of the stock are fairly similar structurally and mineralogically to those in and near the stock, but with two significant differences. Most of them strike slightly north of east and dip steeply northward in minor shears rather than being oriented in a pattern related to the stock. They contain chalcopyrite as the most abundant valuable mineral with pyrite, pyrrhotite, arsenopyrite, and sphalerite, but no scheelite. In addition to the vein deposits, there is disseminated pyrite mineralization.

#### 9. LOUDEL CLAIMS AND LEASES

These claims and leases cover two known mineral showings, namely the Golden Wonder and Cap, which are described hereunder:

##### Golden Wonder:

Mineralized showings are situated about one half mile south of Highway No. 16 at elevation 1,300 feet M. S. L. on a large drumlin of pyritic argillite of the Hazelton series, believed to be folded and having a slight east of north trend. The showings consist of two shear zones lying about 115 feet apart, striking  $N 85^{\circ} E$  and dip  $65^{\circ}$  to  $75^{\circ}$  northerly, were traced by open-cuts for 200 feet across the low ridge on the south-west side of a small lake. The shears range from one to three feet in width and contain narrow sulphide lenses consisting largely of pyrrhotite with small amounts of pyrite, arsenopyrite, and chalcopyrite. At the surface the

(Loudel Claims and Leases: Golden Wonder, Continued)

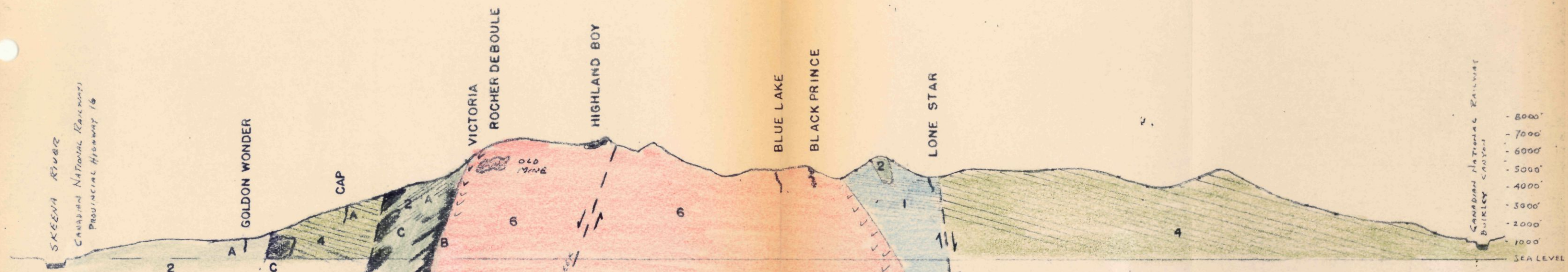
sulphide lenses are short, and most of them are less than three inches wide. A 100 foot shaft was sunk on the more northerly of the two zones; at the collar the zone carried very little sulphide, but during sinking operations, some massive sulphide lenses were encountered containing considerable chalcopyrite. Some of the ore from the shaft is piled in two nearby heaps of about 20 tons. According to E. D. Kindle, 1954, pp. 44,45, Geological Survey of Canada, sampling the ore pits returned the following values:

<u>Sample</u>	<u>AU oz/ton</u>	<u>AG oz/ton</u>	<u>CU %</u>	<u>Tin %</u>
Small pile	.02	7.25	6.50	N. A.
Sample, large pile	.46	7.63	4.69	N. A.
Sample from bagged ore	.10	5.48	2.97	0.15
Sample of ore pile, by writer	.09	4.00	5.97	NIL

This same zone was traced several hundred feet west and 1,000 feet north-east of the 100 foot shaft. No work has been done on these claims since 1919.

Cap:

Mineralized showings are situated about  $1\frac{1}{2}$  miles south of Highway No. 16 at 2,200 feet elevation M. S. L. and reached by a good trail. The property is underlain by andesites of the Hazelton series, which strike northward and dip gently eastward. These andesites contain more pyrite than is normal and are inclined to be rusty weathering. The large northerly striking Cap fault passes about 2,000 feet east of the showings. The showings consist of a main vein, a subsidiary vein, and a few stringers. Two adits 640 feet apart have been driven. The north-east adit advanced in a south-east direction 76 feet and from which a 95 foot drift was driven on the main vein and connects with a surface shaft sunk on the vein. This original shaft



GEOLOGICAL CROSS-SECTION  
OF THE  
ROCHER DEBOULE RANGE

THROUGH THE FOLLOWING MINING PROPERTIES

"LONE STAR, BLACK PRINCE, BLUE LAKE, HIGHLAND BOY, ROCHER DEBOULE, CAP, GOLDON WONDER"

- LEGEND :
- 6 PORPHYRITIC GRANODIORITE.
  - 4 ANDESITES.
  - 2 GREYWACHE, SHALE, ETC.
  - 1 SHALE, SILTSTONE, HORNFELS.
  - A POSSIBLE SHEAR & TENSION FILLINGS ?
  - B POSSIBLE CONTACT-METAMORPHIC DEPOSIT ?
  - C POSSIBLE PYROMETASOMATIC DEPOSIT NOT RELATED TO CONTACT ?

(Loudel Claims and Leases: Cap, Continued)

bottomed at a depth of 20 feet below adit level. No 2 shaft is 10 feet in depth, and is 200 feet south-west of the No. 1 shaft. A second adit was driven in a north-east direction 206 feet, 440 feet south-west of No. 2 shaft, but stopped some 75 feet short of reaching the main zone. According to the B. C. Minister of Mines, 1916 Report, samples taken in the No. 1 shaft assayed:

<u>Sample</u>	<u>AU oz/ton</u>	<u>AG oz/ton</u>	<u>CU %</u>
30 inch sample	Trace	3,2	3.7
29 tons ore to smelter from shaft	.03	10.0	8.0

Original work was begun in 1914 and last recorded work performed in 1929.

10. MINE MAKING POSSIBILITIES

Three important geological structural features have mine making potential and are as follows:

(a) An apparent east-west lineament from the Blue Lakes and Black Prince molybdenum-tungsten showings in the east flank of the intrusive continues through to Victoria-Rocher Deboule, copper, gold, silver cobalt series in the west flank of the intrusive and we find that this trace, if extended westerly, crosses the Cap and Golden Wonder copper showings which are found in the Hazelton series of sediments and volcanic rocks.

Present occurrences of chalcopyrite with gold and silver values on the Cap and Golden Wonder claims are sufficient evidence to apply systematic technical prospecting methods to track down other important deposits likely to occur along the above mentioned projection in the Cap and Golden Wonder area as veins occupying shears, tension and cooling crack fillings especially in the vicinity of the major faults (Cap and Mill).

(Mine Making Possibilities, Continued)

(b) The Rocher Deboule stock is a porphyritic granodiorite mass which has intruded the Hazelton Series of sediments and volcanic rocks in a relatively passive manner at a post-tectonic period. The following metallic minerals have been found in vein form in the Rocher Deboule-Victoria-Great Ohio mining properties situated on the western flank of the intrusive and are as follows:-

Pyrite, pyrrhotite, chalcopyrite, magnetite, arsenopyrite, sphalerite, scheelite, molybdenite, cobalt-nickel sulpharsenides, uraninite, tin, silver and gold;-

-all high temperature minerals suggesting a common origin. The structures involved favour a contact metamorphic deposit and judging by the aureole of metamorphism that surrounds the intrusive (2,000 feet to 5,000 feet). There is a likelihood that within the sedimentary series where a high lime member would have come in contact with the porphyritic granodiorite, that such deposits could be formed. Such type deposits are found in Mexico, Arizona, New Mexico, Cordilleran Region of South America, Australia, Japan and Korea.

(c) Four major fault zones, three of which, namely the Pangea, Chicago Creek and Cap, are visible and traced some 12 miles in a north-south direction with the fourth, the Mill fault, oldest of the four, traced four miles, with its north-westerly extension covered by overburden but thought to extend another four miles. The Mill fault is cut by the Chicago Creek fault and no doubt similarly on its western extension also cut by the Cap Fault. The bisection of the Mill fault by the Cap fault has made an acute angle, to form an extensive thin wedge of highly sheared fractured and brecciated volcanic rocks on the north and a similar wedge to the south in sedimentary rocks, all Hazelton series.



( Mine Making Possibilities, Continued)

These four faults are deep-rooted faults and believed to be the main channel-ways for mineralizing solutions to ascend into the enveloping sedimentary volcanic series. This special geological environment favours pyrometasmatic deposits not related to contacts to occur in close proximity to intrusive masses.

11. RECOMMENDED PROGRAM

(a) The road from the highway to the Cap showings should be cleared of brush and the few small creeks on the way should be corduroyed for easy passage by Jeep. Likewise, the Juniper Creek Road may need repairs.

(b) A base line should be cut in the general direction of the Mill fault, i. e., about south 45° east and grid lines cut normal to the base line on a spacing of 400 feet.

(c) Soil sampling should be done along base and grid lines on 100 foot spacing with analysis made for copper and zinc.

(d) A magnetometer survey should be made along base and grid lines on 100 foot spacing. The necessary diurnal and longitude corrections should be made to all readings.

(e) An electrical survey could be made depending on results of soil sampling and magnetometer survey.

(f) Overburden where not deep and certain anomalous zones could be cleared by bulldozing after programs (a), (b), (c), and (d) are completed.

(g) Diamond drilling to follow up only after geochemical and magnetometer surveys completed.

12. URANINITE OCCURRENCES

Uraninite has been found in the Victoria, Rocher Deboule, Black Prince, and Blue Lake groups in small concentrations. H. L. Hill and R. E. Legg, consulting mining engineers, reported in 1951 that a 70 pound sample, taken from a pyroxenite dyke in the hanging wall of the 601 drift, at the Red Rose Mine, assayed 0.23 %,  $U_3O_8$ .

In exploration work on the Loudel claims it would be wise to make a scintilometer survey along the grid lines to test for possible economic occurrence of uranium. This work could be conducted by the resident geologist while plotting the geology of the claim group.

13. COST

Clearing Brush from Cap Road and Corduroying Creeks . . . . .	\$ 1,000.00
Repairs to Juniper Road . . . . .	1,000.00
Base Line 3.2 miles @ \$60/mile . . . . .	192.00
Grid Lines 52.3 miles @ \$50/mile . . . . .	2,615.00
Soil Sampling 55.5 miles @ \$25/mile . . . . .	1,387.50
Assays 3,000 @\$1.80 (Cu., Mo., Zn.) . . . . .	5,400.00
Magnetometer Survey 55.5 miles @ \$85/mile . . . . .	8,325.00
Bulldozing (approx.) . . . . .	3,000.00
Diamond Drilling, approx. 3,000 feet @ \$10/f. . . . .	
A x WL core . . . . .	30,000.00
 Geologist:	
12 months @\$800/month . . . . .	9,600.00
Room and Board \$300/month . . . . .	3,600.00
1 assistant @ \$600/month x 8 . . . . .	4,800.00
1 labour @ \$500/month x 8 . . . . .	4,000.00
 Transportation:	
1 Jeep rental @ \$250/month	
Fuel, Oil, etc. \$100/month	
(over) 8 months . . . . .	2,800.00
 Mobilization:	
Transportation, Geologist and Drill Crew to	
Hazelton @ \$100/man - 10 men . . . . .	1,000.00
Hotel, 10 @ 3 x \$10 . . . . .	300.00
 Miscellaneous:	
Picket, Flagging, etc. . . . .	100.00
Telephone, Telegrams, Postage . . . . .	100.00
Express, Freight on Samples, Tools, etc. . . . .	500.00
Contingencies . . . . .	2,000.00
	\$81,719.50

NOTE:

After geochemical and magnetometer survey, a better idea of the type and extent of electrical survey can be decided on to cover some 50 miles of lines at 160 - 175 per mile . . . . .

8,750.00

\$90,469.50

14. OLD TRAM LINE

The old Rocher Deboule tram line crosses the claim group in its mid-part in a south-east direction, and along this area soil sampling is bound to pick up high copper values, the source of which could be bucket spills or drips, and this condition must be kept in mind when evaluating the soil sample results.

15. TIME SCHEDULE

From the start of operations to final results on electrical survey an elapsed time of three months can be expected before diamond drilling could commence; this schedule is set out in the following tabulation:

TIME SCHEDULE 1968

	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Repair Roads and corduroy	■							
Base Line Cut	■							
Grid Line Cut	■							
Soil Sampling		■						
Mag Survey		■						
Plot Geology			■	■	■	■		
Elec. Survey			■					
Bulldozing			■					
Diamond Drilling				■	■	■	■	■

16. BIBLIOGRAPHY

E. D. Kindle

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Department of Mines and Technical Surveys, Ottawa, Ontario

A. Sutherland Brown

Geology of the Rocher Deboule Range  
Bulletin No. 43, B. C. Department of Mines, Victoria, B. C.  
(Geological Map Enclosed)

J. J. O'Neill

Economic Geology of the Hazelton District, B. C.  
110 Geological Survey of Canada, Ottawa, Ontario, 1919

Waldemar Lindgren

Mineral Deposits  
McGraw-Hill Book Company, Inc., New York

Topographic Map 92 M/4E Skeena Crossing, B. C. 1:50,000

Air Photo Flight Lines 93 M/4E 1" =  $\frac{1}{2}$  mile

Air Photos, B. C. 1007-49 to 54 incl.

Air Photos, B. C. 1017-83 to 89 incl.


17. ACKNOWLEDGEMENT

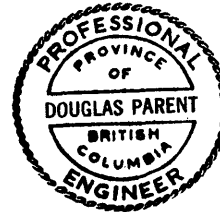
Liberal use was made of E. D. Kindle's report Memoire No. 223, published by the Geological Survey of Canada and also A. Sutherland Brown's report Bulletin No. 43, published by British Columbia Department of Mines, Victoria, B. C. for the valuable use of which I am greatly indebted.

18. CERTIFICATION

I, Douglas Parent, of the City of Vancouver, in the Province of British Columbia, hereby certify as follows:

1. That I am a registered Professional Engineer of the Province of British Columbia and the Province of Quebec with residence at 4495 Wallace Street, Vancouver 8, B. C.
2. That I am a graduate of New Mexico Institute of Mining and Technology with a Bachelor of Science degree in Mining Engineering; that I have practiced my profession continuously for thirty-four years.
3. That I have a one-third interest in the Loudel Claims and Leases.
4. That my report is based on an examination of the property on July 8, 9 and 10, 1965 and August 6, 1967.

  
\_\_\_\_\_  
Douglas Parent, P. Eng.



Vancouver, British Columbia

April 26, 1968.