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B R I N C O M I N I N G L I M I T E D

FINAL REPORT ON THE HART LAKE PROJECT

NANAIMO AND ALBERNI MINING DIVISIONS

BRITISH COLUMBIA

NTS 92 L/4, 5

BY

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ARCHEAN ENGINEERING LIMITED

NOVEMBER, 1984

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SUMMARY

In late 1984, **BRINCO MINING LIMITED** completed a geological, geochemical, geophysical, and diamond drill evaluation of the precious and base metal occurrence on the Iron Cop Showing and a geological appraisal on the surrounding Hart Lake Property.

Results of this investigation confirm the presence of gold and copper, at the Iron Cop Showing, in narrow, fissure-filling, and probably structurally controlled zones. Six of seven diamond drill holes were designed to test the downward extension of surface outcrops; this work phase indicates that the high grade samples known from surface showings do not continue at depth. The seventh drill hole, allocated to test a geochemically anomalous area, penetrated 62 metres of alternating bedded limestone and thin inter-bedded layers of highly altered basic volcanics before bottoming in weakly propylitized basalts. This hole failed to outline any significant mineralization, and it is now believed that the high geochemical response was caused by the metal fixing due to the presence of limestone outcropping in the vicinity.

Regional evaluation of the generally unexplored Hart Lake Property was also completed. This phase of the programme consisted of geologic and geochemical exploration along with general prospecting in selected areas of the property. Although several areas of intense hydrothermal activity (producing silica-epidote-chlorite alteration with minor pyrite and trace amounts of chalcopyrite) were outlined, lithogeochemical, soil geochemical, and heavy mineral concentrate sampling failed to indicate any potentially metal-rich areas. Consequently the potential for discovering a viable precious metal deposit within the Hart Lake Prospect appears low and no further work is recommended.

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1.0 INTRODUCTION

From the end of August to early October, 1984 a field crew, working out of a camp established on the Iron Cop Grid, conducted regional and follow-up exploration on the Hart Lake Property. Previous investigations on the Iron Cop Grid had: 1) outlined the presence of gold and copper in narrow, structurally controlled zones and 2) indicated significant soil geochemical anomalies from areas of little geological information. In addition, large areas of the surrounding Hart Lake Property remained unexplored.

The purpose of this programme was to evaluate the economic potential of the Iron Cop Showing and surrounding grid area and to evaluate the remainder of the unexplored portions of the Hart Lake Property.

1.1 LOCATION AND ACCESS

The Hart Lake Property is located near Brooks Peninsula on the northwest end of Vancouver Island. Port Alice, the nearest community, is located 13 km to the northeast and Port Hardy, the principal population centre for the north end of the Island, is 50 km to the north. The claims straddle the height of land between Klaskish River to the northwest and Colonial Creek to the northeast as shown on Topographic Map NTS 92L/4, 5 (Figure 1).

Terrestial coordinates for the centre of the claim block are as follows:

50° 16' North Latitude
127° 41' West Longitude

Access to the property is currently by helicopter from Port Hardy; the trip usually taking approximately 20 minutes. Logging roads from Quatsino Sound extend to within 5 km of the northwestern boundary. A logging road from the southern end of Neroutsos Inlet extends along Colonial Creek to within 2 km of the eastern boundary. Tidewater is no more than 25 km in virtually any direction.

Topography is very steep rising from 300 metres (1000 feet) along the southwestern corner to over 1060 metres (3500 feet) on Hart Mountain. Primary forest cover is red cedar, balsum fir, and western hemlock. Yellow cypress and stunted pine are the dominant species in swamp and transitional areas. Alder is the main deciduous species and is abundant in moist sites in areas of second growth and along stream courses. Immature lakes and swamps are sparse and are generally confined to the drainage divide which bissects the property in a northeast direction.

BRINCO MINING LIMITED

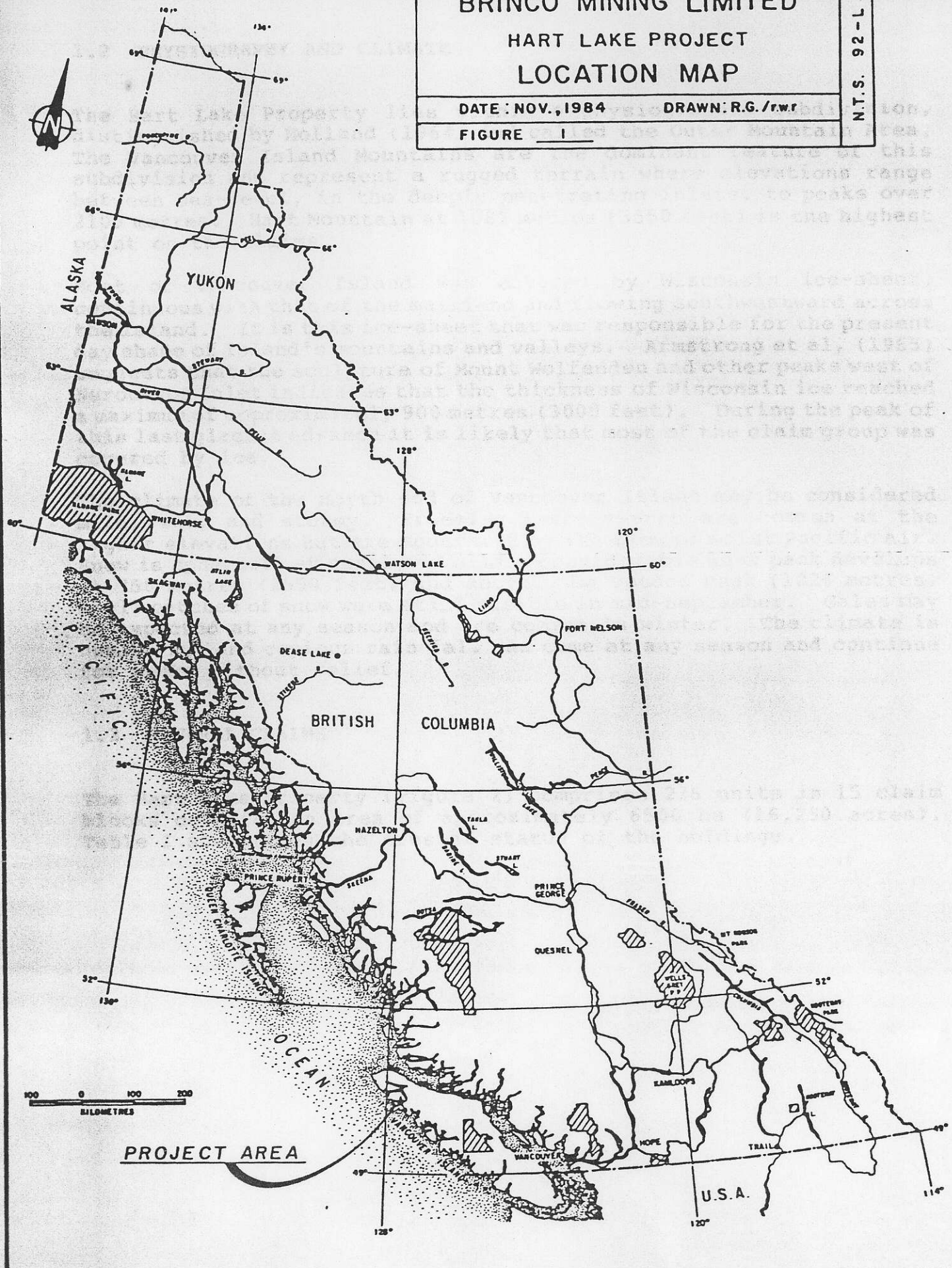
HART LAKE PROJECT

LOCATION MAP

DATE : NOV., 1984 DRAWN: R.G. / r.w.r

FIGURE 1

N.T.S. 92-L

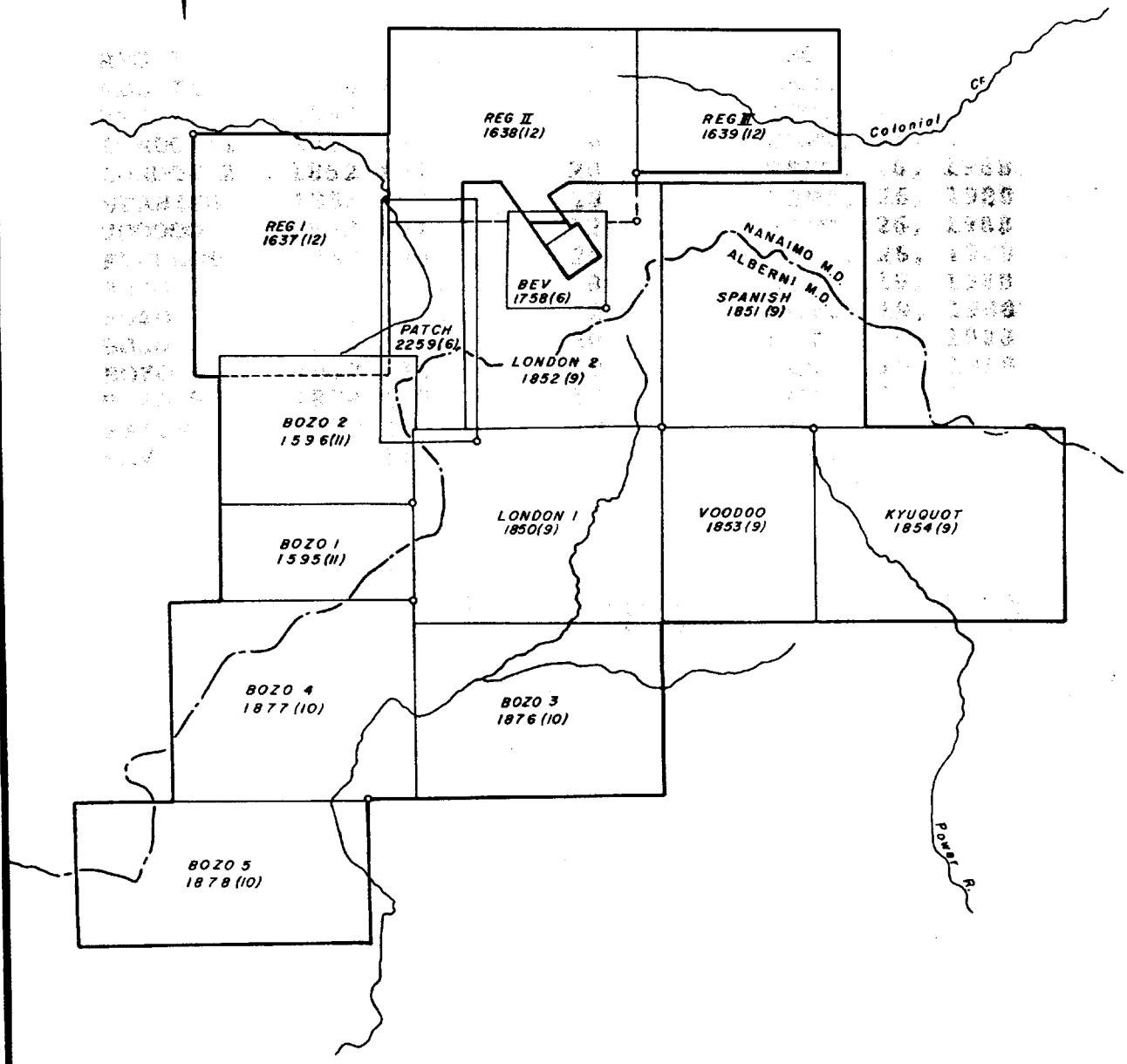


R W R MINERAL GRAPHICS LTD.

TABLE

DESCRIPTION OF 10 MINERAL CLAIMS

CLAIM		UNITS	EXPIRY DATE



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CLAIM MAP

0 1000 2000 3000 m
SCALE

DATE Nov. 1984
BY: R.A.G.

FIGURE 2

TABLE I

DESCRIPTION OF THE MINERAL CLAIMS

CLAIMS	NUMBER	UNITS	EXPIRY DATE
REG I	1637 (12)	20	DEC. 19, 1988
REG II	1638 (12)	20	DEC. 19, 1988
REG III	1639 (12)	12	DEC. 19, 1988
LONDON 1	1850 (9)	20	SEPT. 26, 1988
LONDON 2	1852 (9)	20	SEPT. 26, 1988
SPANISH	1851 (9)	20	SEPT. 26, 1988
VOODOO	1853 (9)	12	SEPT. 26, 1988
KYUQUOT	1854 (9)	20	SEPT. 26, 1988
BOZO 1	1595 (11)	8	OCT. 19, 1988
BOZO 2	1596 (11)	12	OCT. 19, 1988
BOZO 3	1876 (10)	20	OCT. 19, 1988
BOZO 4	1877 (10)	20	OCT. 19, 1988
BOZO 5	1878 (10)	18	OCT. 19, 1988
PATCH	2259 (6)	10	JUNE 13, 1988
BEV	1758 (6)	4	JUNE 13, 1988

2.0 GEOLOGY

2.1 REGIONAL AND LOCAL GEOLOGY

Most of Vancouver Island is underlain by rocks of the Insular Belt, of which the island makes up the greater portion, in the Canadian Cordillera. In recent years the lower part of the Insular Belt stratigraphy, comprising at least the Paleozoic Sicker Group and the Triassic Vancouver Group, has been recognized as part of an allochthonous terrane derived from more southern latitudes (Jones, et al 1977, Muller 1981, and Jones, et al 1982). This major allochthonous block has been named Wrangellia by Jones et al (1977). Wrangellia, the foundation of Vancouver Island, apparently docked with the North American plate during the Early Jurassic, coincident with the deposition of the volcanic Bonanza Group and contemporaneous Island Intrusions. Terrigenous sediments unconformally overlie the Bonanza Group.

The north end of Vancouver Island is underlain by rocks of the Vancouver Group, which, as defined by Dawson (1887), include: the Karmutsen Formation, the Quatsino Formation, and the Bonanza Volcanics. Bancroft (1913) and Crickmay (1928) described two additional formations, Parson Bay and Harbledown, as lying between the Quatsino Formation and the Bonanza Volcanics (TABLE II). The Vancouver Group ia intruded by rocks of Jurassic and Tertiary age and disconformably overlain by Cretaceous and younger sedimentary rocks. The region is further characterized by large-scale block faulting with thousands of metres of displacement. These are often offset by younger strike-slip faults with displacements on the order of 1000 metres.

The Hart Lake Property, as shown on G.S.C. Map 1522A, is underlain by a rather monotonous sequence of dark green basalts belonging to the Triassic Karmutsen Formation; this formation trends northwesterly through the claims and is bounded on the northwest by a northeast trending block fault. The overlying sediments of the Parson Bay Formation forms a narrow band on either side of the Karmutsen Formation suggesting an antiform through the region. Exposed along the eastern and western margins and through the northern half of the property are andesites, rhyodacites, and flow breccias of the Jurassic Bonanza Group. Intruding the sequence and exposed as small plugs on the west, north, and east sides of the claims are post-Bonanza quartz diorite and microdiorite. These plugs are part of the Island Intrusives representing a belt of intermediate intrusives, some hundred of square kilometres in size and common throughout Vancouver Island.

In the northwest corner of the property is a caldera-like feature which has a number of silicified zones along its interior subsidence

fault. These zones have been prospected extensively but no significant mineralization, other than single station geochemical anomailes, has been outlined.

A compliation of the geology for the Hart Lake Property is presented on Figure 3.

TABLE II
GENERALIZED STRATIGRAPHIC SECTION ACROSS THE NORTH END OF VANCOUVER ISLAND
(modified from Muller, et.al (1973)

PERIOD	STAGE	GROUP OR FORMATION	THICKNESS (METRES)	LITHOLOGY
CRETACEOUS AND YOUNGER SEDIMENTS AND INTRUSIVES				
UNCONFORMABLE CONTACT				
JURASSIC	MIDDLE	ISLAND INTRUSIONS		QUARTZDIORITE, GRANODIORITE, QUARTZ MONZONITE, QUARTZ-FELDSPAR PORPHYRY
		INTRUSIVE CONTACT		
	LOWER	VANCOUVER GROUP (GRADATIONAL CONTACTS WITHIN GROUP)		
		BONANZA VOLCANICS	300-5600	ANDESITIC TO RHYODACITIC LAVA, TUFF, AND BRECCIAS
		HARBLEDOWN FM.	500	GREYWACKE, ARGILLITE, TUFF
TRIASSIC	UPPER	PARSON BAY FM.	300-600	CALCAREOUS SILTSTONE, SHALE, GREYWACKE, CONGLOMERATE, AND BRECCIA
		QUATSINO FM.	30-750	LIMESTONE
		KARMUTSEN FM.	3000-6000	BASALTIC LAVA, PILLOW-LAVA, AND BRECCIA WITH MINOR INTERVOLCANIC LIMESTONE
		DISCONFORMABLE OR UNCONFORMABLE CONTACT		
PENN		SICKER GROUP	250	LIMESTONE, SILTSTONE
		MIGMATIC CONTACT		
		WEST COAST COMPLEX (NOT EXPOSED AT HART LAKE)		QUARTZ DIORITE, AGMATITE, AMPHIBOLITE, GNEISS

2.2 METALLOGENIC SETTING

Metalliferous deposits at the north end of Vancouver Island are divided into five groups. This is a modification from the original classification used by Carson (1968) and include:

1) Porphyry Copper Deposits
2) Skarn Deposits
3) Copper Mineralization in Volcanic Rocks
4) Vein Deposits
5) Gold Quartz Veins (Fissure-type)

Porphyry copper deposits are associated with bodies of quartz-feldspar porphyry which intrude the Bonanza Volcanics. All known porphyry copper showings are located on the north side of Rupert Inlet and lie within a zone of hydrothermally altered Bonanza Volcanics approximately two km wide and twenty-five km long.

The Island Copper Mine is the only operating porphyry copper deposit on the island and is located approximately 40 km north-northeast of the Hart Lake Property. Mineralization is associated with a quartz-feldspar porphyry which intrudes the Bonanza pyroclastic volcanic sequence. Emplacement and crystalization of the porphyry occurred in a subvolcanic environment and was accompanied by a complex history of brecciation and fracturing, metasomatism, hydrothermal alteration, and mineralization. Mineralization consists mainly of fine-grained chalcopyrite disseminated in silicified, sericitized and biotitized Bonanza rocks. Fine-grained magnetite is commonly associated with copper mineralization. Molybdenite occurs in fractures and is found throughout the mineralized zone but is particularly abundant in silicified and biotitized rocks. Production commenced late in 1971, and the mine presently has a milling rate of 40,000 tones per day. It is estimated that approximately 120 million tons of 0.52 per cent copper, 0.029 per cent molybdenum sulphide, and 0.25 g gold remain.

Skarn deposits of copper, iron and lead-zinc are associated with intrusive rocks cutting limestones of the upper Karmutsen Formation, the Quatsino Formations and the lower carbonate sequence of the Parson Bay Formation. Skarns mostly occur along the limestone-intrusion contact, but at some skarn showings intrusive rocks are not exposed. Contact alteration consists of silicification of the limestone and formation of epidote-andradite-magnetite skarns locally accompanied by hedenbergite and ilvaite. Chalcopyrite, pyrite, bornite, sphalerite, and galena occur within these skarns.

The deposits at Benson Lake (1957-70), approximately 30 km east-northeast of the Hart Lake Property, were the only significant example of Cu-Fe skarn at the north end of the island. These deposits include

the Merry Widow, Kingfisher, and Old Sport; the Merry Widow and Kingfisher were mined for iron in magnetite while the Old Sport produced copper and iron. The orebodies at the Old Sport Mine occur at the contact between Quatsino Limestone and the underlying basic volcanics of the Karmutsen Formation. This contact is marked by a dark volcanic rock previously termed the "included diorite". The formations strike west-northwest and dip 30 to 35 degrees westward toward a diorite-gabbro stock, the Coast Copper Stock. It is believed that the intrusion of this stock 1) fractured the Karmutsen volcanics; 2) was responsible for the development of calc-silicate (skarn) minerals in both the overlying limestone and the underlying volcanics; and 3) emplaced the sulphides within the fractured volcanics. The metallic minerals are magnetite, which is contemporaneous with the skarn, chalcopyrite, bornite, pyrrhotite, and pyrite. Gangue minerals includes garnet, epidote, and calcite.

Copper showings in volcanic rocks are restricted to the Karmutsen Formation. Chalcopyrite, bornite, and native copper occur in amygdules, fractures, and small shears. Associated alteration consists of minor amounts of carbonate and quartz. Although there are a great number of copper bearing veins on the island none have so far proven to be of great economic importance.

Vein deposits occur in the Karmutsen Formation, the Bonanza Volcanics, and granitic rocks. Chalcocite and chalcopyrite with pyrite, pyrrhotite, and molybdenite occur in shear zones, large fractures and fracture zones near faults. Intense silicification and carbonatization can be associated with the copper mineralization.

The gold-quartz vein or fissure type of deposit are best represented on Vancouver Island by the deposits near Zeballos. The gold-quartz veins consist of quartz-sulphide filling in well defined fracture systems rarely greater than 30 cm in width although some sheeted zones are known to exceed 1 metre. Generally the veins, although narrow, have fairly uniform attitudes for considerable distances. Sulphides consist of pyrite, sphalerite, arsenopyrite, chalcopyrite, galena, pyrrhotite, and minor marcasite. Gangue minerals include quartz, sericite, chlorite, and calcite in a host rock of either granodiorite or quartz diorite.

The Hart Lake Property appears to be a combination of a copper showing in volcanic rocks and a vein deposit.

3.0 IRON COP GRID

3.1 SOUTHWEST GRID EXTENSION

Previous work outlined a gold geochemical anomaly in the southwest corner of the Iron Cop Grid. During the present survey a grid extension of 200 X 400 metres was established by extending the baseline, line 5000 N from 4650 E to 4450 E on a bearing of 130°. Crosslines perpendicular to the baseline were established from 5000 N to 4600 N. Crosslines were established at 50 metre intervals using chain and compass methods. Stations along each line were flagged and marked at 25 metre intervals. The area contained considerable cliffs, and because of the rugged terrain some lines were shorter than others. A total of 1.7 line km of grid extension were surveyed and 89 soil samples collected. Figure 4 shows the location of the Iron Cop Grid, and the location of diamond drill holes within the grid.

3.2 GEOLOGY

Detailed geologic mapping was carried out over the grid extension and the data added to the existing geologic maps. The location of outcrops, structure, and mineralization found during mapping are plotted on Figure 5.

The area is underlain predominantly by fresh to slightly propylitically altered fine-grained basalt. A one metre wide tuffaceous unit was noted and is useful in identifying the layering and the structural position of the enclosing basalts. This unit is exposed for over 100 metres in a stream bed and strikes 60° and dips 90°.

Disseminated pyrite, in trace amounts, could be seen in nearly every outcrop. Chalcopyrite and pyrrhotite were found in a few locations, however, no significant concentrations of sulphides were observed during the mapping. Gold, although present in surface showings and in small amounts in the drill core, has never been seen in its native state.

3.3 GEOCHEMISTRY

The grid extension is situated in a steep, heavily forested area in which the soil horizons are poorly to moderately developed. The

steep slopes generally consist of outcrops with talus and slide rock filling the intervening spaces. Among the talus and slide rock minimal B-horizon soil is present. Because of the steep hill sides, numerous intermittent stream-channels funnel runoff which has resulted in a wide spread distribution of material downslope. This dispersed and reworked material shows improved soil development but can complicate the interpretation of geochemcial data.

Soil samples were collected at each station along the established grid extension. Samples were collected, whenever possible, from the B soil horizon. Because of the poor soil development, it was often impossible to distinguish, with confidence, the desired horizon; in these situations talus fines and organic material represented the general sampling medium. Samples were collected using either a shovel of prospector's mattock and placed in Kraft wet-strength paper envelopes. After air drying for several days the samples were boxed and shipped to Chemex Labs. Ltd. in North Vancouver, B.C. A total of 118 samples were collected for analysis from both the original Iron Cop Grid and the grid extension.

At Chemex Labs. Ltd. the samples were analyzed for Ag, As, Au, Co, and Cu. After oven drying overnight the samples were sieved to -80 mesh. Cobalt, copper, and silver were analyzed by standard atomic absorption techniques after a 0.5 gm sample of the -80 mesh fraction was digested for four hours in a hot acid mixture consisting of concentrated nitric and perchloric acid.

Arsenic at detection levels less than 100 ppm was analyzed by the Hydride Generation Method after acid digestion similar to that used for copper, cobalt, and silver. Any samples greater than 100 ppm were re-analyzed by the EDL (Electrodless Discharge Lamp) technique.

Gold determination was by Fire Assay Pre-concentration and Atomic Absorption analysis. This technique requires a 10 gm sample of the -80 mesh fraction which is added to a fusion flux and fused at a temperature in excess of 1037.8° C (1900°) for approximately 1 hour. The resulting dore bead is digested in hot concentrated HNO_3 or Aqua-regia and analyzed using an atomic absorption spectrophotometer.

Results for the soil samples were tabulated for each element and are summarized in Appendix A. Because of the limited number of samples, soil geochemical data were not treated statistically in order to determine background and anomalous values. The geostatistics used by Epp (1984) on the original Iron Cop Grid and Hall (1984) in his regional exploration are probably valid on this grid extension. Table III is a summary the new data compared to the threshold's determined by the previous authors.

TABLE III

COMPARISON OF SOIL SAMPLE DATA

ELEMENT	RANGE	THRESHOLD		PERCENTAGE OF POPULATION	
		(EPP)	(HALL)	(EPP)	(HALL)
Ag (ppm)	0.1-0.3	0.5	4.5	0	0
As (ppm)	2-400	133	55	18	36
Au (ppb)	<5-140	>10	10	26	36
Co (ppm)	1-56	29	70	10	0
Cu (ppm)	5-145	168	90	0	14

The results of the this soil sampling programme are combined with previous work and shown on Figures 6 through 10. All geochemical results are generally disappointing. The area was not anomalous with respect to copper and silver; and only weakly anomalous with respect to arsenic, cobalt, and gold. The grid extension appears to contain areas of weakly anomalous gold and cobalt; however, it appears that the threshold values, as determined by Epp (1984) and Hall (1984), for gold and cobalt, are low. Furthermore, all samples with gold values greater than 20 ppb failed to have corresponding anomalous values in any of the other elements.

A detailed soil and rock chip sampling programme was conducted over the gold anomaly outlined in the original Iron Cop Grid. Three parallel lines were established and samples collected at 5 metre intervals along the lines. Scattered anomalous values in both copper and gold were detected; however, two diamond drill holes failed to outline any significant mineralization.

3.4 GEOPHYSICS

3.4.1 MAGNETOMETER SURVEY

A Geometrics' Portable Proton Magnetometer (model G-816) was used to survey the "total field" along the established grid lines. To insure continuity with the previous magnetometer survey (i.e. to compare readings obtained from different instruments), several of the original Iron Cop Grid lines were re-surveyed. The comparison of the

original recorded values with our recordings indicate that the difference due to instrumentation is negligible. In addition, several lines perpendicular to the grid were surveyed to insure that any structural features outlined by the previous survey were covered.

A base station magnetometer was also incorporated into this survey for the purpose of measuring the diurnal drift. Corrected data is plotted on Figure 11. The interpretation of the data indicated a strong east-west structural trend which is a reflection of the overall regional pattern. It appears that this trend is also parallel to the mineralization found within the grid. Two regional NE trending faults which cross the Iron Cop Grid are represented by a distinct magnetic low. This low corresponds to the surface trace on the faults which indicates that the fault planes are nearly verticle.

3.5 DIAMOND DRILLING

A drilling programme consisting of 7 "BQ" wire line size holes (core size 3.637 cm) totalling 505.07 metres (1657 feet) was contracted to Drilcor of Vancouver. When holes were abandoned, the casing was pulled, and the collar was marked with a pole bearing the drill hole number. Interesting sections containing sulphides were split and sent to Chemex Labs in Vancouver for geochemical analysis. Except for short representative sections, which were sent to the Vancouver office, all drill core was stored on the property at the camp site. A summary of drilling information is presented in Table IV, assay data for each hole is presented in Appendix A, and detailed drill logs are given in Appendix D.

TABLE IV

SUMMARY OF DIAMOND DRILLING

HOLE NO.	LOCATION GRID CO-ORDINANTS	ELEVATION (METRES)	AZIMUTH	DIP	LENGTH (METRES)
IC 84-1	5089E/4963N	631	65°	-45°	68.88
IC 84-2	5089E/4963N	631	50°	-45°	41.45
IC 84-3	5089E/4963N	631	50°	-75°	34.13
IC 84-4	4955E/4921N	619	65°	-45°	105.16
IC 84-5	4876E/4875N	649	10°	-60°	106.98
IC 84-6	5250E/4888N	724	0°	-90°	102.13
IC 84-7	4831E/4917N	633	180°	-45°	46.34

3.5.1 DRILL HOLE GEOLOGY

IC 84-1 TO IC 84-3 (Figure 12)

These three drill holes were designed to test the downdip extension of the massive sulphide mineralization found in Trench No. 1. Previous chip sampling in this trench returned assay values as high as 12.2% Cu, 0.128 oz/t Au, and 1.27 oz/t Ag over a width of 2.5 metres.

Core from these holes consisted predominantly of propylitized andesite containing minor sulphides. The projected downdip extension of mineralization in Trench No. 1 was intersected in IC 84-1 at approximately 17 metres. This intersection consisted of 1.94 meters averaging 0.51 per cent Cu and 0.14 g/tonne Au. This same projected intersection was present in IC 84-2 at 16.04 metres and continued to 18.54 metres; it contained a weighted average of 0.435 g/tonne Au, 2.16 g/tonne Ag, and over 1 per cent copper. The intersection in both holes was considerably less than that observed on surface.

The best intersection was in hole IC 84-1 at 9.42 meters and consisted of a one metre quartz-carbonate section containing massive sulphides; this mineralized section is sandwiched between an upper zone of weakly propylitized and silicified andesite and a lower zone of andesitic basalt with minor chlorite and epidote alteration. The intersection

assayed 2.35 g/tonne (0.068 Oz/ton) Au and over one per cent copper.

Hole IC 84-3 was collared in the same plane as IC 84-2 and was designed to intersect the mineralized zone at depth; however, only trace amounts of sulphides were encountered. It appears than the sulphides seen on surface pinch out rapidly along strike and have no continuity at depth.

IC 84-4 (Figure 13)

IC 84-4 was drilled to test the down dip extension of a mineralized zone exposed in trench No. 3. Previous chip sampling by Brinco returned values of 4.15 % Cu, 0.105 oz/ton Au, and 0.508 oz/ton Ag over a width of 1.05 metres. This hole was proposed to reach an ultimate depth of 100 metres and the mineralized intersection was estimated at approximately 54 metres. The zone was penetrated at 61.04 metres, and although the mineralization continued for nearly 14 metres it was spotty and discontinuous. Mineralization consisted of 1-2 per cent chalcopyrite and up to 5 per cent pyrite over narrow widths; the balance of the core consisted of wisps and blebs of pyrite and chalcopyrite. The best intersection was 0.57 metres (75.10 te 75.67 m) of 14 g/tonne Ag, 2.55 g/tonne Au, and over 1.0 per cent Cu.

IC 84-5 AND IC 84-7 (Figure 14)

IC 84-5 and IC 84-7 were collared to test the downward extension of a small surfaee showing. A grab sample from this showing contained 2.88 per cent Cu and 95.45 g/tonne (2.758 oz/ton) Au. No significant mineralization was encountered in either hole. In IC 84-5 the best intersection was 0.84 metres (15.64 to 16.48) of greater than one per cent Cu and 0.94 g/tonne Au (re-analysis by fire assay 0.47 oz/t Ag, 0.026 oz/t Au, and 4.58 % Cu). In IC 84-7 the best intersection was a 0.46 metre wide section which assayed 0.84 per cent Cu and 0.135 g/tonne Au.

IC 84-6 (Figure 15)

Hole IC 84-6 was drilled to test a significant soil geochemical anomaly high in Au, As, Co, Cu, and Hg. This hole was drilled vertically to a depth of 102.13 metres. The first 62 metres represented an inter-volcanic sedimentary sequence of limestone with minor layers of basic volcanics. The high metal values in soils is probably due to the low hydrogen ion potential (low pH) caused by the presence of limestone.

This drill programme has tested the down dip extension of all significant mineralized showing on the Hart Lake Property. The results of the programme have exhausted all of the known targets. Because the known showings appear to lie along a roughly east-west structure, exploration was carried out to explore for other showings along this trend. This work was unsuccessful in locating additional mineralization of significance.

4.0 REGIONAL EXPLORATION

Hall (1984) summarized the regional geological and geochemical reconnaissance of the Hart Lake Property. This work along with a smaller programme earlier in the year covered most of the accessable portions of the property. Figure 16 is a summary of all exploration and prespecting traverses on the Hart Lake Property. The mandate for the final phase of exploration on the Hart Lake Property was to complete as much fill-in prospecting as possible from the base camp located at the Iron Cop Grid.

In total 101 soil, silt, rock chip, and heavy mineral concentrate samples were collected for analysis. The soil samples totalled 53, silt samples 5, rock chip samples 28, and heavy mineral concentrate samples 5. One new showing was discovered and several anomalous drainages, outlined by previous surveys, were examined in detail.

A small grid was established on the newly discovered showing and several soil and rock samples were collected. The area is underlain by silicified basic volcanics. Detailed sampling indicated that the silicified zone was one of several in the area and is a small, roughly circular, feature similar to a volcanic feeder intruded within or near a large circular linear which appears to represent a caldera graben fault or a ring fracture. Several of the other silicified zones were identified and sampled by Hall (1984), and although geologically interesting, they contain no appreciable metal content. Metal values were erratic with only a few slightly above background; the best sample returned a value of 5.3 ppm Ag, 210 ppb Au, and 3300 ppm As.

The regional reconnaissance programme did not locate any new areas which warrant any further deteiled examinations.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The results of the geological survey have defined the limits of the structural trend which appears to be favourable for hosting mineralization on the Hart Lake Property. Detail geochemical sampling suggests that the original gold anomaly is a dispersion featurs. It is probable that the gold originated in or near the known showing and has been dispersed and concentrated down slope by water action and solifluction.

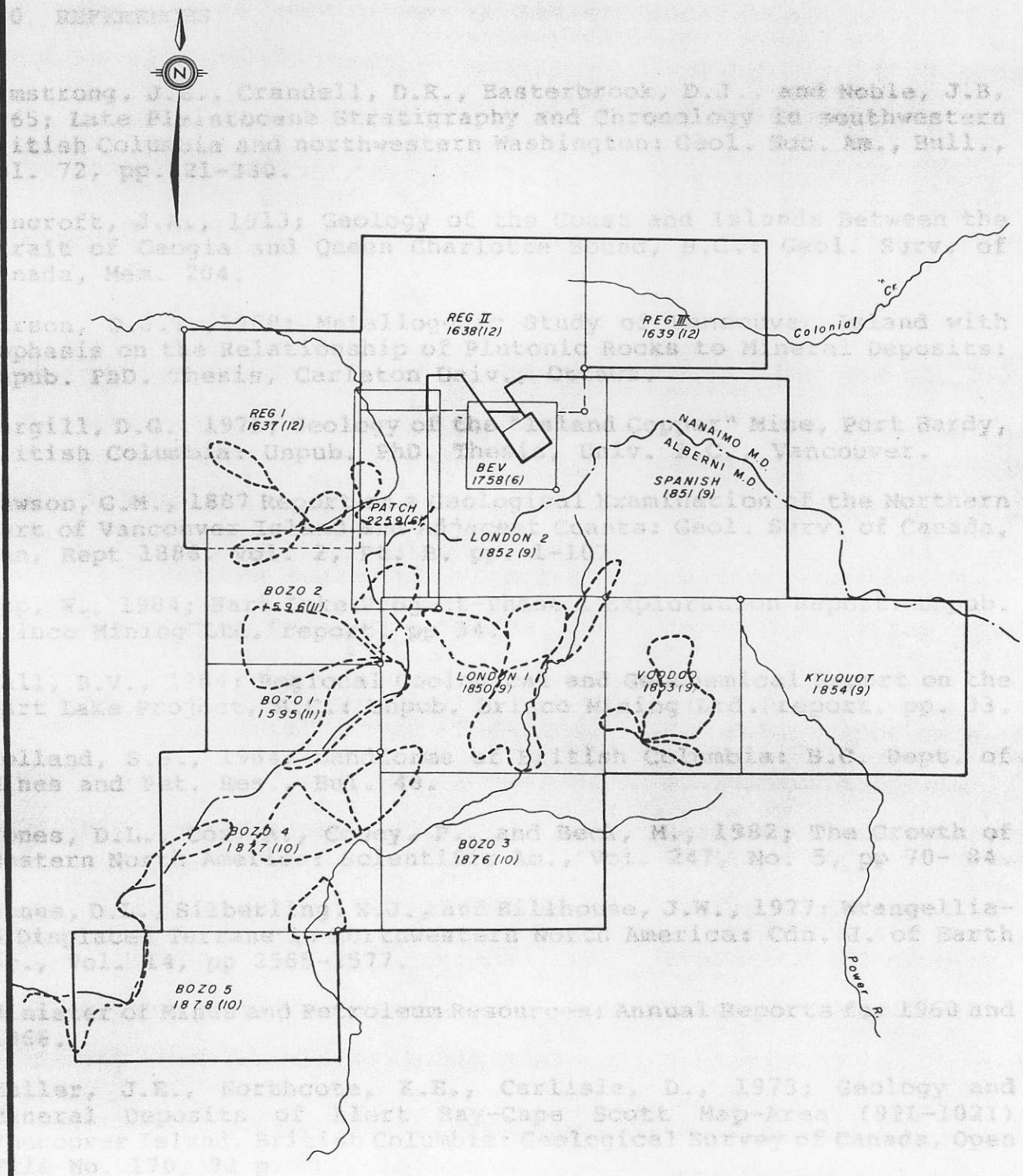
Diamond drilling of all significant showing along the favourable structural trend failed to intersect on economic mineralization. It appears that surface mineralization is fracture controlled and does not continue to depth.

The present reconnaissance prospecting and geochemical successfully outlined a new, weakly mineralized, alteration zone. However, detailed sampling indicates that the area is of limited size, and metal values are not significantly encouraging to warrant additional work.

In view of these results it is recommended that no further work be undertaked on this property.

Respectfully submitted,

R.A. Gonzalez, M.Sc. F.G.A.C., P.Eng.
Archean Engineering Ltd.



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HART LAKE PROJECT - B.C.

EXPLORATION AND PROSPECTING TRAVERSES

0 1000 2000 3000 m
SCALE

DATE Nov. 1984
BY: R.A.G.

FIGURE 16