NAME

SUBJECT SPECIAL REPORTS - 1938

DEPARTMENT OF MINES AND PETROLEUM RESOURCES

VICTORIA, BRITISH COLUMBIA

1. Grotto Group
2. Napco Gold Mines
3. Vision Group
4. Coronation Group
6. Campsall Group
7. Golden Dream Group
8. Mountaineer Group
9. Geiler Group
10. Rebecca Group
11. Solyman-Freja Group
12. Canam Group and Lucky Strike

6M-1055-8100 (2)

No. 1
Plan

THE ANNUAL REPORT OF THE MINISTER OF MINES

1938

Special Report
by
J. T. Mandy

GROTTO GROUP. This property comprising the Gwen, Gwen No. 1, Poes, Grotto, Grotto No. 2, Senaca, Coselite, Gap. Eagle, Talus, Monsoon, Canyon and Minerva mineral claims, is held by location by J. Bell, Lee Bethurem, George Alger and L. Brash of Usk. The property includes ground formerly known as the Diamond and Diorite groups. It is referred to in the Annual Reports of the Minister of Mines for the years 1916, 1929, 1931, 1937, Bulletin No. 1, 1932 and in the Department of Mines and Resources, Ottawa, Paper 36 - 20, 1936, and Memoir 212, 1937. The property is adjoined on the south by the AB group which is also owned by J. Bell and associates of Usk.

The portion of the property known originally as the Diamond, subsequently as the Diorite and now included in the present holdings as the Canyon claim, contains the old "Dechene showing" discovered many years ago. From this a shipment of 10½ tons of ore assaying 5.2 per cent. copper and containing combined gold and silver values to the extent of 65 cents, was made by Stanley Ross and associates in 1916. Ownership of this showing then passed to J. M. Dechene who prospected it for some years. In 1929 the present owners acquired the adjoining ground, on which the new mineral-showings now being prospected were discovered and subsequently also acquired the ground covered by the Diorite or Diamond and incorporated in the present property as the Canyon claim.

The mineral-showings on the Canyon claim (formerly Diamond or Diorite) are described in detail in the Annual Reports of the Minister of Mines for the years 1916, 1929 and 1931 and also in the Department of Mines and Resources, Ottawa paper 36 - 20, 1936, and Memoir 212. As no

are not included in this report which is confined to the new showings presently being prospected and developed on the Gap. Eagle, Grotto and Poes claims.

The property is in the valley of Hardscrabble Creek about 2 miles south-westward from Pitman station on the Canadian National Railway.

It is reached by a fair wagon-road from Pitman (357 feet elevation) for three-quarters of a mile; thence "go-devil" trail for a mile to the top of a ridge at 850 feet elevation; then for half a mile the trail descends on a fair grade across rock-slides to the cabin on a bench at 610 feet elevation. The cabin is 125 feet north from and 30 feet above the creek. There is a trail on good grade extending for about three-eighths of a mile directly to the railway from the junction with the road.

Hardscrabble Creek flows eastward and in the vicinity of the showings the valley is confined by 20- to 40-degree, densely-timbered slopes deeply covered by glacial clay and boulder overburden to at least 1000 feet elevation. Occasional rock ridges outcrop through the overburde along the slopes. Glaciated, rock bluffs confine the creek itself along appreciable distances and in the creek-bottom bed-rock, forming frequent riffles and low falls, is generally exposed. Immediately below the cabin the creek enters a steep rock-walled gorge about three-quarters of a mile long, then cuts its way for three-eighths of a mile through deep glacial boulder-moraine to its confluence with the Skeena River at 350 feet elevation.

The main showings are along the rocky confines of both sides of the creek-bank between elevations of 575 and 615 feet. New discoveries have been made at elevations of 1010 feet, 1300 feet and 1450 fee on the steep slope of the south bank.

The locality is near the south contact of a boss or possible eastward trending spur of granodioritic rock, relative to the eastern contact-margin of the Coast Range batholith. This boss-like intrusive is about 7 miles wide along its north-south cross-section. Its south contact is parallel to Hardscrabble Creek on its north bank and about 750 to 1500 feet north of the main workings. The locality of the showings is underlain by andesitic volcanics intruded by porphyritic granodiorite tongues and by basic and acid dykes. The volcanics are composed of tuffs, breccias, and flows striking north-westward across the creek and dipping steeply south-westward. Small shears and slips conformable to the strike and dip of the formation, incipient faulting and fault-dislocations with generally small offsets of the veins, are characteristic. The main veins strike north-eastward across the trend of the volcanics and dip 35 to 70 degrees north-westward. They are in the andesitic rocks adjacent to their contact with porphyritic granodiorite tongues or dykes and sometimes in the intrusive itself. Details of the claims and showings are illustrated on the accompanying map.

The main showings along the creek consist of quartz veins ranging from a few inches to about 3.5 feet wide, striking north-eastward and dipping north-westward. These are mineralized with pyrite, chalcopyrit specularite and sparse sphalerite.

Of decided interest is the discovery in 1938, through the medium of ore shipments to the Sampling Plant at Prince Rupert, of petzite (silver gold telluride), hessite (silver telluride) and cosalite (lead-bismuth sulphide). Chemical analysis and microscopical work carried out at the Department of Mines' laboratories at Victoria indicate transitional compositions between petzite and hessite with resultant high gold or high silver content. These minerals occur in blebs, streaks, or finely disseminated,

sulphide mineralization, but frequently close to or associated with chalcopyrite. Frequently a yellowish earthy incrustation of possibly tellu oxide is associated with these minerals.

The following is from the Department of Mines, Canada, "Report of the Ore Dressing and Metallurgical Laboratories," November 2nd, 1938:

"Gold-Silver-Copper Ore from the Grotto Mines,
Usk, British Columbia.

"Shipment:

One box of ore, weighing 150 pounds, was received on July 29th, 1938, from R. L. Brash, Usk P.O., British Columbia.

"Sampling and Analysis:

After cutting, crushing and grinding by standard methods, a representative sample of the shipments was obtained which assayed as follows:

Gold:	-	0.695 oz. per ton.
Silver:	-	28.325 oz. per ton.
Copper:	-	4.12 per cent.
Iron:	-	21.26 per cent.
Tellurium:	-	0.21 per cent.
Sulphur:	-	22.09 per cent.
Lead:	-	nil
Zinc:	-	trace
Arsenic:	-	nil

"Characteristics of the ore:

Six polished sections were prepared and examined microscopically in order to determine the general character of the ore.

"Gangue:

In the sections examined the gangue is relatively small in amount as compared to the metallic minerals. It consists essentially of white, fine-textured quartz, which, in the hand specimen, shows local stains of iron and copper.

"Metallic Minerals:

are: pyrite, chalcopyrite, "limonite", sphalerite, pyrrhotite and Mineral "X". The pyrite is brecciated and healed with chalcopyrite and gangue. Locally it has been altered to "limonite" and contains inclusions of gangue, chalcopyrite, pyrrhotite and two tiny grains of mineral X. Chalcopyrite is present principally as veins in shattered pyrite and is younger than the latter mineral; in some places it appears to have attacked and partially replaced pyrite. This mineral also occurs as small grains and masses in gangue and as irregular stringers along fractures in quartz. In it are small occasional grains of gangue, sphalerite and pyrite.

"As already noted, the ore shows signs of oxidation. In places "limonite" is present in considerable quantity as small grains and masses resulting from the alteration of pyrite. Occasional small irregular grains of sphalerite are visible in chalcopyrite as already mentioned and also in the interstices between fragments of pyrite. Some contain dots of chalcopyrite and tiny irregular particles of pyrite. Rare small inclusions of pyrrhotite are present in pyrite, as are two tiny grains of a bright, white unidentified mineral "X". The amount of both of these latter minerals, of course, is negligible.

"No gold is visible in the sections.

"Investigational work:

Flotation concentration followed by regrinding and cyanidation of the flotation tailing constituted the method of metallurgical procedure in the treatment of this ore. By a combination of these methods, an overall recovery of 96 per cent. of the gold, 96 per cent. of the silver and 96 per cent. of the copper in the ore was obtained.

"The shipment was somewhat oxidized and showed the presence of several oxidation products including "limonite". Partly on this account, the consumption of cyanide in the regrinding and agitation of the flot-

Details of a series of tests to determine a metallurgical procedure in the treatment of this ore are cited in this report. These tests comprised: "Test No.1 - Jig Concentration", and "Tests No.2, No.3, No.4, No.5, No.6, No.7 - Flotation and Cyanidation". The results of these tests are summarized in this report as follows:

"Summary and Conclusions:"

"The investigative work on the ore sample shows that 75 per cent. of the gold, 74.0 per cent. of the silver and 96.0 per cent. of the copper can be recovered in a rougher flotation concentrate. On cleaning, a shipping product was made, assaying over 3.5 ounces gold per ton, 125.0 ounces silver per ton and 25 per cent. copper.

"Agitation of the reground flotation tailing in cyanide solution gave an added recovery of 21 per cent of the gold and 22 per cent of the silver, giving an overall recovery of 96 per cent of the gold, 96 per cent of the silver and 96 per cent of the copper contained in the ore.

"The flotation concentration, as set out in the different tests, is a comparatively simple procedure and should occasion no difficulty in mill practices. A grind of 75 to 80 per cent minus 200 mesh is necessary, order to free the chalcopyrite sufficiently to float from the iron and gangue material.

"The cyanidation of the flotation tailing gave more difficulty, owing to the refractory nature of the gold and silver tellurides. Extremel fine grinding in cyanide solution, preceded by aeration in a lime pulp, was necessary to obtain a cyanide residue assaying 0.035 ounce gold and 1.20 ounces silver per ton.

"The addition of the $PbNO_3$ assisted in the extraction. The consumption of cyanide was high, due partially to somewhat oxidized condition

It can also be seen from the different tests, that finer grinding increases the cyanide consumption noticeably. It is possible that in a freshly broken ore sample, free from oxidation products, the consumption would show a marked decrease."

Copies of this report containing details of this investigation can be obtained on application to the Department of Mines, and Resources, Ottawa.

Characteristic of the main veins are slight westerly bends for short distances along north-westward striking slips and shears. At these points, mineralization and vein-width are generally increased and sometimes the slip is mineralized for short distances, forming a small branch vein. This characteristic could be ascribed to incipient faulting or, where the vein follows a sheared contact between the intrusive and the volcanics, to an irregularity or slight swing of the contact. No. 1, No.2, No. 3, and No. 4 veins are of this type.

A second type of deposit along the creek is discontinuous and reticulated tightly-frozen quartz stringers and patches from ½ to 12 inches in width, distributed across a width of 8 to 10 feet in andesitic or hybridized-andesitic volcanic rocks, in the vicinity of porphyritic granodiorite dykes. These stringers are very irregularly mineralized with patches of massive chalcopyrite from about 1 inch to 8 inches in diameter.

A third type of deposit, No. 5 vein, occurs between 635 and 645 feet elevation and consists of a quartzose shear-zone striking north-westward (transverse to the main veins) and dipping south-westwar and sparsely mineralized with pyrite and chalcopyrite where exposed.

A fourth type of deposit, occurring at 1010 feet elevation, is disseminated chalcopyrite in a highly siliceous and cherty rock,

A fifth type of deposit occurs at 1350 and 1450 feet elevation and comprises No.6 and No.7 veins discovered in 1938. These appear to be similar to the first type of vein with the exception that where exposed on the surface, they carry only low gold values and No.7 vein contains appreciable galena. They strike north-eastward and dip north-westward, as also do No.1 and No.2 veins.

Along the north bank of the creek and about 150 feet south-east from the cabin on the Grotto No.2 claim, a quartz vein (No.1 vein), 1 foot to 2.7 feet wide, striking north-eastward and dipping 35 to 60 degrees north-westward outcrops on and adjacent to the contact of a porphyritic granodiorite tongue in andesite. It can be traced on the surface by natural outcrop at No.1 adit-portal, and by an open-cut, for a distance of 84 feet in a north-easterly direction from the creek. In a caved stripping in deep glacial debris, 20 feet north-eastward from the open-cut and at 5 feet lower elevation, the owner reports intersecting the vein showing good mineralization. Vein material typical of the deposit is seen on the dump. About 33 feet north-easterly from this stripping and at about 5 feet lower elevation are an old caved open-cut and adit in deep glacial debris adjacent to the creek, about which there is no accurate history; some typical vein material on the dump leads to the supposition that the vein was also located in this working. In the 84 feet definitely traced, about 30 feet of the vein-structure at its south-westerly end and extending to the creek consists of an unmineralized fissure 4 to 8 inches wide.

At 590 feet elevation and about 150 feet south 47 degrees east from the cabin is an open-cut 15 feet long and 8 feet deep in 1937, No.1 vein 1.5 to 2.7 feet wide, striking north 55 degrees east and dipping 35 degrees north-westward, was exposed in the floor. At

this point the hanging-wall is andesite and the foot-wall is porphyritic granodiorite. The vein is well mineralized with aggregates of massive pyrite and chalcopyrite associated sometimes with specularite and very sparse sphalerite. Three samples taken from this open-cut in 1937, assayed as follows:

Location and width of sample	Gold oz. per ton	Silver oz. per ton	Copper %
Across 40 inches centre of cut	0.10	15.0	0.8
Across 40 inches west end of cut	0.11	8.0	0.6
1.5 tons of ore on dump	0.30	25.0	3.6
Selected specularite	0.20	25.0	nil

At 575 feet elevation, distant 24 feet south 54 degrees west from this open-cut, No. 1 vein outcrops on the 12-foot high face of a bluff. It strikes north 52 degrees east, dips 40 degrees north-westwar and is well mineralized with pyrite, chalcopyrite, and some specularite Here an adit is driven north 40 degrees east, angling slightly across the vein, which is between andesite on the hanging-wall and porphyritic granodiorite on the foot-wall. For 22 feet the vein is well mineralize across widths of from 1 foot to 3.8 feet. At 22 feet from the portal a shear 1.5 feet wide, strikes north 5 degrees west, dip 60 degrees westward, cuts across the adit. The vein continues through this shear, striking north 48 degrees east and is well mineralized across a width of 3.5 feet for 2 feet beyond the shear. During 1938, the vein was stoped to surface along this stretch of about 22 feet and the cobbed product from this shipped to the Sampling Plant at Prince Rupert. At 22 feet from the portal the working forks with closely parallel branche bearing north-eastward. The right-hand or south-easterly branch is

accessible for 26 feet, beyond which point the owner reports that it extends about 6 feet. The direction of the working is first north-eastward and then more northward. Along 24 feet of this branch the vein is crushed, averages 1.5 feet in width in the roof and is very sparsely mineralized and has porphyritic granodiorite on the hanging-wall, with andesite on the foot-wall. Beyond the shear the vein appears to be faulted between the roof and floor of the working by a fault striking north 32 degrees east and dipping from 10 to 20 degrees north-westward. The fault shows halfway up the south-east side of the working and dips into the north-west side at about the floor. This fault does not appear to cut the shear, in which case the well-mineralized section of the vein, 24 feet long between the portal and the shear, would not be affected by it. The owner reports that the vein shows a sparsely-mineralized width of about 12 inches above the flat fault, beyond the muck-pile blocking access to the rest of the working.

At 22 feet from the portal a branch vein on the east side of the shear follows the contact of the porphyritic granodiorite tongue in a north-easterly direction. This is followed in the left-hand working in a north-easterly direction for a distance of 26 feet, at which point the fracture angles acutely into the north-west wall. For the first 10 feet of this length this branch-vein contains a width of 8 to 12 inches of fair chalcopyrite and pyrite mineralization in a quartz gangue. Beyond this, to its point of entry into the north-west wall, the fracture pinches to a width of from 1 inch to 2 inches and is not mineralized.

The working swings more eastward and continues along the contact on a bearing of north 53 degrees east, with porphyritic grano-

diorite on the south-east wall and andesite on the north-west wall, the contact being coincident with a shear-plane 12 inches wide striking north 24 degrees east and dipping 60 degrees north-westward. A shear in the south-east wall strikes north 74 degrees east and dips 40 degrees southward. This comes up from the floor and is cut off in the roof by the shear along the contact at a point 53 feet along the working. At a point 28 feet along the working a crosscut extends into the porphyritic granodiorite of the south-east wall. This is filled with muck, but is reported by the owner to have intersected the south-easterly or right-hand branch-working and main vein in a distance of 7 feet. The vein is on the contact of porphyritic granodiorite and andesite and still exhibits the irregular, crushed, and sparsely-mineralized character above the flat fault previously described.

At 50 feet the working turns into the porphyritic granodiorite along a bearing of north 75 degrees east and 16 feet farther it intersects what is probably the main vein on the south-easterly contact of the porphyritic granodiorite tongue. Owing probably to the proximity of the flat fault below the floor of the drift, the vein here is crushed and disturbed, but is well mineralized with pyrite, chalcopyrite and specularite across a width of 3.2 feet. It strikes north 45 degrees east, dips from 60 to 70 degrees north-westward and conforms in attitude to the granodiorite-andesite contact. The vein is followed for 18 feet to the face, showing a continuing width of 1 foot to 1.5 feet in the roof with fair mineralization. The last 10 feet of the working turns slightly across the vein to a bearing of north 55 degrees east; the vein in the face sparsely mineralized across a width of 10 inches, swinging to a strike of north 50 degrees

east and dipping 70 degrees north-westward into the north-westerly corner of the face. About 10 feet back from the face an unmineralized shear 6 inches wide, strike north 10 degrees east, dip 60 degrees westward, cuts the vein at an acute angle.

It should be noted that both the right and left workings in No. 1 adit appear to be practically on or just slightly above the flat fault described in the south-easterly one. The face of the north-west working, which is 86 feet long, is roughly less than 20 feet northward from the old caved adit. The back is consequently not more than 10 to 15 feet thick at any place, which, allowing for an average thickness of 6 feet of glacial debris and soil on top, leaves a maximum of only about 9 feet of rock or vein.

The following samples were taken in this adit in 1937:

	Gold oz. per ton	Silver oz. per ton	Copper %
Across 13 inches at portal	0.18	5.6	1.4
Across 2.75 feet, 8 feet from portal	0.36	13.5	1.6
Across 15 inches, 13 feet from portal	0.16	7.5	2.1
Across 3.5 feet, 4 feet along south-easterly working	0.16	7.5	1.0
Across 15 inches at face, north-westerly working	0.04	2.2	0.3
Across 3.5 feet, 18 feet from face, north-westerly working	0.20	31.2	1.4

At the portal a dump of vein-matter having a volume of 135 cubic feet, equivalent to 11¼ tons, has been accumulated. The owner

rest having been carried away by the creek in high water. A representative sample of this dump, taken in 1937, assayed: Gold, 0.20 oz. per ton; silver, 12 oz. per ton; copper, 1 per cent.

No.2 vein outcrops in altered andesite on the edge of the creek at 582 feet elevation, about 300 feet south 63 degrees west from No.1 adit and on the opposite or southerly side of the creek. It strikes north 48 degrees east, dips 70 degrees north-westward and in 1937 could be traced for about 20 feet on the bluff-face bordering the creek to about 10 feet above the water-level. Further possible continuity up the hill is obscured by thick timber and heavy overburden. In the roof of an adit (No.2) at 590 feet elevation the vein ranges from 6 to 12 inches in width, with free walls, and is well mineralized with aggregates of massive pyrite and chalcopyrite associated with some specularite. No.2 adit at 590 feet elevation is driven along a bearing of south 45 degrees west into the 38-degree hill-slope. In 1937 it extended for 21 feet at 590 feet elevation. For 14 feet of this distance the vein-width in the roof ranges from 12 inches at the portal to 2 inches at 7 feet from the face. For the last 7 feet to the face it pinches and disperses in a disturbed area and at the face is cut off by a well-defined fault, striking north 45 degrees west and dipping 75 degrees south-westward. A sample taken in 1937 of selected mineralization from the 14-foot length in the adit-roof and the surface exposure on the bank of the creek, from vein-widths ranging from 2 to 12 inches assayed: Gold, 0.80 oz. per ton; silver, 24 oz. per ton; copper, 3.3 per cent. During the winter of 1937-38 and the spring and early summer months of 1938, mining of No.2 vein was continued from a point at 582 feet elevati (about 2 feet above the creek) and 8 feet below the floor of the origina adit. At the time of examination (July 15th, 1938) this had advanced 29 feet, 9 feet from and 8 feet below the face of the original No. 2

adit-level. At 18 feet the vein is off set 2 feet to the north-west by a fault which strikes north 37 degrees west and dips 30 degrees north-eastward. On the footwall-side of this fault to the face of this level, the vein is 12 to 24 inches in width and well mineralized with pyrite, chalcopyrite, specularite and some sphalerite. Petzite, hessite and cosalite also occur in the vein. A sample of the vein in the face, across 12 to 24 inches, assayed: Gold, 0.58 oz. per ton; silver, 12.2 oz. per ton; copper, 3.4 per cent; lead, nil; zinc, trace. This work continued during the summer, autumn and winter.

From the workings on No. 1 and No. 2 veins, at No. 1 and No. 2 adits, test bulk samples and tonnage lots were shipped to the Sampling Plant at Prince Rupert.

The assay results of these are as follows:

Weight	Gold per ton	Silver per ton	Copper %	Lead %	Zinc %	Arsenic %	Antimony %	Ir %
8 lbs.	0.27	17.5	1.80	nil	-	nil	-	21
14 "	0.34	22.0	5.50	"	2.0	"	nil	22
95.5 "	0.42	25.4	5.90	"	nil	"	-	20
12.0 "	0.40	29.3	6.50	"	tr.	"	-	21
11.0 "	1.35	44.4	6.21	-	"	-	-	-
71.0 "	0.18	8.2	0.50	nil	nil	-	-	8
55.0 "	1.18	4.5	5.30	tr.	"	nil	nil	23
96.0 "	1.20	23.6	3.40	nil	"	"	"	18
98.0 "	0.28	7.1	1.20	"	"	"	"	9
108.0 "	0.38	12.1	2.30	"	"	"	"	10
40.0 "	0.80	15.2	2.10	"	"	"	"	13
17.795 tons	0.36	21.0	5.00	"	2.0	"	"	20
5.677 "	0.52	30.0	3.50	"	1.1	"	"	21
6.240 "	0.80	20.5	4.40	"	0.3	"	"	22
7.7145 "	0.93	20.8	4.43	"	0.6	"	"	19
13.350 "	0.95	20.4	3.50	"	0.5	"	"	19

Weight		Silica	Sulphur
8	lbs.	50.0	22.2
14	"	43.5	21.7
95.5	"	44.8	20.6
12.0	"	42.8	21.8
11.0	"	-	-
[illegible]	"	[illegible]	[illegible]

Continued:

Weight		Silica	Sulphur
96.0	lbs.	54.5	18.6
98.0	"	61.0	6.4
108.0	"	65.8	9.2
40.0	"	60.0	12.0
17.795	tons	48.0	18.5
5.677	"	47.5	20.9
6.240	"	46.9	20.4
7.7145	"	43.0	22.0
13.350	"	50.2	18.6

No.3 vein outcrops in the face of the bluff bordering the edge of the creek at 585 feet elevation and 74.8 feet north 86 degrees east from No.2 adit portal. At this point an open-cut and short adit is driven on a bearing of south 54 degrees west, at an acute angle across a fault which strikes south 66 degrees west and dips 40 degrees north-westward. The vein strikes south 54 degrees west, in alignment with the adit and dips 70 degrees north-westward. On the hanging-wall side of the fault, it is crushed and sheared. On the footwall side on fault the vein is offset about 18 inches, is 10 inches in width and moderately mineralized with pyrite, chalcopyrite and some sphalerite. A sample of the vein, 10 inches in width in the face, assayed: Gold, 0.06 oz. per ton; silver, 2.3 oz. per ton; copper, 0.1 per cent; lead, nil; zinc, trace.

No.4 vein outcrops in the face of the bluff bordering the creek at 595 feet elevation and 26 feet north 55 degrees west from No. 2 adit portal. At this point an open-cut and adit 15 feet in length, about 5 feet above the creek and bearing south 44 degrees west, exposes the vein 12 inches in width, striking south 44 degrees west and dipping 70 degrees north-westward. The vein is moderately mineralized with pyrite and is on the footwall-side of a fault which strikes south 54 degrees west, at an acute angle across the adit and dips 30 degrees

On the northerly side of the creek-bed, at 605 feet elevation and about 100 feet north 20 degrees west from the No. 2 adit, a series of tightly-frozen lenticular and discontinuous reticulated quartz stringers and patches from ½ to 12 inches wide occur in granitically-hybridized andesite. These are distributed across a width of about 15 feet and a length of about 40 feet and strike north 72 degrees east. They are very irregularly mineralized with widely-separated patches of massive chalcopyrite from ½ to 8 inches in diameter.

At 615 feet elevation on the southerly side of the creek-bed and about 300 feet westward from this showing a similar one occurs. In this, however, the quartz stringers strike north 80 degrees west. A composite sample of selected chalcopyrite from these two showings assayed: Gold, 1.94 oz. per ton; silver, 13 oz. per ton; copper, 18.4 per cent.

At 1010 feet elevation on the southerly side of the creek and about 700 feet south 27 degrees east from the cabin, an open-cut 10 feet long bearing north 69 degrees east through overburden on the 36-degree hillslope discloses disseminated chalcopyrite in a highly silicified, cherty rock. The rock is appreciably shattered and intersected by major joints striking north 40 degrees west and dipping 42 degrees north-eastward, with minor joints striking north 80 degrees east and dipping 50 to 70 degrees north-westward. Chalcopyrite in fine dissemination, accompanied by some pyrite, is fairly evenly distributed through the cherty rock. The occurrence has not been traced and no definite walls are exposed, so that its attitude cannot be determined. A representative chip sample of the open-cut over a length of 10 feet and a width of 5 feet assayed: Gold, trace; silver, 0.4 oz. per ton; copper, 0.4 per cent.

At 1300 feet elevation on the Poes claim and about 1875 feet south-westward from No. 2 adit, stripping exposes two parallel bands of quartz separated by one foot of oxidized and decomposed rock, for a length of 5 feet. The quartz bands are respectively 10 and 11 inches in width and sparsely mineralized with pyrite and chalcopyrite. They strike north 72 degrees east and dip vertically.

No. 6 vein is exposed in an open-cut at 1350 feet elevation and 75 feet south-eastward from this showing. At this point the vein consists of sheared and oxidized gangue and quartz 1.8 feet in width mineralized with some pyrite and chalcopyrite. It strikes north 46 degrees east and dips 81 degrees north-west and cannot be aligned with the showing at 1300 feet elevation. Continuity of the vein in both directions beyond the cut is obscured by overburden. A sample across the vein 1.8 feet in width on the north-west side of the cut, assayed: Gold, nil; silver, 0.4 oz. per ton; copper, 0.8 per cent. The vein should be traced down the hill to its possible junction with the vein at 1300 feet elevation.

No. 7 vein is exposed in three sections of stripping for a length of 35 feet between 1450 and 1465 feet elevation and 250 feet south-westward from No. 6 vein. In these workings the vein strikes north 41 degrees east and dips 70 degrees north-westward. It ranges from 6 to 10 inches in width and is well mineralized with coarse-textured galena, pyrite, chalcopyrite and specularite in a quartz gangue. In the northerly stripping the vein is offset 2 feet by a fault which strikes north and dips 45 degrees east. Continuity of the vein in both directions beyond these workings is obscured by overburden. A composite sample of the vein exposed in these sections of stripping, representing an average width of 8 inches,

assayed: Gold, trace; silver, 8.5 oz. per ton; copper, 0.9 per cent; lead, 20.6 per cent; zinc, nil.

Owing to concentration of work on No. 1 and No. 2 veins, no further work beyond the preliminary exploration described, has been done on these upper showings between 1300 and 1465 feet elevation. At this locality the hill slopes between 15 and 25 degrees and the overburden is not excessively deep. Further tracing up and down the hill and exploration by open-cutting could be conveniently done and may lead to value similar to those in No. 1 and No. 2 veins, should the veins approach possible intrusive contacts.

GROTTO GROUP

USK-PITMAN AREA

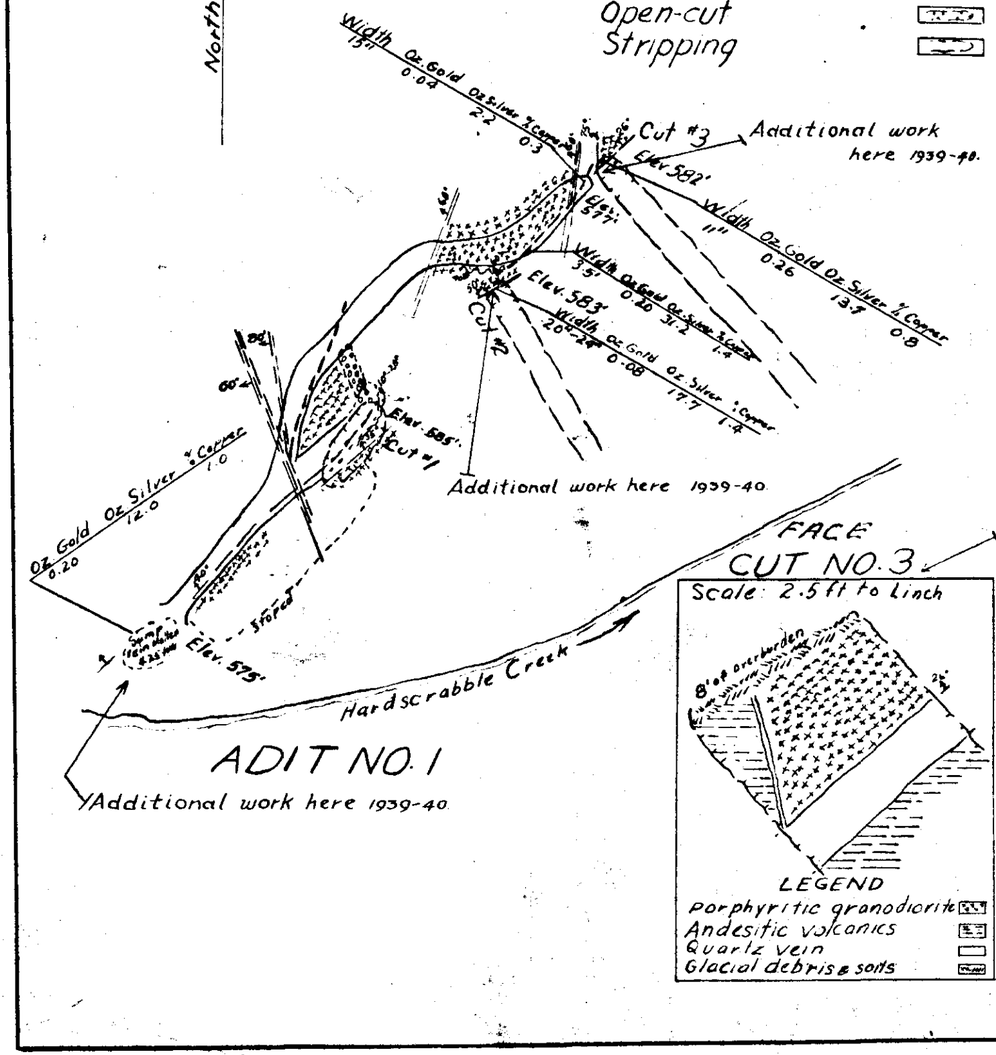
OMINECA MINING DIVISION

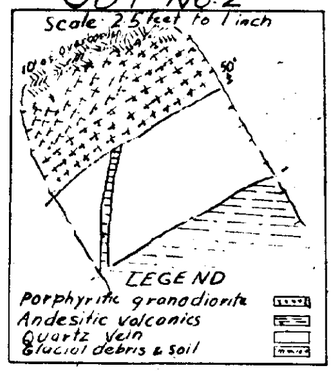
29° Magnetic

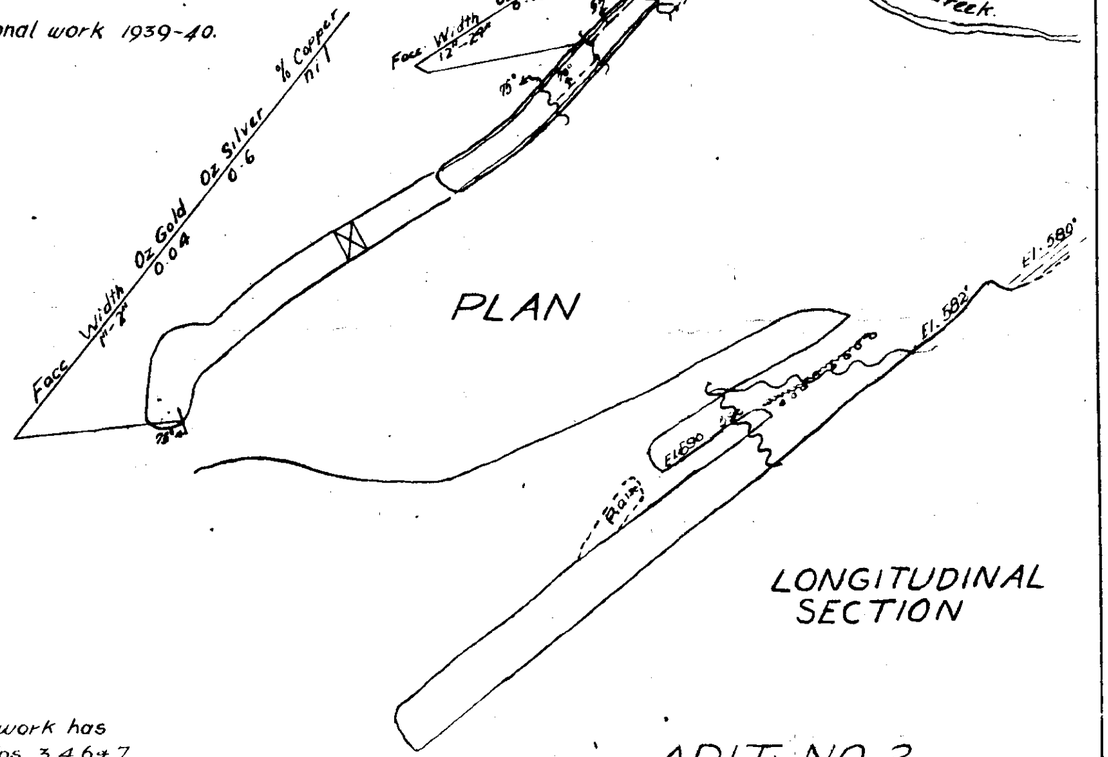
North

LEGEND

- Porphyritic Granodiorite
- Andesitic Volcanics (Hazelton Series)
- Quartz veins
- Shearing
- Adit
- Open-cut
- Stripping







Note: Additional 1939-40 work has also been done on Nos 3, 4, 6 & 7 viens (not shown on this map)

SCALE

10 10 10 5 0 20 40 60 feet

Sec. Rpt 1938

With Report by Joseph T. Mandy, 1939
Mining Engineer, Prince Rupert, B.C.

No. 2
+ map

ANNUAL REPORT OF THE MINISTER OF MINES
FOR 1938

PART B -- Special Report by Dr. J. T. Mandy

American Creek Area: Napco Gold Mines, Ltd., (N.P.L.)

This company, with registered office at 800 Hall Building, Vancouver, was incorporated on February 8th, 1938. The authorized capitalization is 1,500,000 shares of no par value, but for which the sale price may not exceed fifty cents (50¢) per share. In consideration of the allotment of 425,000 shares in capital stock, the company acquired outright from North-Western Aerial Prospectors, Limited, seventeen mineral claims known as Northern Nos. 1 to 8, Pass Nos. 1 to 4, Moonlight, Moonlight No. 1, Northern No. 10, Camp A and Protector. In consideration of the allotment of 25,000 shares in capital stock, the company also acquired from L. S. Davidson, four adjoining mineral claims known as the Precious and Precious Nos. 1 to 3.

The claims lie between 3,300 and 5,400 feet elevation on the west side of American Creek, towards its head, and about 27½ miles from the Stewart dock. The topography of the area is rugged and the claims are above timber-line, where there are only scattered patches of small and gnarled mountain spruce. An extensive glacier covers the range-crest bordering the valley and has probably receded in comparatively recent time from the valley-bottom and flanking slopes.

In the locality of the claims, the hill rises generally at about 20 degrees from the valley-bottom to the crest of the range, and the slopes are covered with heavy talus, through which vertical rock bluffs protrude. Towards the valley-bottom rock knolls and benched rock ridges fronted by steep grassy slopes are features of the

The property is reached by the Stewart-Bear River motor-road from Stewart dock to the confluence of American Creek with the Bear River, at 420 feet elevation, a distance of about 14 miles. From this point a tractor-trail extends up the west side of American Creek for about 3½ miles to the "Mountain Boy" ridge at about 1,000 feet elevation. At this point a trail gradually descends to the moraine and slide-covered valley-bottom at 800 feet elevation, along which it continues for 2 miles and then ascends the timbered bench to the old American Mining and Milling cabin at about 1,200 feet elevation. From this point the trail continues for 3 miles to the south margin of the American Creek transverse glacier at 1,750 feet elevation, following in turn the wet valley-bottom, then rising to the top of a muskeg-covered bench and descending again to the wet valley-bottom at the glacier, a total distance of about 8½ miles from the Bear River motor-road.

Formerly the route continued beyond the glacier across the moraine and glacier to its north side at about 2,250 feet elevation. With the rapid recession of the glacier this route has become impassable. At the present time the route continues across American Creek to its east side at the foot of the glacier and the trail continues up the steep rock-slope of the bluffy ridge buttressing the glacier-front, and locally termed "The Pimple". This is ascended by a series of short and very steep switch-backs to an elevation of 3,800 feet, a distance of about 1½ miles. From this point the trail gradually descends the north slope of "The Pimple" to the valley-bottom at 3,200 feet elevation, a distance of 2½ miles. At this point American Creek is crossed to its west side and a new trail, constructed in 1938, ascends the rocky and talus-covered west flank of the valley-trough for 1 mile to the new camp-site at 3,830 feet elevation on the

motor-road.

During 1938, the new camp consisted of a floored tent with accommodation for four men and cooking equipment. In connection with the latter, an innovation was the installation of "Rock-gas" for cooking. This was delivered in tanks weighing 125 lbs. at a total cost delivered of about $16.00. One tank is stated to last for about 3 weeks in cooking for 6 to 7 men. During the season, a portable air compressor converted from a Model A Ford-car engine and delivering 50 cubic feet of air per minute at a pressure of 65 lbs., was also packed to the property. This was used in driving the adit at the showing (B) and operated a S35W "Wet Sinker" Jack-hammer drill.

The rock formations in the locality of the claims consist of sediments and volcanics of the Lower Hazelton group (Bitter Creek and Bear River series). Black calcareous argillite, argillaceous limestone, sandy argillite and quartzite of the Bitter Creek series out-crop for a length of about 5 miles along the lower slopes up to about 500 feet above the valley-floor in an anticline plunging at the north and south ends beneath volcanics of the Bear River series. The volcanics of the higher elevations comprise tuffaceous beds at the base of the series, immediately overlying and transitional from the argillite. Above these is a complex of green-stone, in places schistose, and fine and coarse-textured breccias. A sill-like mass of quartz diorite intrudes the formation along the base of the Bear River series. Smaller irregular areas of intrusive rock also out-crop at the higher elevations. Light and dark coloured dykes intrude the sediments and volcanics.

On the accompanying map, the mineral-showings are indicated by the letters A, B, C, D, E, F, G, H, I, J, K, L, and M. Of these

A, B, C, D, E, F, G, and H are described in detail in the 1937 Annual Report of the Minister of Mines. During the late autumn and early winter of 1937 and during the 1938 season, further work was done on the "gold stringer" (B). Further general prospecting, stripping and open-cutting was also done and resulted in discovery of new showings, I, J, K, L and M in the northern part of the property.

On the "gold stringer" (B), additional open-cutting was done between 4,080 feet elevation and 4,112 feet elevation. A cross-cut adit was also driven at 4064.5 feet elevation, under the open-cut. The objective of this work was to explore for the possible continuity and recurrence of spectacular pockets of native gold encountered in the previous work. At the time of examination, Sept. 1st, 1939, the gold-bearing stringer had practically disappeared and on the floor and walls of the cut only a few unmineralized and discontinuous quartz-calcite veinlets occurred in a formation of decomposed calcareous tuff. In the crosscut and short drift for a total length of 42 feet at 15.5 feet lower elevation then the open-cut, no stringer or mineralization had been encountered.

Freedom from snow during the 1938 season permitted examination of further details of the geology in the vicinity of showing (B). This indicates that the narrow belt of tuffaceous rocks occupying the draw and in which the "gold stringer" (B) outcrops, occurs as a small isolated inclusion in the intrusive quartz diorite. In the vicinity several other small inclusion-areas and small patches of partly digested volcanics occur in the quartz diorite. The details of this structure are shown on the accompanying map.

The new showings, I, J and K, consist of quartz stringers in carbonate tuff. They are mineralized with chalcopyrite, pyrite, some galena and sphalerite and the wall-rock shows some siliceous replace-

staining of black manganese oxide.

At 4,030 feet elevation, about 4,500 feet northward from the showing (B), several stringers (J) mineralized mainly with chalcopyrite, pyrite, some sphalerite and galena outcrop in andesitic tuff. The outcrops of these and their vicinity are heavily oxidized with both iron and manganese oxide. The main stringers appear to strike northward and dip 50 degrees westward, but several cross-stringers striking east also occur. At the locality of the main showing where the formation is naturally exposed, stringers occur in an area about 130 feet long and 50 feet wide. The formation is obscured to the north by heavy glacial debris and talus and to the south, east and west by a comparatively thin overburden of glacial debris and soil. In an open-cut 21 feet long and 2 to 3 feet wide on this showing, at 4,030 feet elevation, chalcopyrite, sphalerite and galena mineralization, together with appreciable iron oxide is exposed over the full length and width of the cut. A sample of the unoxidized mineralization in this cut, assayed: Gold, 1.80 oz. per ton; silver, 23.0 oz. per ton; copper, 2.0 per cent; lead, 0.9 per cent; zinc, 6.3 per cent.

At 4,030 feet elevation, about 400 feet north from (J), two opencuts, 50 feet apart, expose similar stringers (K), striking north-westward. In the main open-cut, mineralized stringers are exposed across 3 feet. A selected sample of unoxidized mineralization in the stringers distributed across a width of three feet in this cut assayed: Gold, 1.10 oz. per ton; silver, 16.0 oz. per ton; copper, 9.8 per cent; lead, 0.7 per cent; zinc, 3.6 per cent.

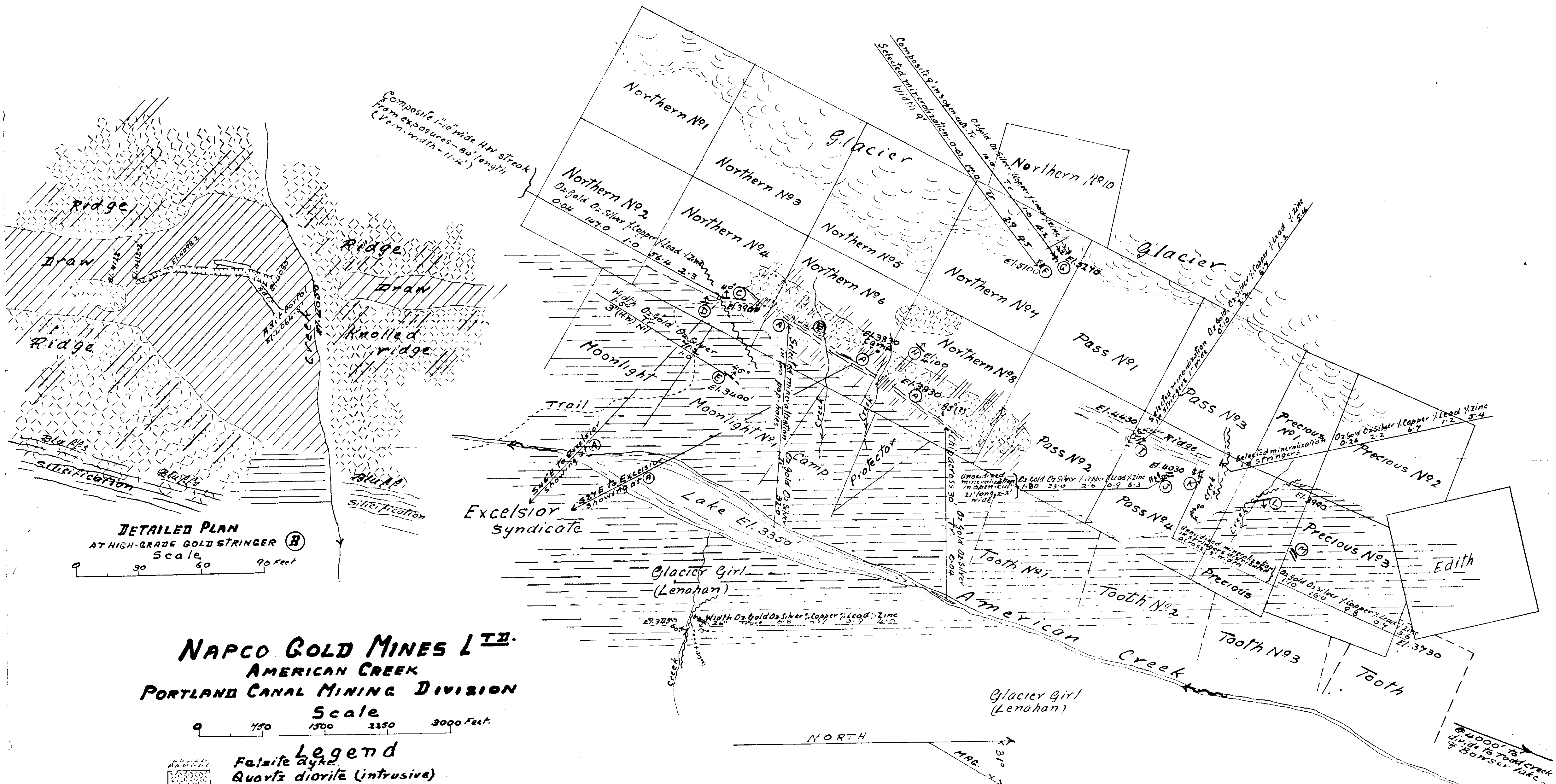
At elevation 4,200 feet, about 525 feet south-westward from (J), two similar stringers (I) 1 inch to 2 inches in width and

bluff-face of a defined ridge and can be traced for about 20 feet where they appear to disperse or "pinch-out". A sample of selected mineralization from these stringers assayed: Gold, 0.10 oz. per ton; silver, 2.2 oz. per ton; copper 6.7 per cent; lead, 1.2 per cent; zinc, 5.4 per cent.

About 950 feet northward from (I), several quartz stringers which strike north-westward and dip south-westward in oxidized volcanics, outcrop adjacent to ~~the~~ shear which strikes east and dips south. The shear is probably a fault and occupies a marked depression. Continuity of the stringers in all directions is obscured by overburden and talus. Where exposed they are mineralized with irregular patches and streaks of chalcopyrite with some sphalerite and galena. A selected sample of the sulphides in these stringers, for determination of possible values, assayed: Gold, 0.26 oz. per ton; silver, 2.2 oz. per ton; copper, 6.7 per cent; lead, 1.2 per cent; zinc, 5.4 per cent.

At 3975 feet elevation, about 660 feet north-eastward from this showing, a well-sheared fault which strikes northward, obliquely across a creek gully, occurs along the contact of the volcanics on the west and calcareous argillite on the east. Adjacent to and on the east side of this a brecciated quartz vein (M), 8 feet wide, with no visible mineral, outcrops in argillite on the north bluff of the creek-draw. This structure strikes north and dips 60 degrees east, conformable to the attitude of the argillite. Continuity to the north and south of the creek-draw is obscured by overburden.

At 650 feet eastward from this showing, several small and discontinuous quartz stringer (M) mineralized with pyrrhotite and some sphalerite outcrop in argillite.



NAPCO GOLD MINES LTD.

AMERICAN CREEK

PORTLAND CANAL MINING DIVISION

Scale

0 750 1500 2250 3000 Feet

Legend

Felsite dyke.

Quartz diorite (intrusive)

Calcareous tuff & andesitic breccia. Bear River series.

[redacted] andesitic volcanics. Bear River series.

[redacted] part tuff. Upper Bitter Creek series.

[redacted] replacement.

[redacted] vein.

[redacted] cut.

[redacted] ier.

With report by Joseph T. Mandy, 1938, Mining Engineer, Prince Rupert, B.C.

SPEC RPT 1936 (2)

ANNUAL REPORT OF THE MINISTER OF MINES

1938

Special Report by

Roy J. Maconachie

VISION GROUP. This group, consisting of the Vision and Vision No. 1 mineral claims, is 1 mile south-west of Wallachin, and is held on location by J. L. Turing and associates of Wallachin. The surrounding area is not recognized as well mineralized and examination was made primarily to ascertain if recent development on this property had been productive of any new and encouraging information. The occurrence of interest is a zone of silicification and alteration along the contact between the Nicola Series of greenstones and intrusives belonging to the late Triassic series of plutonic rocks, as defined by G. M. Dawson in the Geological Survey, Annual Report for 1894. This contact, irregular and not particularly well exposed, is followed by a very small creek which flows almost due north. The igneous rocks lie generally to the west of the creek, but in several places small embayments extend across it into the greenstones on the east side. Thus the creek has caused considerable natural exposure of the conditions under exploration, and the operators have done little more than extend these exposures at the most attractive locations.

The contact phases of the rocks are intensely silicified, altered and leached over a length of 750 feet up the creek. Talc and kaolin are the most prominent secondary minerals. The original characteristics of the rocks are further obliterated by recent oxidation. Within the 750 feet length 3 cuts have been made. In each of these cuts there are shears striking from north-east to south-east, with the outer walls diverging toward the east. This shearing, confined principally to the greenstones apparently results directly from the intrusion of the igneous rocks to the west. It is to be expected that tracing eastward from the contact would prove further divergence of the walls and ultimate dissipation of the shearing. At the worked locations, slight mineralization by pyrite attracted attention but in no instance was the writer able to obtain an assay approaching commercial value.

At the most southerly cut, elevation 1500 feet, several very narrow seams mineralized by pyrite occur within the limit of shearing marked at its northerly limit by a well-defined wall striking south 65 degrees west, dipping 75 degrees south-east. A sample taken over 47 inches to the northerly wall, and another taken over the next 61 inches farther south, both assayed: Gold, nil; silver, nil; lead, nil; zinc, nil.

The centre cut, elevation 1435 feet, is 570 feet northward, downstream, from the first cut. At this exposure, hair line seams slightly mineralized with pyrite strike south-east. Of 3 samples taken across a total width of 24.5 feet of shear-zone 2 assayed: Gold, nil; silver, nil; lead, nil; zinc, nil; 1 assayed: Gold, trace; silver, 0.2 oz. per ton; lead, nil; zinc, nil.

The most northerly working, elevation 1410 feet, 185 feet from the centre cut, consists of a 10 foot shaft sunk on the west side of the creek on a typical shear striking north 70 degrees west; a 12 foot adit, driven at north 20 degrees west from the bottom of the shaft, exposes additional width. At the bottom of the shaft the rock is slightly fresher than in the other exposures and it is possible to recognize isolated areas of only partly altered greenstone. The heaviest shearing is confined to a 17 inch width exposed on both the east and west walls near the north wall of the shaft. Within this width there is very slight mineralization by pyrite, galena and sphalerite but a channel sample returned only: Gold, nil; silver, nil; lead, nil; zinc, nil. A second sample taken over 52 inches, from this shear to the south wall of the shaft, assayed: Gold, nil; silver, 10.2 oz. per ton, lead, nil; zinc, nil. One sample taken from the east bank of the creek over 56 inches, from the easterly extension of the narrow width of intense shearing in the shaft, assayed: Gold, nil; silver, nil; lead, nil; zinc, nil.

No

ANNUAL REPORT OF THE MINISTER OF MINES

1938

Special Report
by

Roy J. Maconachie, Mining Engineer.

CORONATION GROUP. The group consists of the Coronation and Coronation Nos. 1 to 3 mineral claims, held by right of location by A. Johnson and associates of Ashcroft. The property is east of Ashcroft on Barnes Creek, and is accessible from that town by 3¾ miles of good road, succeeded by three-quarters of a mile of trail. There is little timber on the ground and sparse vegetation of any sort. An adequate supply of domestic water is available from the creek. No camp buildings have been erected on the property.

The area under development is underlain by "Cretaceous sediments of the Queen Charlotte Islands group" intruded by "Triassic greenstones, volcanics with common diabase porphyrites," as defined by G. M. Dawson. Slightly above the level of the creek at elevation 1844 feet, a shear-zone is under investigation at the contact of the sediments and the volcanic member. The sheared rock at this location is silicified and mineralized by irregular quartz and calcite stringers. The walls of the shear are well-defined, but the silicification and quartz and calcite mineralization do not consitute true vein structure. The strike of this zone is south 80 degrees west, the dip 65 to 75 degrees south. The volcanics are exposed on the south of the contact, the sediments represented by fine-grained, light coloured sandstone, on the north. Within the shear, mineralization by galena and sphalerite is sparse, by pyrite more pronounced; chalcopyrite is reported, but none was seen.

On this showing a drift, No. 1, had been driven 64 feet.

Samples taken over the full width of shearing in this drift were as follows:

Description	Gold oz. per ton	Silver oz. per ton	Lead oz. per ton	Zinc oz per ton
15 inch gouge, quartz stringers, slight mineralization.	nil	0.8	0.7	1.2
28 inches at face minus 10 feet as above	nil	0.2	0.4	nil
35 inches at face minus 20 feet as above	nil	nil		
26 inches at face minus 30 feet slightly more silicification	nil	nil	nil	nil
14 inches at face minus 40 feet as preceding sample	nil	0.4	nil	nil
18 inches at face minus 50 feet as preceding sample	nil	0.2	nil	nil

A select sample of mineralization by sphalerite, galena and slight pyrite taken from the small ore pile, assayed: Gold, nil; silver, 15.8 oz. per ton; lead, 5.5 per cent; zinc, 22.01 per cent.

A diamond-drill hole was collared of the surface, 30 feet from the portal, 10 feet below the drift level, at a point slightly south of the line of the draft. Bearing north, inclined at minus 45 degrees, the hole was in basic volcanic rocks for 12 feet where it entered a zone of intense silicification, assumed to be marginal to the sediments. Still in silicified rock containing little or no sulphide mineralization, the hole was bottomed at 48 feet. Heavy core loss and difficulty of operation due to shattered ground prevented satisfactory interpretation and rendered further drilling impracticable.

125 feet farther north. This second shear crosses the creek almost at right angles and cuts have been made at creek level, elevation 1794 feet, and on both banks. In these exposures the strike of the zone ranges from north 85 degrees west to north 70 degrees east, dip from 55 to 60 degrees south. As far as could be determined, this occurrence is also on a contact between the volcanics and the sediments, with, as in the first, the sediments to the north and the volcanics to the south. This similar condition arises from an irregularity by which, slightly east of the No. 1 portal, the volcanic member is carried northward across the strike of the No. 1 showing for approximately 100 feet. The cut at the creek level has been extended eastward into a 16 foot drift in which the exposure has a maximum width of 14 inches, made up of 1 inch to 7 inches of quartz mineralized by galena, sphalerite and pyrite, sheared wall rock and graphitic gouge. The quartz seam pinches and swells, narrows abruptly at 5 feet from the face; at the face its width is 1 inch or less. The hanging-wall is strong but irregular. A sample taken 5½ feet from the face, across 6 inches of almost barren quartz, assayed: Gold, nil; silver, 0.4 oz. per ton; lead, 0.6 per cent; zinc, nil. A sample across 4 inches of quartz mineralized by pyrite, galena and sphalerite, at the portal, assayed: Gold, 0.26 oz. per ton; silver, 0.7 oz. per ton; lead, 0.5 per cent; zinc, 15.7 per cent. A third sample, across 9 inches of graphitic gouge on the foot-wall of the sample at the portal, assayed: Gold, nil; silver, 0.2 oz. per ton; lead, nil; zinc, nil.

The easterly extension of the shear from the face of the tunnel is exposed at 100 feet from the creek at elevation of 1824 feet as having widths up to 24 inches of which up to 17 inches is quartz. Mineralization within the quartz is sparse. A sample over the f 24 inches assayed: Gold, nil; silver, 0.2 oz. per ton; lead, nil; zinc,

The cut on the west side of the creek, 75 feet from it, at elevation 1849 feet, has exposed a sheared zone 8 to 13 inches wide; any mineralization originally present has been removed by leaching. A sample taken across 13 inches, assayed; Gold, nil; silver, 0.2 oz. per ton; lead, nil; zinc, nil.

Extension eastward of the line of the No. 1 shearing would enter the volcanics; extension westward would bring the No. 2 shear to the sediments. Under these conditions the effect is problematical but it is doubtful if any such extension, in the sediments at least, would be as strong as the contact shearing at present exposed.

ANNUAL REPORT OF THE MINISTER OF MINES

1938

Special Report by

Roy J. Maconachie

CAMPSALL GROUP. This group, held on location by I. N. Campsall of Cranbrook, consists of 6 claims, the Campsall Nos. 1 to 6. It lies 3 miles north-east of Cranbrook, and is accessible by a branch-road from Wanklyn. Gentle topography permits easy road construction. There is no water at the property. Timber consists of second growth pine, fir and tamarack. The bedrock is generally covered by shallow deposits of drift. Surface stripping has been done in an area of typical Creston quartzite, with the object of exposing a zone irregularly silicified and traversed by quartz stringers. This zone is 8 feet wide, strikes north 75 degrees east and dips at 80 degrees to the south-east. The hanging-wall is fairly well-defined, the foot-wall irregular and indefinite. The quartzite within the zone is contorted and altered by regional metamorphism which has produced abundant sericite. The only mineralization noted was a slight amount of crystallized pyrite disseminated through the quartz and country rock.

The single open cut is 12 feet long, 8 feet wide and 15 feet deep at the face. Stripping has been extended on the surface from the face of the cut for some 40 feet to the north-east. A sample, taken at the face over 18 inches of silicified quartzite showing no visible mineralization, assayed: Gold, nil; silver, nil. A sample taken, at the face of the cut over 1½ inches from a quartz stringer, mineralized slightly by pyrite, assayed: Gold, nil; silver, nil. A sample taken by Campsall and submitted for qualitative analysis, assayed: Gold, silver, mercury, copper, lead, bismuth, cadmium, arsenic, antimony, tin, chromium, manganese, zinc, nickel, cobalt, molybdenum .....nil.

specimen it is almost impossible to distinquish any mineralization, but an examination with the hand lens of selected pieces of rock proves the presence of very fine-grained pyrite. This mineralization occurs sparsely disseminated through the quartzite principally within one band of rose-colored quartzite.

Development has been limited to slight additional s ping of a 75 foot length of rock through which the road was cut. The fresh face of the bluff on the south-east side of the road has a maximum height of 11 feet, 6 feet of it above the road level, 5 feet dug below the road level in the ditch. In this 5 foot pit, the lower extension of the rose-colored band of quartzite is well exposed. From this pit the band rises diagonally across the face of the bluff to the south-west, defined on its upper limit by a narrow seam, gouge or silt filled, which ranges in width from a quarter of an inch to 2 inches, and on its lower side by a 1 to 2 inch width of argillite. The width of the band itself ranges between 33 to 48 inches.

Even after careful examination, it was not possible for the writer to distinguish any feature of the showing which might lend encouragement to the owners, despite the fact that they exhibited small pieces of free gold claimed to have come from the bottom of the pit. The characteristics of this free gold were strongly suggestive of placer origin but the owners would not allow admission of any such suggestion. In view of the facts, considerable trouble was taken in sampling the deposit in an effort to prove, primarily, whether or not there were any values present, and secondly, if so, whether or not they were derived from the gravel overhanging the rock face. Four samples were taken at 5 foot intervals across the width of the rose-colored quartzite; of these, 3 ran, Gold, nil; silver, nil. One ran, Gold, trace; silver, 0.2 oz. per ton. In addition, a block of fresh quartzite was taken from the location of each of these 4 samples, each block being washed clean before assaying. These samples ran: Gold, nil; silver, nil. A select sample taken by Campsall from the bottom of the pit, fresher than common, containing visible fine grained pyrite, assayed: Gold, 0.05 oz. per ton; silver, trace. Eight samples were