84-#96 - 12015

GEOCHEMICAL ASSESSMENT REPORT

02-85

on the

WOLF CLAIM

located in the

NANAIMO MINING DIVISION

N.T.S. 92F/14E

49°46'N latitude & 125°12'W longitude

owned and operated by:

Mr. Jim Watt,
(St. James Minerals Ltd.)
#1040-625 Howe Street,
Vancouver, B.C. V6C 2T6

report written by:

Peter Peto, Ph.D.,
(Consulting Exploration Geologist)
125 Bassett Street,
Penticton, B.C. V2A 5W1

2 March 1984

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INTRODUCTION

This report was written at the request of Mr. Jim Watt and is based in part upon property examinations and geochemical sampling by Rein Turna of Lac Minerals Ltd. on 21 March 1983, and C.C. Rennie of Placer Development Ltd., spring 1983. The WOLF claim is situated immediately west of Constitution Hill and is accessed via the Duncan Bay main logging road, a distance of about 19 km northwest of Courtney (figure 1). It consists of 6 units recorded 24 January 1983 under number 1296(1). The claim area is covered by a thick second growth of evergreen, on the gently sloping west flank of Mount Washington, at an elevation of about 350 metres. It covers an arsenopyrite prospect documented in MINFILE as 92F #183. A total of 6 rock samples, 2 silt samples and 9 soil samples were collected to assess the geochemical characteristics of the area near the showing. The results of this recce are presented in this report.

REGIONAL GEOLOGY

The claim is underlain by Upper Triassic greenstones of the Karmutsen formation which are unconformably overlain by late Cretaceous sediments of the Nanaimo group which have been locally intruded by early tertiary plugs and sills. According to Carsen (1960), Mount Washington is a tertiary volcanic centre which hosts copper and gold mineralization associated with much arsenic. The property occupies an east trending fault zone which emanates from Mount Washington (figure 2).

PROPERTY GEOLOGY

The property was briefly described by Hurst (1927) and Gunning (1930) and is reproduced, in whole, in appendix #3. The arsenic showing is exposed in open cuts along a creekbed along which a brecciated zone 1 to 4 metres wide, striking about N60°E and dipping steeply to the southeast is exposed for about 80 metres. The breccia zone hosts calcite replacements, clasts of andesite with disseminated arsenopyrite and isolated, lenticular pods of realgar, whereas andesitic wall rocks host occasional veinlets of arsenopyrite. The association of arsenic with gold at Mount Washington and Forbidden Plateau clearly suggests that the fault or breccia zone might carry gold values at depth or along strike. Hence a geochemical orientation recce was undertaken, the results of which are presented below.

GEOCHEMICAL RECCE

The geochemical recce program was undertaken by Placer Development Ltd. and Lac Minerals Ltd. in respense to an invitation by the writer. A sketch map of sample locations are shown in figure 3 and supporting ducomentation is provided in letters to the writer with geochemical results shown in the appencicies and tables 1 and 2. The pan concentrate collected from the stream bed collected by Placer Development, was anomalous in Cu, As and Au; as were soils, rocks and silt collected by Lac Minerals. Their interpretations are reported in their letters.

Analytical results were determined by standard methods using aqua regia extractions and I.C.P. analysis.

CONCLUSIONS

The preliminary geochemical examination clearly indicates the presence of anomalous concentrations of copper and gold associated with arsenic and that the brecciated fault zone, probably a fissure filling, is a viable exploration target for lode gold deposits. Further exploration is clearly warranted by the present data.

RECOMMENDATIONS

A program of establishing a surveyed grid to be used for rock chip and soil sampling followed-up by bulldozer trenching is recommended. The estimated cost would be as follows:

Grid preparation (11km): 4 mandays @ $300/day.....	$1200.00
Rock & soil sampling cost: 4 mandays @ $300/day.....	1200.00
Analytical costs: 400 soils @ $5/sample.....	2000.00
100 rocks @ $7/sample.....	700.00
Food & Accommodation: 8 mandays @ $50/day.....	400.00
Truck Rental: 4 mandays @ $100/day.....	400.00
Supplies.....	200.00
Report preparation.....	1000.00
Trenching: 10 hours @ $125/hour.....	1250.00
TOTAL COST	$8350.00

ESTIMATED ASSESSMENT WORK COSTS (1983)

Travel (Vancouver to Courtney return)	$ 200.00
Wages (2 mandays @ $200/day)	400.00
Analytical costs (16 I.C.P. geochemical samples @ $8.75 each)	140.00
Heavy Mineral separation and analysis	150.00
TOTAL FIELD COSTS	890.00
Add report preparation	500.00
TOTAL	$1390.00

Respectfully submitted,

Peter Peto

Peter Peto, Ph.D., F.G.S.C.

REFERENCES CITED

Carson, J.T. (1969) Tertiary mineral deposits of Vancouver Island, C.I.M. Transactions, V.72, p.116-125.

_____ (1960), Geology of Mount Washington, Vancouver Island, unpublished M.Sc. thesis, U.B.C., 116p.

Gunning, H.C. (1931), Buttle Lake Map area, Vancouver Island, B.C., G.S.C. Sum. Rpt. 1930 Pt.A. p56-78.

Hurst, M.E. (1927) Arsenic bearing deposits in Canada, G.S.C. Econ. Geol. Series #4, p.36-38.

AUTHOR'S QUALIFICATIONS

I, Peter Peto of 125 Bassett Street, City of Pentiction, B.C. V2A 5W1, do hereby certify:

That I am a consulting geologist with the above business address.

That I am a graduate of the University of Alberta where I obtained my B.Sc. degree in Geology in 1968 and my M.Sc. degree in Geology in 1970 and that I am a graduate of the University of Manchester where I obtained my doctoral degree in 1975.

That I have practiced my profession actively since 1975.

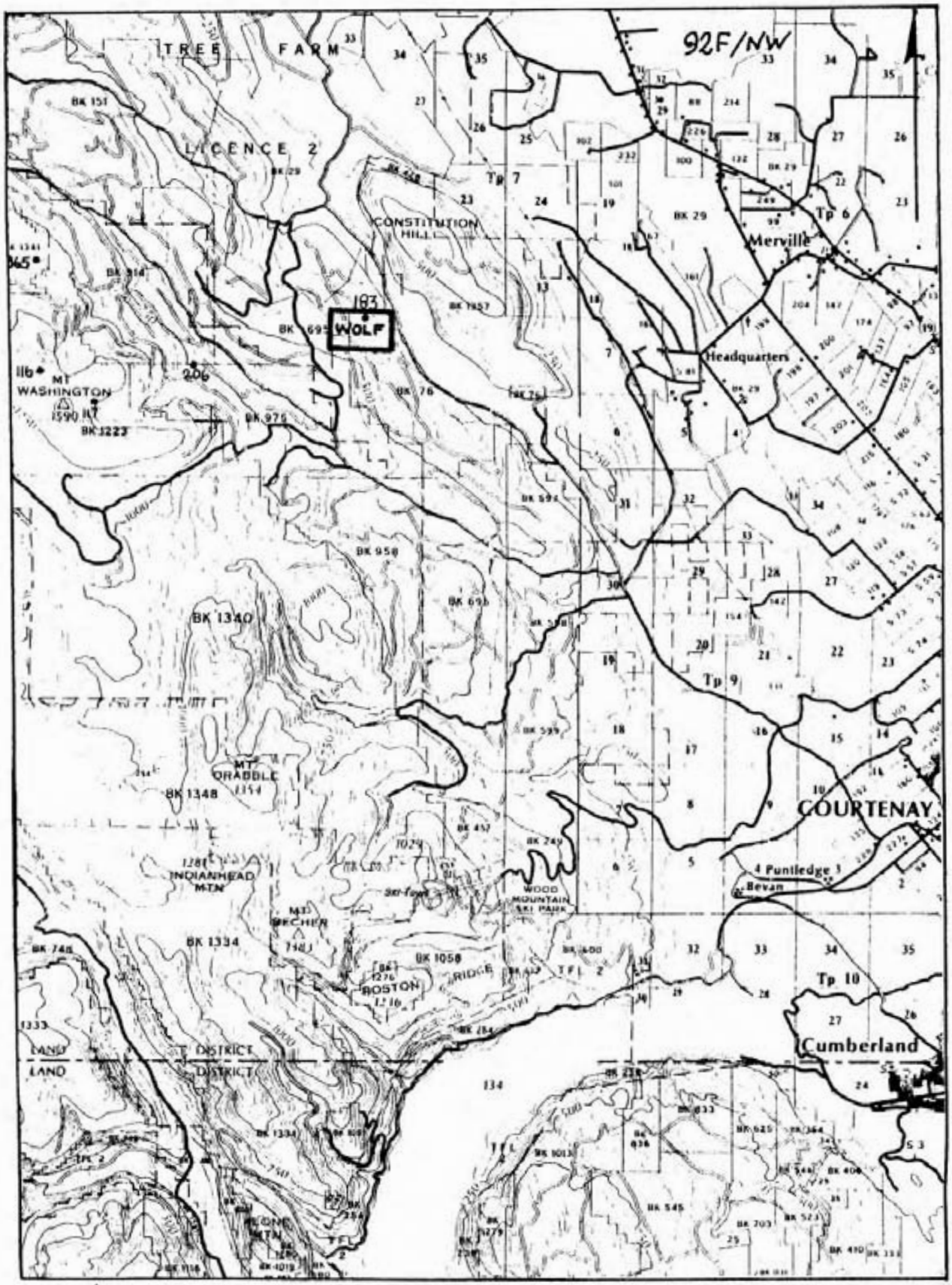
That I am a fellow of the Geological Association of Canada.

That the information contained in this report was obtained from sources who have undertaken field investigations at my request.

Dated this 4th of March, 1984 at Penticton, B.C.

Peter Peto

Peter Peto, Ph.D., F.G.S.C.



Scale: 1:125,000

0 1 2 km

FIGURE 1

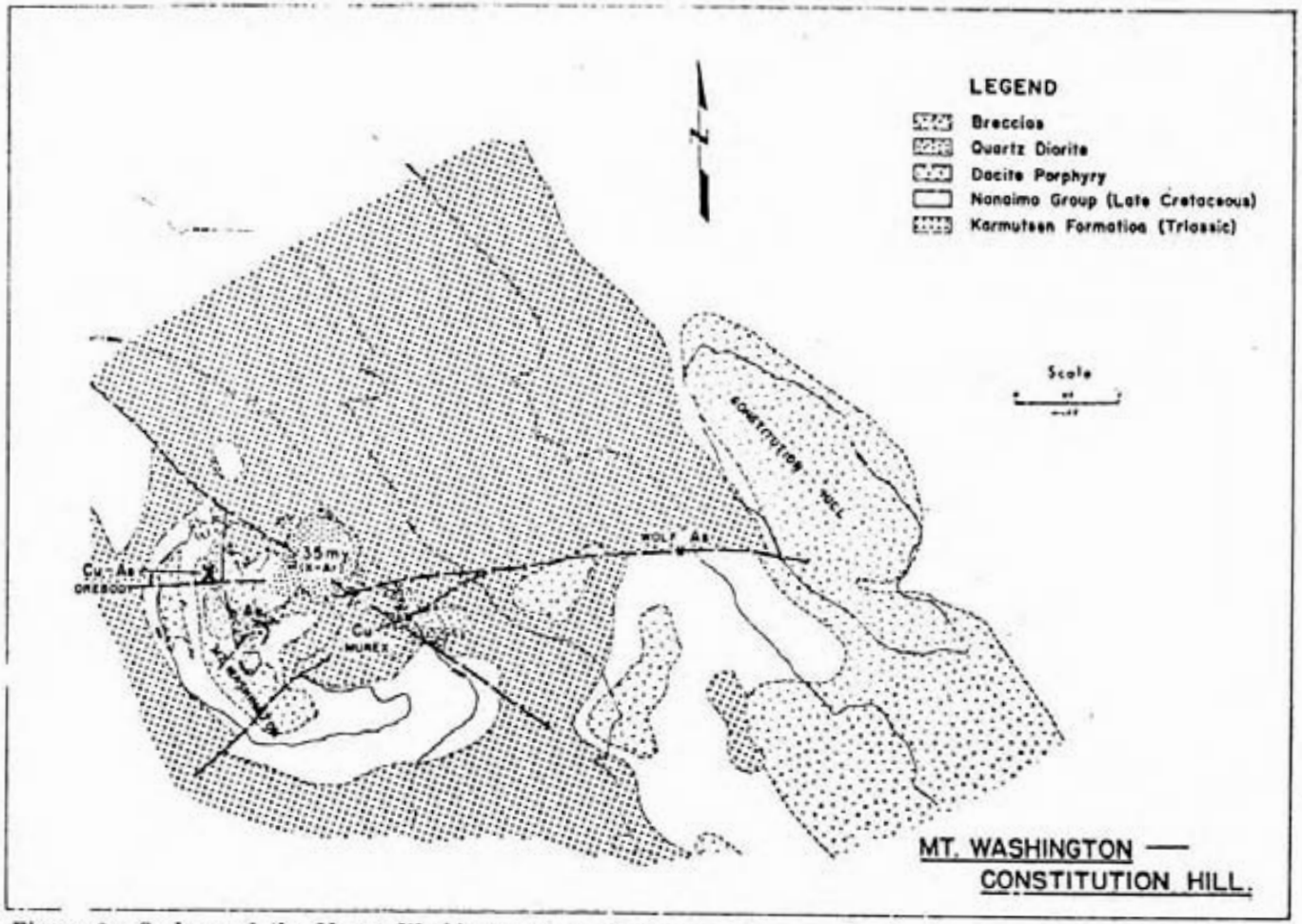


Figure 2.—Geology of the Mount Washington Area. Geology by D. J. T. Carson, 1965. Includes previous work by Carson (1960) and de Voogd (1964).

FIGURE 2

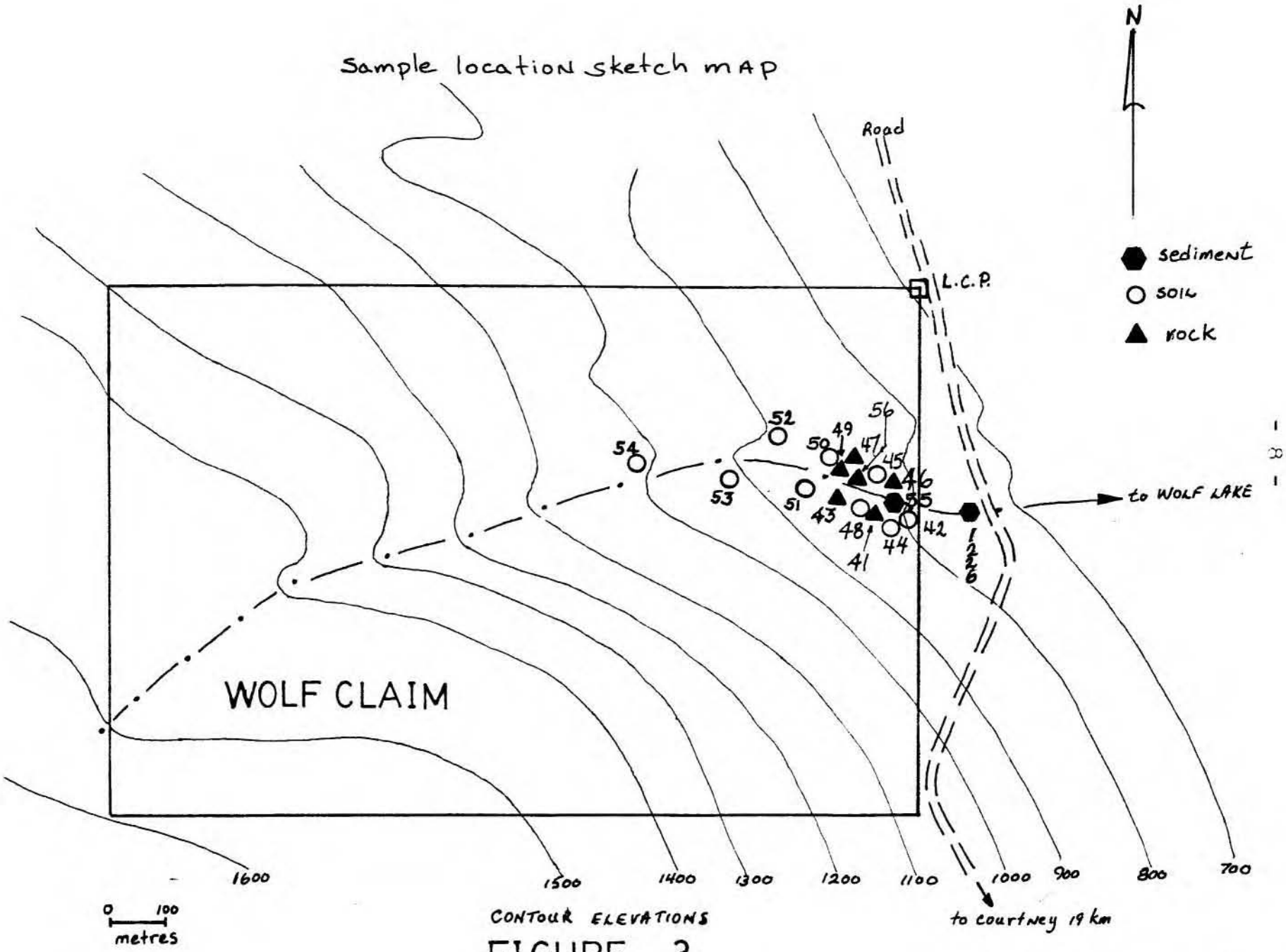


FIGURE 3

P. Peto

TABLE NO. 1

GEOCHEMICAL RESULTS ON MINERALS CLAIMS

WOLF CLAIM

SAMPLE #	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti ppm	B ppm	AL ppm	Na %	K %	W ppm	Au ppb
ROCKS																														
83T41	3	1322	6	47	1.2	98	111	363	10.44	13	2	2	12	1	17	2	153	.39	.05	2	90	.93	6	.09	2	2.61	.18	.01	2	190
83T43	1	405	8	255	.3	70	67	763	12.25	23	2	2	6	1	2	4	181	.42	.20	3	77	.81	29	.02	2	3.92	.14	.07	2	10
83T46	5	298	4	7	.2	21	6	126	2.77	21	2	2	6	1	2	2	23	.03	.01	4	15	.45	152	.01	4	1.51	.09	.45	2	10
83T47	1	186	8	48	.8	18	12	543	3.20	10	2	2	10	1	2	3	67	.43	.05	6	33	1.34	36	.01	7	2.16	.08	.13	2	5
83T49	1	32	11	155	.3	195	141	1102	13.14	26	2	2	8	1	4	6	189	.18	.05	13	196	.71	23	.01	2	5.91	.07	.11	2	25
83T50	9	9	3	6	.1	8	5	154	.66	4	2	2	3	1	2	2	8	1.50	.01	2	7	.06	7	.01	4	.25	.02	.03	2	5
WOLF CLAIM																														
STREAM SILTS																														
83T55	1	150	5	62	.3	28	21	746	5.13	100	2	2	19	1	2	8	162	1.31	.05	3	38	.89	48	.40	6	2.09	.04	.07	2	15
SOILS																														
83T42	1	99	1	51	.1	31	16	570	4.68	17	2	2	30	2	2	6	143	1.78	.05	4	45	1.33	40	.45	7	2.53	.06	.06	2	5
83T44	3	222	18	88	.4	52	60	1570	6.67	443	2	2	15	2	10	6	132	.62	.06	4	63	.83	98	.23	5	2.99	.03	.07	2	10
83T45	4	299	16	67	.4	46	30	737	6.50	251	2	2	18	1	6	6	129	.62	.08	3	75	1.04	58	.16	4	2.68	.08	.11	2	5
83T48	3	272	15	39	1.3	21	26	760	3.92	259	2	2	13	1	2	7	69	.53	.05	2	33	.51	49	.14	4	1.56	.04	.10	2	45
83T50	1	65	16	49	.1	23	10	292	4.62	36	2	2	9	1	2	6	145	.67	.04	2	51	.49	50	.44	3	2.74	.01	.03	2	5
83T51	1	110	5	73	.2	35	17	274	5.14	31	2	2	9	2	2	6	149	.70	.04	2	62	.79	37	.49	3	4.00	.01	.03	2	5
83T52	1	13	59	34	.2	6	1	158	1.22	15	2	2	14	1	3	3	51	.32	.03	2	12	.07	66	.13	2	.39	.01	.04	2	5
83T53	1	83	8	55	.3	32	15	421	7.05	32	2	2	14	2	2	7	235	.74	.03	2	86	.74	78	.69	3	3.74	.02	.06	2	5
83T54	1	86	8	61	.2	28	15	522	5.89	37	2	2	12	2	2	6	186	.77	.07	3	67	.72	50	.53	5	3.60	.01	.04	2	5

TABLE #2.

PLACER DEVELOPMENT LTD (RESEARCH CENTR

GEOCHEMICAL DATA LISTING: GENERAL EXPLORATION

PDL lab data file: P3025-1
AREA: GENERAL EXPL. B.C.
MAPSHEET NO: *
VENTURE: *
GEOLOGIST: C. RENNIE
LAB PROJECT NO: 3025

REMARKS: HEAVY MINERALS PROCESSED BY C.F. MINERALS
AU RESULTS ARE FROM NUCLEAR ACTIVATION SERVICES
PLEASE DISTRIBUTE RESULTS TO: C. RENNIE I. THOMSON S. TENNANT
R SHKLANKA B. HODGSON

STANDARD ANALYSIS METHODS USED BY PDL GEOCHEM LAB ARE LISTED BELOW.
ALL RESULTS EXPRESSED AS INDICATED IN UNITS COLUMN BELOW
ANY EXCEPTIONS FOR THIS PROJECT ARE NOTED ABOVE

REMARKS: INTERNAL LAB STANDARDS HAVE BEEN INCLUDED FOR REFERENCE.
SAMPLE NUMBERS FOLLOWED BY * ARE DUPLICATE ANALYSES.

	UNITS	WT.G	ATTACK USED	TIME	RANGE	METHOD
MO	PPM	0.5	C HCLO4/HNO3	4HRS	1-1000	ATOMIC ABSORPTION
CU	PPM	0.5	C HCLO4/HNO3	4HRS	2-4000	ATOMIC ABSORPTION
ZN	PPM	0.5	C HCLO4/HNO3	4HRS	2-3000	ATOMIC ABSORPTION
PB	PPM	0.5	C HCLO4/HNO3	4HRS	2-3000	A.A. BACKGROUND COR.
CD	PPM	0.5	C HCLO4/HNO3	4HRS	0.2-200	A.A. BACKGROUND COR.
NI	PPM	0.5	C HCLO4/HNO3	4HRS	2-2000	ATOMIC ABSORPTION
CO	PPM	0.5	C HCLO4/HNO3	4HRS	2-2000	ATOMIC ABSORPTION
AG1	PPM	0.5	C HCLO4/HNO3	4HRS	0.2-20	A.A. BACKGROUND COR.
AG2	PPM	0.5	C HNO3	2HRS	0.02-4.00	A.A. SOLVENT EXTRACT.
AU	PPM	10.0	AQUA REGIA	3HRS	0.02-4.00	A.A. SOLVENT EXTRACT.
U	PPM	0.25	DIL HNO3	2HRS	1.0-1000	FLOURIMETRY SOLV. EX.
V	PPM	0.5	C HF/HCLO4/HNO3/HCL	6HRS	5-1000	ATOMIC ABSORPTION
W	PPM	1.0	C HF/HNO3/HCL/H2SO4	4HRS	5-500	A.A. SOLVENT EXTRACT.
F	PPM	0.25	NA2CO3/KNO3 FUSION	30MIN	40-4000	SPECIFIC ION ELECTROD
AS	PPM	0.5	C HCLO4/HNO3	4HRS	2-1000	A.A. BACKGROUND COR.
SB	PPM	0.5	C HCLO4/HNO3	4HRS	2-1000	A.A. BACKGROUND COR.
BI	PPM	0.5	C HCLO4/HNO3	4HRS	2-2000	ATOMIC ABSORPTION
MN	PPM	0.5	C HCLO4/HNO3	4HRS	2-3000	ATOMIC ABSORPTION
FE	%	0.5	C HF/HCLO4/HNO3/HCL	6HRS	0.02-20%	ATOMIC ABSORPTION
HG	PPB	0.5	DIL HNO3	2HRS	5-2000PPB	A.A. COLD VAPOR GEN.
BA	%	0.25	C HF/HI/OXALIC	4HRS	0.02-20%	ATOMIC ABSORPTION
NA	%	0.5	C HF/HCLO4/HNO3/HCL	6HRS	0.2 -20%	ATOMIC ABSORPTION
K	%	0.5	C HF/HCLO4/HNO3/HCL	6HRS	0.2 -20%	ATOMIC ABSORPTION
CA	%	0.5	C HF/HCLO4/HNO3/HCL	6HRS	0.02-20%	ATOMIC ABSORPTION
SR	PPM	0.5	C HF/HCLO4/HNO3/HCL	6HRS	10-2000	ATOMIC ABSORPTION
MG	%	0.5	C HF/HCLO4/HNO3/HCL	6HRS	0.2-20%	ATOMIC ABSORPTION
SN	PPM	1.0	NH4I FUSION	15MIN	5-500	A.A. SOLVENT EXTRACT.
LOI	%	1.0	ASH 600 DEG C	2HRS	0.02-99%	WEIGH RESDUE

PLACER GEOCHEM ASSAY SYSTEM: DATA FROM GENERAL EXPLORATION

GRID	SAMPLE	PROJECT	CU	AU	AS
1226	CHP	3025	280	<0.04	124
1226	CHN	3025	0.59%	0.66	320
1226	FHP	3025	177	<0.04	100
1226	FHN	3025	2110	22.5	220

PLACER DEVELOPMENT LIMITED

June 1st, 1983
FILE: 92F14W

Dr. Peter Peto
P. Peto Limited
Suite 8-3289 Oak Street
Vancouver, B.C.
V6H 2L4

Dear Peter,

Attached is a copy of the analysis sheet on a heavy mineral sample taken from the creek running through your claims near Wolf Lake on Vancouver Island.

This sample was processed by C.F. Minerals Ltd. in Kelowna to separate the coarse and fine heavy partially magnetic and heavy non magnetic fractions. Both non magnetic fractions were anomalous in copper and arsenic and the fine non magnetic fraction was anomalous in gold. We are still learning about this heavy sampling so we are not too sure what these anomalous results mean, other than that the stream is draining an area of anomalous bedrock or overburden.

Detailed sampling up the creek might reveal the source of these anomalous results.

Yours truly,

PLACER DEVELOPMENT LIMITED

C.C. Rennie

CCR/cs
c.c. R. Shklanka/S.J. Tennant
Ian Thomson
Attachment

1600 - 1055 Dunsmuir Street, Vancouver, B.C. (604) 682-7082 Telex 04-55181
Mailing Address: P.O. Box 49330, Bentall Postal Station, Vancouver, B.C., Canada V7X 1P1

Vancouver Office
Suite 470
1055 West Hastings St
Vancouver, B.C.
V6E 2E9
(604) 685-0531

LAC

Lac Minerals Ltd.
Exploration Division

April 19, 1983

Mr. Peter Peto
P. Peto Ltd.
Suite 8 - 3289 Oak Street
Vancouver, B.C.
V6H 2L4

Dear Peter:

During the week of March 21, I visited your Independance, Star of the West and Wolf mineral claims on Vancouver Island. A recent washout prevented me from visiting the Cruickshank claim.

Enclosed herein is my report for the three properties I visited and my recommendations to my superiors.

I couldn't recommend the properties. Only in the context of a larger exploration program on the island, which we don't have at this time, may the properties bear more detailed examination.

Though money for exploration is tight these days I personally am interested in exploring for gold on Vancouver Island and any property submissions you may have in the future are welcome.

Yours truly,

Rein Turna

Rein Turna
LAC MINERALS LTD.

RT/bg

Wolf Claim

The purpose:

The purpose of my visit to this property was to sample and see if this arsenic showing has attendant gold values. The gold potential of this arsenic showing has not yet been tested.

The visit:

A traverse was made from east to west along the creek within this property and where the arsenic showing occurs. A fair amount of outcrop exsited and consisted of andesite which was brecciated along a fault zone paralleling the creek.

soil samples were taken along the north and south side of the creek as shown on Figure No. 2. Rock samples were taken of mineralized andesite and breccia and a quartz vein in the creek bed. Geochemical results are plotted on Table No. 1. Anomalous values are circuled.

Results:

The stream was anomalous in Cu (150 ppm), As (100ppm) and Au (15ppb). Of the soils taken, most were anomalous in Cu and As. One soil was anomalous in Au (45ppb) and another in Ag (1.3ppm)

Of the rocks: 83T41 and 43 were float pieces of andesitic breccia. The former contained chalcopyrite with pyrite and 190 ppb Au. Rock 83T46 was a float piece of a silicified schistose volcanic. Rocks 83T47 and 49 were grabs from outcrop and represent average rocks at those locations. 47 was a breccia and 49 a highly fractued and pyritic andesite. 83T56 was a quartz float pice.

The geochem results show anomalous Cu and As in most of these rocks. Sample 49 had 25 ppb Au and samples 43 and 46 had 10 ppb Au. Other metals including Zn and Ag were also sporadically anomalous.

personal communication from Rein Turna

Hurst (1927) pp36-38.

1. Wolf Lake

(*See* Figure 4)

This property consists of two unsurveyed claims, the Good Hope No. 1 and No. 2, in the vicinity of a small creek flowing northeasterly into the west end of Wolf lake. The claims are reached from Headquarters camp of the Comox Logging Company, 12 miles north of Courtenay. A trail about 3 miles long leads southwesterly from Headquarters to the east end of Wolf lake. From this point a canoe trip of 2 miles is necessary to reach the west end of the lake, where a rough trail of about one-half mile has been cut to the deposit, which lies at an elevation of 850 feet, or 260 feet above the lake. The property is owned by E. Morrison and associates, of Vancouver, B.C.

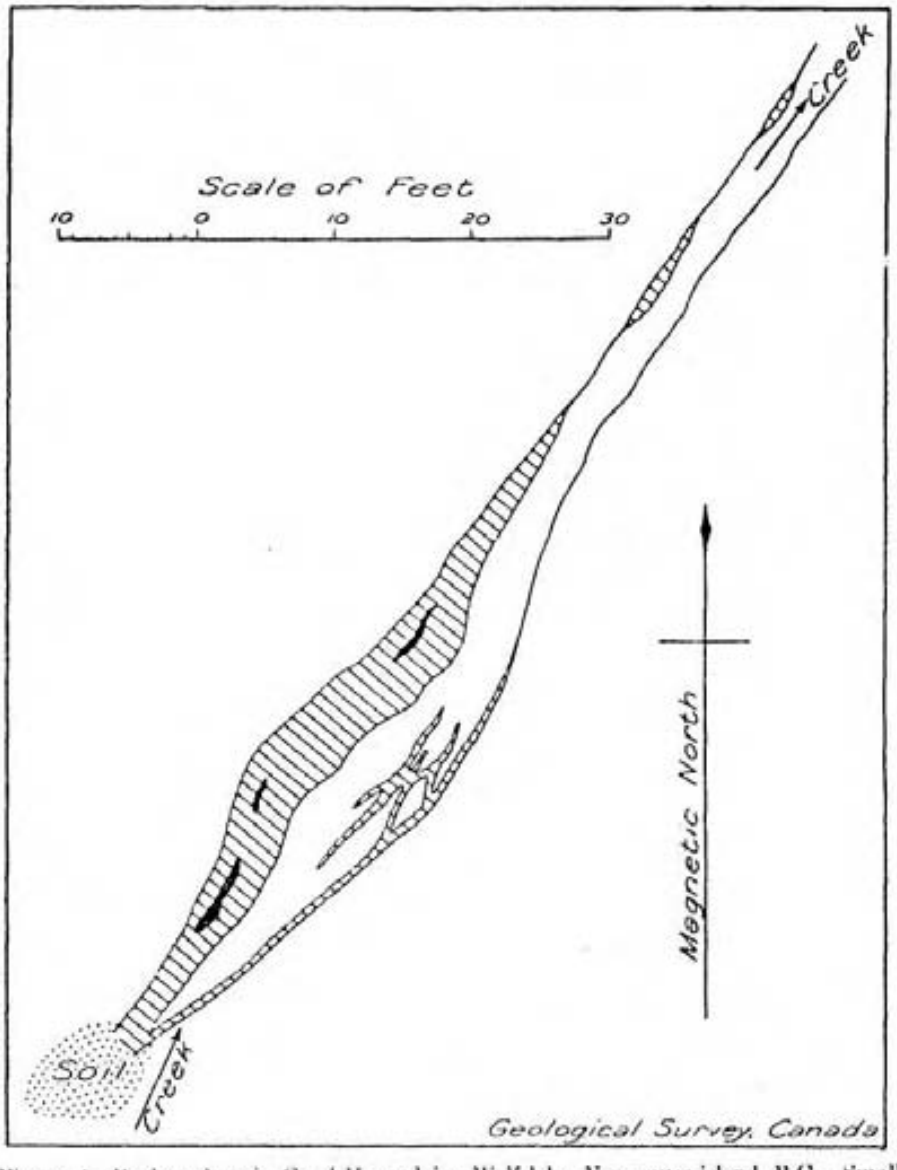


Figure 4. Realgar deposit, Good Hope claim, Wolf lake, Vancouver island, B.C. Small bodies (black) and particles of realgar lie in lenses and veins of calcite (diagonal ruling) within a zone of brecciated andesite.

The showings occur in a creek bed which, at the time of inspection (August, 1924) was almost dry. For about 250 feet the creek follows, and has exposed, a brecciated zone in andesitic rocks. This brecciated zone varies from 2 to 12 feet in width, strikes north 35 degrees east (magnetic), and appears to dip steeply to the southeast. It contains lenses and veins of calcite, some as much as 6 feet wide, in which numerous, angular fragments of the shattered andesite are embedded. These bodies of calcite outcrop at intervals for about 150 feet along the creek bottom and contain occasional lenticular masses of realgar. The largest exposure of the arsenic sulphide, and the one for which the claims were originally staked, measures 4 feet in length with a maximum width of 9 inches. Another lens is 30 inches long and 8 inches at the widest point. Several smaller stringers of realgar were also seen at various places along the shear zone. Tiny veinlets of arsenopyrite occur here and there in the andesitic wall-rocks.

The minerals found in the shear zone are chiefly calcite and realgar, with minor amounts of quartz and arsenopyrite. Realgar appears to be confined to the calcite and arsenopyrite to the andesite. Small amounts of arsenopyrite occur in the andesitic fragments embedded in the calcite and it is conceivable that the sulphide may have been deposited either before or after the brecciation of the andesite. The realgar, on the other hand, was obviously introduced after the andesite was fractured. Hence the realgar may have been derived from the alteration of arsenopyrite or have been deposited contemporaneously with, or later than, the latter mineral. The writer is inclined to the view that, following the brecciation of the andesite and the cementation of the zone by calcite, arsenic-bearing solutions ascended along this line of weakness and deposited selectively, arsenopyrite in the andesite and realgar in the calcite. No evidence was observed to further the idea that the realgar might have been derived from the arsenopyrite by alteration, since the two minerals do not occur together. The only evidence of secondary action noticed was the replacement of realgar by native arsenic due to the leaching out of sulphur.

Practically no work had been done on the deposit up to the time it was visited and the only outcrops visible were those exposed by stream erosion. As the brecciated zone passes out of the creek within a distance of 250 feet and is there covered by soil, stripping and trenching will be necessary in order to explore the continuation of the mineralized belt. The quantity of realgar in sight, as indicated by the measurements given above, is small. No other values are known to be present in the deposit.

Gunning (1931) p76A.

ARSENIC AT WOLF LAKE

No work has been done on this property since M. E. Hurst examined it,[1] nor, so far as known, is it at present held by anyone. The showings are in a small creek and ½ mile southwest of Wolf lake which is 3 miles by trail from Headquarters. There is an old dugout canoe on the lake by which one may paddle to the cabin at the northwest end of the lake, whence there is a poor trail to the property. Hurst states that a brecciated zone, from 2 to 12 feet wide, in andesitic rocks, is exposed for nearly 250 feet in the creek bottom. The zone strikes north 35 degrees east and contains lenses and veins of calcite, up to 6 feet in width, in which are numerous angular fragments of the country rock. The lenses outcrop for 150 feet and contain occasional lenticular masses of realgar the largest of which measured 4 feet by 9 inches. There is a little arsenopyrite in the wall-rock and in included fragments in the vein and there is also a little quartz in the calcite. In part, the realgar has been altered to native arsenic by leaching of sulphur. Where the shear zone passes out of the creek to the south it is covered by soil, so that trenching would be necessary for further exploration in that direction. The mineralization has in all probability been formed by solutions emanating from a body of quartz diorite porphyry (hornblende porphyry) which intrudes the rocks near the property and also invades overlying Upper Cretaceous sandstone a short distance south of the workings and on the east side of Wolf lake. As the intrusive is placed tentatively as of Oligocene age, the mineralization would then likewise be Oligocene or younger.