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REPORT ON

NORTHERN LIGHT GROUP

PORTLAND CANAL MINING DIVISION, B. C.

by V. A. JAMES

GENERAL The property consists of ten claims and freactions forming a compact group of 295 acres. Its South boundary adjoins in part the Premier Property, and in part, the B. C. Silver Property. It lies in the valley of Cascade Creek, and the East Fork and has an average elevation of roughly 1,000 feet above sea-level. Cascade Creek has a good flow and numerous falls and supplies about one-half of the 1,500 horse-power used at the Premier Mine. The hillsides support a good growth of timber, principally hemlock of two feet or more in diameter. Access is had by the Premier wagon road.

HISTORY: The claims were located in 1917, 1918, and 1919. A few years ago the group was optioned by the Premier Gold Mining Company, who held it for one year. This company put in a few surface cuts and two 500-foot diamond drill holes, and then dropped the option.

GENERAL GEOLOGY: The claims are underlain by the Bear River greenstones, tuffs and agglomerates, and lie approximately one mile from the irregular eastern edge of the Coast range granite batholith. These rocks are of Juassic age, according to McConnell (1), and Schofield (2).

(1) McConnell R. G. Geol. Surv of Can. Memoir 32, 1913.
(2) Schofield S. J. " " " " " 132,1922.
(Salmon River District Geology & Ore Dep.)

The volcanics are folded and sheared in a general regional trend of North - northwest, paralled to the eastern edge of the batholith. Where best observed on the Northern Light, the trend of the shearing was approximately north and south. The heavy overburden and limited time available prevented any detailed study of the structure.

The volcanics are cut by a number of intrusive bodies, renging from a few feet to several hundred feet in width, and described by Schofield as quartz prophyry sills. These bodies have a north - west trend and a dip of 45° to 60° to the south - west. The porphyry is fine-grained, light grey in colour, and siliceous, and carries considerable secondary sericite, calcite and chlorite. It often carries a considerable amount of pyrite, giving iron-stained outcrops.

Hornblende lamprophyre dykes also occur. They are post-mineral.

The geological sequence, as applied to the Northern Light, is as follows:

Era	Period	Geological Events
Quaternary	Glacial	Erosion - deposition of glacial drift
Tertiary		Uplift and Erasion
Mesozoic	Cretaceous	Erosion - probable peneplanation. Hornblende Lamprophyre dykes - post mineral. Intrusive Contact. Period of Mineralization.
	Jurassic	Cost Range Batholith - Granodiorite Intrusive Contact. Mountain building - Folding and Uplift. Quartz Porphyry Sills - Intrusive Contact. Vulcanism - Bear River greenstones, tuffs and agglomerates.

The rocks of the district have been glaciated up to elevations of 5,000 feet or more. Valley glaciers are still at work, as shown by Salmon and Texas glaciers on accompanying panoramic view. Glaciation in such valleys will be more profound than on the steeper hillsides. Signs of such profound erosion are found in the Cascade valley occupied by the Northern Light.

The general geology is similar to that of the Premier, but the claims being several hundred feet lower down in the valley than the Premier producing zone, are less favorably situated for secondarily enrichment ores, particularly those of the bonanza type.

VEINS AND OUTCROPS: Four veins outcrop on the Northern Light, as marked approximately on accompanying plan. A brief description follows:

(a) Vein on east creek, Northern Light Fraction (#4,057)

Width	6 feet.	Elevation	850 feet.
Strike	N. 110° E.		
Dip	45° S.	Pay Streak:	2 feet wide.

Mineralization: Galena, zinc blende and pyrite

One lense 40 feet long. Continuity uncertain.

Probable extension of this vein found on N. L. No. 3 1,500 feet to west, showing irregular width from few inches to four feet.

(b) Vein on Northern part of Northern Light No. 4,

on banks of creek near forks.

Width	7½ feet.	Elevation approx. 1,000 ft.
Strike	70°	
Dip	80°	Pay Streak: 26 inches.

Vein matter light grey silicified rock and quartz and calcite. Mineralization, pyrite with fine Pb S and Zn S. Tunnel opening few feet long on vein. A paralled zone about 30 feet away shows a width of about 10 feet with stringers of ore. On the creek bank a few hundred feet to the south-west an iron stained outcrop 20 or more feet wide is the apparent continuation.

(c) Vein on Northern Light No. 5 on creek bank, near South-east corner.

Width	8 feet.	Elevation approx. 700 ft.
Strike	E. - W.	
Dip	Steep to South.	

Vein matter light green silicified rock, probably altered prophyry, with quartz and calcite. Good mineralization pyrite with little fine Zn S and Pb S.

A 40-foot tunnel and short cross-cut were driven on this, but the ore petered out the first 20 feet or so.

It was noticed that a fault striking north and south and dipping 60° W. intersected the vein at the portal of the tunnel, which may account for the localization of values. It is also possible that ore might be found along this fault if explored. The fault shows eight inches of gouge on the hanging wall. It was learned at the Premier that they had drilled on the Northern Light. Thw owner of the latter did not point out the holes to me but on inquiry he informed me that two 500-

foot drill holes were put down on this showing and that the values secured were $3.50. The average of two samples taken by the writer across 4 feet was $3.00 in gold and silver, the lead - zinc mineralization being very slight.

(d) Vein on Northern Light No. 7 near west bank of East Fork and 100 feet above creek.

Width	12 feet.	Elevation approx. 900 Ft.
Strike	N. 15° E.	
Dip	40° W.	Pay streak: 2 feet.

Silicified vein matter with little pyrite and zinc blende. Wide low grade zone traceable for several hundred feet.

SAMPLING AND ASSAYING

Samples No. 7,534 to 7,546, inclusive, were taken from the Northern Light. Samples 7547 - 7550, and 8201 - 8203, were taken from showings on the Premier and Premier Extension comparatively close to the Northern Light boundary.

Some samples were run for lead and zinc, but the present showings indicate that the commercial values in the Northern Light must be reckoned in gold and silver, as in the Premier. It is notable that where character samples of galena were run, the proportion of silver was only from one quarter to one-third of an ounce to the unit of lead. Samples taken over width show values in gold and silver combined of less than $5.00, with one exception of $12.50.

NEIGHBOURING PROPERTIES

Notes concerning these are given on separate sheets. The main points affecting the Northern Light are as follows:

PRIMIER: The Premier producing zone is on Cascade falls No. 4 and the Simpson claim, as marked on plan, a minimum of 1,250 feet horizontally from the Northern Light. Dipping 55° N. W., this ore is effectually cut off from the Northern Light by the Oakville graction and the Cascade Falls No. 5, owned by the B. C. Silver. Further, at these depths of 1,000 feet or more the ore is primary and medium low grade. The elevations of the working tunnels range from 1,300 to 2,000 feet above sea level and the mine is located on a steep hilside.

Lower down, at an elevation of about 600 feet., Premier No. 6 tunnel on Claim 3610 was driven on a large low-grade outcrop 30 or more feet wide. The tunnel was driven in 3,600 feet. The plan to place the mill there was abandoned, and the tunnel is not in use at present. The mill is located at No. 4 camp at about 1,300 feet elevation.

Mine plans show the bonanza type of ore (roughly $100. - $500. in gold and silver) extending down 500 feet from the surface. Secondarily enriched ores are found for 1,000 feet downwards. These may run $40.00 and up. Below 1,000 ft. the ore is largely primary, running $10.00 - $20.00. Mill-heads at time of visit were $14.00.

If we assume that erosion in the valleys has been 500 feet deeper, it will be seen that bonanza ores cannto be expected there.

B. C. SILVER MINES: A long tunnel across the Oakville No. 2 Fraction disclosed only a small ore-shoot remote from the Northern Light boundary. The ore-shoot in the present workings on the Humboldt fraction is 1,600 feet from the Northern Light boundary.

The workings are at an elevation of 1,850 feet.

SEBAKWE: This property was not visited, but the workings were seen on the B. C. Silver Mines plan. They run north and south, and are two claims or so removed from the Northern Light. They also are at an elevation of about 2,000 feet.

PREMIER EXTENSION: This group has no connection with the Premier. It is under option to promotors. It adjoins the Northern Light on the west. It has several low-grade showings near the boundary, one or two of which might be received on the Northern Light.

RIVERSIDE: This property is in Alaska, at the 7 mile from Hyder, on the Premier wagon road, at an elevation of 300 - 500 feet. It is situated in the glaciated U-shaped valley of the Salmon River. It is mentioned as a type of low-grade, low elevation deposit. It is a 4-foot quartz fissure vein in granite, carrying pyrite and galena but no zinc.

Mr. Mellon, the manager, stated that the heads to the 40-ton mill would run $2.40 in gold, and half an ounce of silver to the unit of lead. The lead content appeared to be from 5 to 10 percent. Mr. Mellon said there was no sign of secondary enrichment there, nor would he expect any in that location.

SUMMARY AND CONCLUSIONS

1. There is no hope of the Northern Light receiving any of the Premier or B. C. Silver ores except at great depth. Even should the ores persist to such depth, they would be primary and low grade.

2. While the geology is very similar, the Northern Light occupies an inferier position topographically to the above properties, bying in a claciated valley and having a general elevation of 800 feet lower than the Premier bonanza zone. Signs of intense glaciation were observed on the west fork of Cascade Creek. Any enriched zone on the Northern Light would, therefore, probably have been largely removed by erosion.

Such Premier ores as are found at this elevation are low grade and are not being worked.

3. The Northern Light group must, therefore, stand on the merits of its own showings. These are considered to be too meagre both in value and size to be of further interest to this Company.

It is, therefore, recommended that the group be released.

Respectfully submitted,

Vancouver, B. C.
October 29, 1926.

LIST OF SAMPLES

NORTHERN LIGHT AND ADJOINING PROPERTIES

PORTLAND CANAL DISTRICT, B. C.

Sample Number	Location	Description	Width	Total Au,Ag. (Silver $0.50)	Total all
7,534	Northern Light Fraction	Qtz. & silic 'd greenstone 2 ft. H.W., section good Pbs, ZnS, FeS2 rest poor	48"	$3.35	
7,535	"	Character sample gneissic PbS Little fine ZnS, FeS2, and quartz	Charac.	$8.80	
7,536	"	Pay streak, H. W. section Heavy min. PbS some fine ZnS in qtz	20"	$4.40	
7,537	40' W of Strike	Pay streak. Fair min. PbS, ZnS & Little Pyrite	22"	$4.40	
7,538	Nor. Light #4	Silic'd & Seric'd prophyry 3% sulphides, FeS2 ZnS & PbS consid calcite Pay streak F. W. Section	26"	$12.50	
7,539	"	H. W. Section Silic'd Vein matter with fair bronzy FeS2 & Little fine ZnS	64"	$1.05	
7,540	"	Character sample - dump at opening. Qtz & calcite Good min bronzy, FeS2, with ZnS & Little PbS	Charac.	$23.85	
7,541	"	From 1-ft. streak in 8-ft. paralled zone 30' away. Qtz & calcite with 5% PbS, ZnS, FeS2	Charac.	$9.55	
7,542	Nor. Light #5 Portal of 40' tunnel	Qtz & calcite vein ma matter. Good min. greenish FeS2 Little fine Zn, and PbS.	48"	$2.10	
7,543	Ditto 40' above portal	Silic'd vein matter Good Min. FeS2 Some PbS, Zone about 6'8" wide	48"	$4.90	
7,544	N. L. # 3	Character sample best few inches in 4 ft. Heavy course PbS with qtz. & little FeS2	Chac.	$8.70	

Sample Number	Location	Description	Width	Au. Ag.	All Metals
7,545	Nor. Light No. 7	Pay streak in 10 ft vein Silic'd with qtz. Some ZnS & little FeS2 & PbS	24"	$0.85	
7,546	"	Silic'd mein matter with about 7% sulphides ZnS, FeS2, & PbS	Charac.	$10.85	
7,547	Premier Ex. Vancouver 2	Vuggy qtz. Fair min. small cube yellowish FeS2 Grab from 18" qtz & schist said to run up to $40, Au	Grab 18"	$5.10	
7,548	Premier Ex. Vancouver 3	Light grey silic'd prob. alt'd proph. with 2% yellow FeS2 also 1" calcite with fair ZnS & little PbS Charac. sample from 8' Zone	Charac.	$14.10	
7,549	Premier Ex. Woodbine Fraction	Charac. Sample from best 6' zone in 40' low grade lead similar to Premier No 6 Qtz & Calcite with about 60% sulphides--ZnS, grey Cu. little FeS2 & PbS	Charac.	$1.85	
7,550	Ditto	Dark green rock with good min. yellowish FeS2 & calcite with grey Cu.& ZnS, From large low grade zone.	Charac.	$11.80	
8,201	"	Largely calcite with good min. Cu Fe S2, some grey Cu & fine ZnS	Charac.	$1.70	
8,202	" 700' W & 500' higher	Charac. sample from 6' vein in short cut. Good min. yellow Fe S2, & Cu FeS2, Some fine PbS, ZnS, also grey Cu.	Charac.	$2.45	
8,203	Premier No. 6	Charac. sample from large low-grade outcrop above No. 6 tunnel (not being worked) Vein matter with calcite stringers & 40% sulphides ZnS, PbS, & FeS2, Width of zone 30 plus feet.	Charac.	$3.90	