

White, A.G., 1965, Report on Grouse Mountain Group of
Mineral Claims Teltwa, B.C.; For Copper Ridge Mines Ltd.
74 East Pender St., Vancouver 4, B.C.

Grouse Mtn.

883723

93L/10E

93L 251, 254

INTRODUCTION

At the request of Mr. Leigh Bennett of
Copper Ridge Mines Ltd., 74 East Pender Street, Vancouver, B.C.,
the writer examined the Grouse Mountain property described
herein during August 21st to August 24th, 1965.

Purpose of the examination was to determine
condition of mine workings and access thereto and to appraise
mineral occurrences and general geology as derived from
past work so as to recommend a further programme of exploration
in order to improve grade of known ore reserves and to explore
for higher grade deposits of minerals.

Sufficient information was obtained from the
reconnaissance and review of the information obtained from the
programmes of former owners as well as from the files of the
Department of Mines to formulate opinions expressed herein
and to recommend the exploration programme as outlined.

SUMMARY AND RECOMMENDATIONS

The Grouse Mountain group of claims of Copper Ridge Mines Ltd. is located three miles off the east-west Provincial Highway Number 16, a distance of 27 miles from Smithers, on the southwest slopes of Grouse Mountain and is easily accessible to conduct an exploration programme.

From the extensive work accomplished in past programmes whereby some 3700 feet of cross-cuts, drifts and shafts were driven, and a total of 15,000 feet of diamond drilling was done, no less than four well mineralized zones were established. The more persistent Ruby zone was estimated to have 232,900 tons of ore grading 0.73 ounces silver per ton, 0.31 percent copper and 4.25 percent zinc. No ore was established in the other three vein structures. The general geological environment which consists of sedimentary rocks of the Hazelton Group cut by numerous dykes would provide scope for application of a broad geophysical search of the general claim area to extend known vein structures and to search for other possibilities of vein deposits in order to improve the grade picture.

Further, the character of the vein development in the known zones wherein narrow high grade veins lie between disseminated sections would warrant a closer investigation of the Ruby zone by driving raises or close diamond drilling in order to attempt to block out an area with higher grades, and

SUMMARY AND RECOMMENDATIONS (Cont'd)

as a consequence lower tonnage, since the present block is considered uneconomical at present prices and grades.

In the writer's opinion, the property has merit and should be explored to the extent as recommended in the following report. The work schedule and estimated costs in the amount of \$94,100 may be adjusted during the course of the programme dependant upon results.

Vancouver, B.C.
August 27, 1965

GENERAL CONDITIONSLOCATION:

The property of Copper Ridge Mines Ltd. is located near the top of Grouse Mountain at the south end of the Babine Range in central British Columbia. It lies between 4100 and 4700 feet above sea level. Highway #16 passes within three miles of the property, and at a point 17 miles east of Telkwa, a narrow dirt road leads 3.7 miles to the property over a steep switchback road requiring use of 4-wheel drive vehicles. The northern line of Canadian National Railways lies in the Bulkley Valley, and the nearest rail point is 7.7 miles from the turnoff to the mine, 5.7 miles of which are paved. There is daily train service at Quick Station. Canadian Pacific Airlines has a service into Smithers, some 27 miles away, three times per week from Vancouver.

ACCESSIBILITY:

Easy and direct access is provided to the property by Provincial Highway 16 which passes directly below the claims.

TOPOGRAPHY AND SURFACE FEATURES:

The claims are located on the wooded south-west slopes of Grouse Mountain. Elevations of the Ruby workings are

GENERAL CONDITIONS (Cont'd)

The main power transmission lines of B. C. Power pass by the entrance road to the property a distance of 3 miles from the claims.

MINE WORKINGS:

The open pits are caved in as is the No. 2 Tunnel Collar, so that detailed inspection of the No. 2 level and surface outcrop as shown in open cuts cannot be done. The raise connecting No. 1 and No. 2 levels is unsafe to travel.

BRIEF HISTORY OF THE AREA

Exposures of chalcopyrite and sphalerite were found on Grouse Mountain in 1914 by Louis Schorn and Samuel Bush. The Cassiar Crown Copper Company secured a lease and bond on the property and proceeded to explore. A chalcopyrite showing on the Copper Crown claim was exposed by a shaft, and a sphalerite showing on the Lakeview was explored by an adit. In 1915 a trenching programme revealed numerous veins. Between 1915 and 1927 some 3773 feet of development work was done on the Copper Crown, Ruby, Eureka and Lakeview showings. Cessation of work was possibly due to low grade of the copper values.

BRIEF HISTORY OF THE AREA (Cont'd)

In 1951, Copper Ridge Silver Zinc Mines Ltd. conducted an extensive exploratory diamond drill programme both on surface and underground in order to further delineate ore structures. During this programme, a large block of low grade ore was outlined on the Ruby zone by some 15,000 feet of diamond drilling.

A PROPERTIES AND OWNERSHIP

The property comprises 9 Crown Granted Mineral Claims, 2 Fractional mineral claims - the Ruth and Wedge - recently purchased, and an overall surrounding block of 32 contiguous claims.

Following is the list:

Eureka	Lot No. 6473	Crown Granted
Copper Crown	6472	" "
Cariboo	6476	" "
Mayflower	6471	" "
Ruby	6474	" "
Maisie	7254	" "
Grandview	6475	" "
Lakeview	6284	" "
Lower	6477	" "
Ruth Fraction		
Wedge Fraction		
Len 1 to 30		
Len 33 and 34		

The Len Mineral Claims 21, 17 and 19 were staked over the Silver Tip Nos. 1, 2 and 3 held by Mel Chapman of Smithers and there may be an area of dispute here.

Len 33 and 34 were re-staked by the writer over Len 31 and 32 which were in default through faulty witness staking.

GENERAL GEOLOGICAL FEATURES

Rocks of the area are thin bedded massive sedimentary rocks of the Hazelton Group cut by numerous intrusive dykes and sills of the Lower Cretaceous Bulkley formation. The sedimentary rocks are grey and green tuffs, sandstones, argillites, and volcanic breccias. The sediments dip to the south and southwest. The general dip of the sediments is 15 degrees.

shallow ✓

Fracture cleavage is well developed.

There are many large dykes. Two porphyry dykes at the south end of the Ruby zone are each about 200 feet wide and show phenocryst development up to 4 inches long. Several komprophyre dykes were encountered underground. There are many small faults with minor displacement, however, a major fault occurs on the Number 2 level for 500 feet and may have major displacement.

P₁ = Bladed porphyry
P₂ = 'Granodiorite' po.

Mineralization occurs in well-bedded, green tuffs. The tuffs have been intruded by parallel dykes of igneous rock.

Mineralization consists in some cases mainly of chalcopyrite, in others mainly of sphalerite. Moderate silver values are present.

? low

The mineralized veins appear to be narrow - from inches to several feet - single veins run for several feet then appear to pinch out. The strike of the veins is from E to NE, the dip varies from 50 degrees to 70 degrees. Vein material consists of quartz, calcite, sphalerite, pyrite, chalcopyrite and galena. Disseminated sulphides occur between the veins.

Note! absence of gangue!

PREVIOUS EXPLORATION WORK AND RESULTS

Previous work consisted of 15,000 feet of diamond drilling and 3700 feet of mine exploratory development - and the bulk of this work was directed at the Ruby-Copper Crown zone. In actual fact, only token drilling and drifting has been done on the Schorn, Eureka, Lakeview and Cariboo zones. Following is the drilling summary on the latter areas:

Schorn	300 ft. in 3 holes
Lakeview	1545 ft. in 14 holes
Eureka	306 ft. in 3 holes
Cariboo	182 ft. in 2 holes

Ruby Zone

The No. 2 Tunnel Portal was caved so the writer was unable to inspect these workings. However, from previous maps, and reports of the Mines Department well over 1400 feet of lateral development was carried on in the Ruby zone on the No. 2 level and over 400 feet on the No. 1 level, 95 feet above. Diamond drill sections were made every 50 feet underground and on surface sections were drilled each 100 feet, a raise was driven between these levels. From this data an estimated 232,900 tons was block cut grading 0.73 ounces silver, 0.31 per cent copper and 4.25 per cent zinc. in the main zone indicated on the vertical projection. The vein was continuous on No. 1 level, and there were 3 vein occurrences on No. 2 level. The tonnage was calculated embracing a hanging wall zone and foot wall zone with a disseminated zone between.

PREVIOUS EXPLORATION WORK AND RESULTS (Cont'd)

It is interesting to note a few of the assays on positive vein sections on Nos. 1 and 2 levels as follows:

<u>Sample</u>	<u>Width</u>	<u>Gold/ozs</u>	<u>Silver/ozs</u>	<u>Copper %</u>	<u>Zinc %</u>
No. 2 level 53	18 ins.	tr	1.7	0.9	10.1
See Key Plan 54	36 "	nil	0.5	0.2	7.0
and Projection. 55	80 "	tr	0.5	0.2	5.3
56	68 "	tr	0.5	1.4	11.6
No. 1 level 57	40 "	tr	1.4	0.6	5.9
See Key Plan 58	48 "	0.01	4.5	1.2	22.2
and Projection. 59	60 "	tr	4.5	1.8	15.5

The section through No. 2 level including Drill Holes R-9, R-10 and R-28 gives the best picture. Average width and values as calculated are 24.3 feet running 0.44 ozs. silver, 0.17 per cent copper and 4.3 per cent zinc. However, two high grade bands are included running as follows:

<u>Width</u>	<u>Silver/ozs</u>	<u>Copper %</u>	<u>Zinc %</u>
5.2 feet	1.5	0.6	12.5
6 feet	2.5	1.3	8.1

The vertical projection shows ore areas marked "M" where combined metal values in Copper-zinc are over 5%.

The Ruby zone is not prospected to the south.

Copper Crown Zone

The Copper Crown Zone is northeast of the Ruby zone and the underground was explored through the No. 2 level. On surface a vein with massive chalcopyrite was exposed for 56 feet in the Copper Crown shaft. The No. 2 level workings picked up only narrow

PREVIOUS EXPLORATION WORK AND RESULTS (Cont'd)

veins some 250 feet below. However, the major fault in this area may have influenced this picture so that a study of geological sections is warranted.

Schorn Zone

The Schorn zone comprises many small veins containing mostly sphalerite in the surface workings. The diamond drilling revealed a tight narrow zone. This vein has not been explored to the north or south.

Lakeview

Two narrow zones are exposed on the Lakeview by short drifts and cross cuts. The east adit shows well mineralised quartz stringers, the west adit has mineral over 9 feet. Sample assays from the west adit are as follows:

<u>Width</u>	<u>Gold/ozs</u>	<u>Silver/ozs</u>	<u>Copper %</u>	<u>Zinc %</u>
67 "	tr	6.1	2.5	25.1
46 "	tr	1.9	0.9	11.2

Numerous faults cross the zone. The diamond drilling yielded indefinite ore grade.

The Lakeview zone is open to the south and north.

EXPLORATION POSSIBILITIES

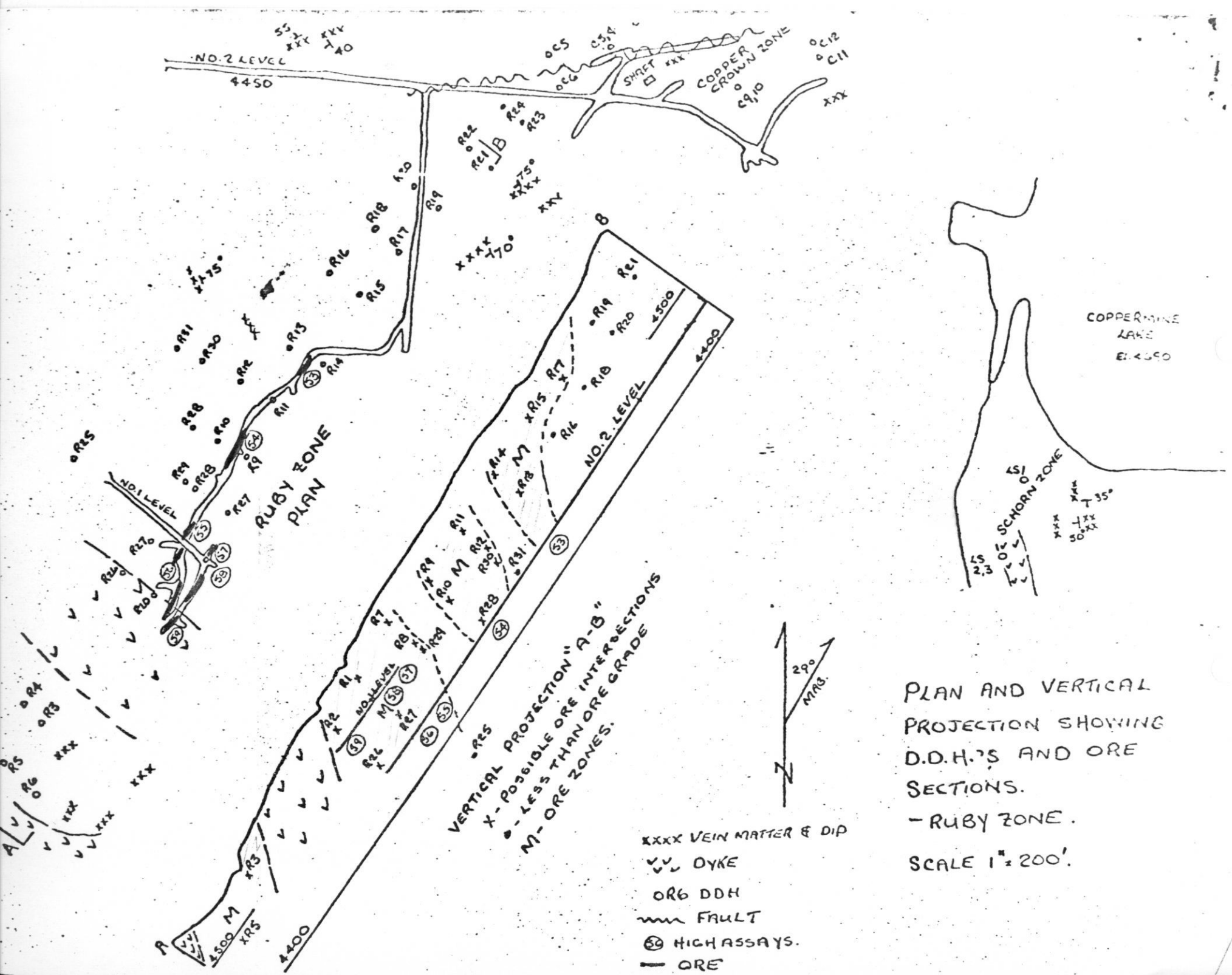
The Ruby zone should bear some investigation by prospecting and geophysical surveys to the south. Some drilling could be done to depth. If results are favourable, the main Ruby zone should be explored by raises to define possible higher grade vein sections within the ore zone.

ESTIMATED COSTSConditions:

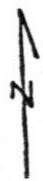
Accommodations for 8 men.
 Contract Geomag survey and grid line preparation.
 Contract cat for repairing road and stripping.
 Contract diamond drilling.
 Contract land surveyor for re-survey of claim boundaries.
 Time period - 3 months.

Costs:

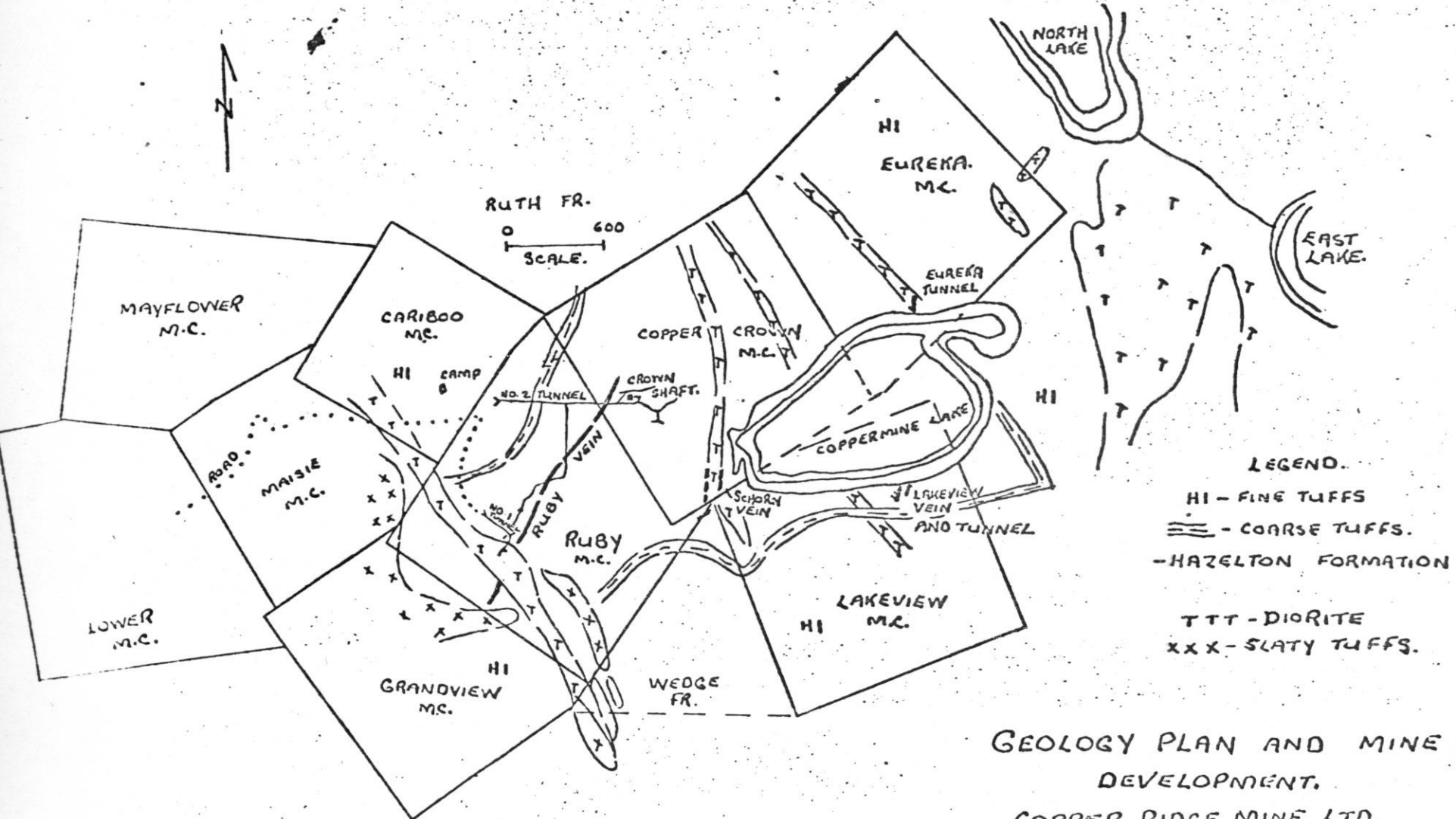
Mobilization of crew, transportation to site, administration and reports	\$ 2,500
Repair camp	3,500
Repair road	1,000
Camp maintenance at \$6 per man per day	4,500
Geo mag survey	15,000
Line cutting	5,000
Rental Equipment - bulldozer 300 hrs. @ \$16/hr	4,800
plugger and steel	300
rental pickup	1,500
Diamond drilling - 5000 feet at \$5.00/foot	25,000
Renovating No. 2 Tunnel and exploring the Ruby zone up dip from No. 2 level 500' of raise @ \$30 per ft. \$15,00 Retimber collar \$2,000	17,000
Supervision and consulting Fees	5,000
Crew Wages 5 men for 3 months @ \$600 per mo.	9,000
	<hr/>
	<u>\$ 94,100</u>



PLAN AND VERTICAL PROJECTION SHOWING D.D.H.'S AND ORE SECTIONS.
- RUBY ZONE.
SCALE 1" = 200'



RUTH FR.
0 600
SCALE.



LEGEND.

- HI - FINE TUFFS
- ≡ - COARSE TUFFS.
- HAZELTON FORMATION
- TTT - DIORITE
- xxx - SLATY TUFFS.

GEOLOGY PLAN AND MINE DEVELOPMENT.
COPPER RIDGE MINE LTD.

78 12

Red Tuff >> sil. Vol.

bu
PSS-205?

P47 CP7
Pb-Zn 3.3

ZnS
PSS

SS

0.47
Zn > CP7
PSS

45%

Ls lenses for W.H.

NORTH LAKE

SOUTH LAKE

COPPERMINE LAKE

1000'

Cu, Pb, Zn

Ruby Zone

382,735 T
1.15 Ag
0.47 Cu
4.42 Zn
(maybe)

2.4

2.4

P4

2.1 : Ag/Cu

16-2-1971

John: position of red T. elsewhere?

2. G. S. S. East on Grouse Mt. Group of Mineral Claims, T.B.M.

M.R. 1537	3"	0.33 Au	312 Ag	4.0 Cu
6"	0.06	97.8	2.0	
9"	0.075	14.0	1.0	
12"	.03	46.7	2.0	
12"	.01	2.6	0	
18"	.02	13.0	0	
9"	.04	78.2	6.4	
6"	.085	105.0	3.5	
6"	.08	101.4	2.5	
6"	.01	20.2	0.4	
6"	.01	4.0	0	





Open Zone	W. 14	9-6	4"	13.6	15.8
				2.6	2.5

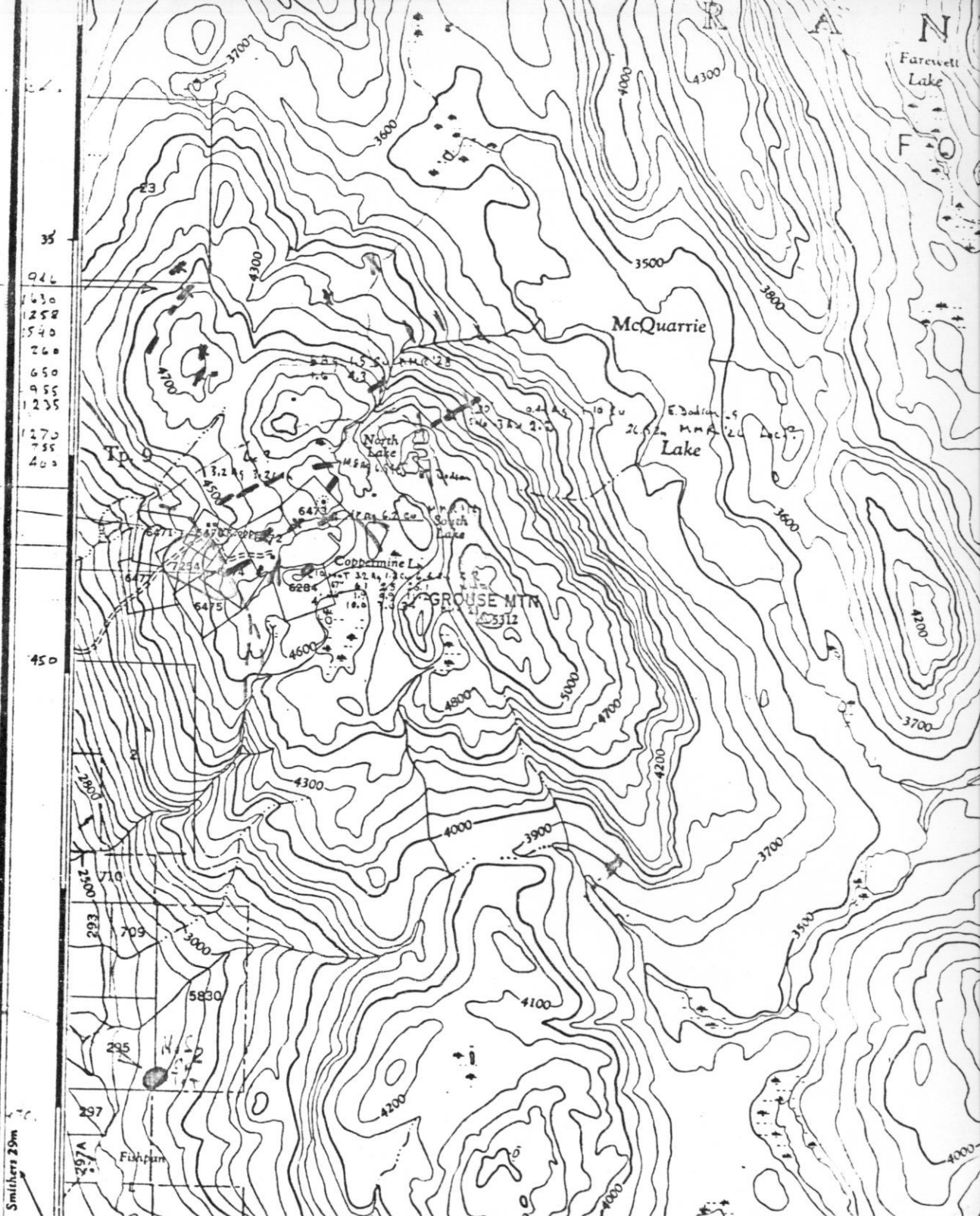
Ruby Zone

Source	width	Au	Ag	Cu	Zn
C.P. Au. Dept '52	382,000 T		1.15	0.47	4.47
W.T., 1965	232,900		0.73	0.31	4.25
	40"	tr	1.4	0.6	5.5
	48"	0.01	4.5	1.2	22.2
	60"	tr	4.5	1.8	15.5
	80"	tr	0.5	0.2	5.3
	68"	tr	0.5	1.4	11.6

450 -

width prospect
H.H.R. 2-275
76

-  Red Tuff & Andesite
-  Andesite & volcanic ash
-  S. andesite
-  Porphyry



Smithers 29m

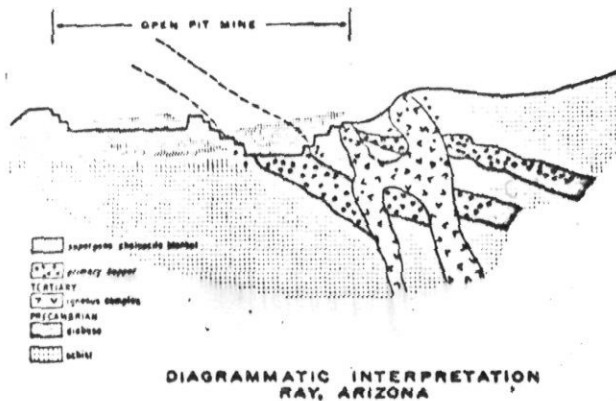


FIG. 6

for extensive disseminated mineralization to be fixed in the intrusive complex.

If this is true, the elevation of the base of the inferred cup, i.e., the top of the barren core, was not principally related to the structure of a reactive roof completely capping an intrusive cupola. It resulted from pressure-temperature-reactivity conditions of the fluids and the reactivity of the host rocks (both solidified igneous rocks and carbonate sediments) in stockwork and structural conduits. These conduits formed a general path interconnecting the parts of the igneous complex still consolidating at depth with the zone of primary mineralization and the earth's surface.

Ray.—The Ray mine is similar to the Chino deposit in that the intrusive complex, as it is exposed today, is composed of irregular monzonite bodies of primary mineralization. These are intrusive into Precambrian schist and diabase sills (Fig. 6), (Metz and Rose, 1966). In the early days of mining at Ray the economic mineralization was a supergene chalcocite blanket spreading alike across porphyry, schist and diabase (Ransome, 1919). The secondary mineralization in porphyry has now been largely removed by mining. Primary mineralization exposed today is largely confined within the diabase sills; the diabase is the reactive host rock equivalent to the reactive limestone beds at Chino or Bingham. The Pinal Schist is barren like the quartzite at Bingham. The primary or hypogene mineralization in the diabase is generally strong near contact with the intrusives, and does not extend more than a few thousand feet from these igneous contacts. The rich chalcocite ores mined near the surface must have been derived from a higher primary source now eroded. This may have been a thick low-grade porphyry protore, or there may have been a rich capping of reactive diabase. However, a surface-related primary copper zone cutting across the higher parts of the complex

could have developed at the time of mineralization similar to the inverted cup at Bingham.

El Teniente (Braden).—In Chile the primary Braden ore body is largely a stockwork of copper sulfides in andesite flows (Howell and Molloy, 1960). Dikes and small plugs of quartz diorite, dacite and latite are present, but a central intrusive porphyry within the ore zone on the scale of the Utah or Chino mines is lacking. The geometric form of the ore body is reminiscent of Bingham, and the relationship to multiple small intrusives may be similar to Ray.

Drilling has not yet outlined the base of the copper zone, but it may be tentatively suggested that the primary copper mineralization surrounds a low-grade core. No intrusive complex with cross-sectional dimensions similar to the dimension of the ore body has been encountered below the ore body, but one may be inferred to exist below the depth presently exposed by drilling.

General Model of a Porphyry Copper Deposit

By assembling these diagrammatic sketches we may prepare a hypothetical model of a metal-bearing intrusive complex (Fig. 7). The general relationship shown, based largely on the known relationship at the Utah copper mine, is an inverted cup of mineralization spreading over a barren core generally centered on the porphyry complex, but cross-cutting all igneous porphyry and sedimentary host rocks, together with widespread mineralization in the reactive horizons (carbonate sediments, early intrusives, diabase sills, etc.) intercalated with or intruded into the quartzite series, shales, or schists in situations contacted by pregnant hydrothermal fluids. The vertical scale of this diagram is exaggerated to permit visual separation of the mineralization types. The petrology of the hypothetical intrusive complex

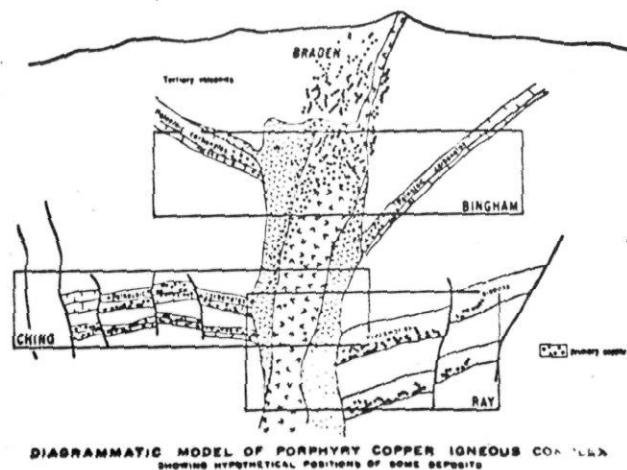


FIG. 7