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NOTARIAL COPY *5/207*

Report by Mr. B. W. W. McDougall, B.A., B.Sc

Winslow Group and Associated Properties  
and  
Spider Mine

*Revised by W. J. Scoggie*

PROPERTY FILE

NOTARIAL CERTIFICATE

OF TRUE COPY

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Province of British Columbia :

To Wit: :

I, William Harold Patterson, a Notary Public in and for the Province of British Columbia, by royal authority duly appointed, residing at 942 West Pender Street, in the City of Vancouver, in the said Province, do certify that the paper writing hereto annexed is a true copy of a document produced and shown to me and purporting to be a report on the Winslow Group and Associated Mining Properties by Mr. B. W. W. McDougall, B.A., B.Sc., dated 12th day of November, 1946, the said copy having been compared by me with the said original document, an act whereof being requested, I have granted this certificate under my notarial form and seal of office to serve and avail as occasion shall or may require.

Dated this 25th day of February, 1950.



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A Notary Public in and for the Province of British Columbia



B. W. W. McDOUGALL, B.A., B.Sc.,  
Consulting Mining Engineer.

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Registered Professional Engineer  
Province of British Columbia  
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November 12th, 1946

Messrs. W. J. Scorgie & W. H. Patterson,  
942 West Pender Street,  
Vancouver, B.C.:

Dear Sirs:

In accordance with your instructions I have made an examination of the Winslow and Associated Mining Properties situated in the Lardeau region of British Columbia. Attached hereto please find my report. I trust that this will provide you with the information you require.

Yours very truly,

B.W.W.McDougall (Sgd)  
Consulting Mining Engineer.

THE WINSLOW GROUP  
and  
ASSOCIATED MINING PROPERTIES  
Silver Cup Mountains  
Trout Lake Mining Division  
British Columbia

416 Bank of Nova Scotia Building,  
Vancouver, B.C.,  
November 12, 1946

B. W. W. McDougall,  
Consulting Mining Engineer.

THE WINSLOW GROUP AND ASSOCIATED MINING PROPERTIES.  
Troup Lake Mining Division, British Columbia:

INTRODUCTION

The purpose of the examination on which this report on the Winslow and associated mineral claim groups is based was to determine the general mining merit of these properties and the possibilities of their being developed to the stage of profitably producing mines - also to obtain such information as would permit of submitting recommendations and suggestions with reference to their more complete exploration and development.

The area in which these properties are situated, as were other mineralized districts in the extensive West Kootenay region, was first discovered, explored and somewhat extensively prospected in the '90's. There was, however, a considerable exodus of miners from the area around the beginning of the century - first to the Klondike and later to the Cobalt silver camp. During the past 45 years a number of properties - notably the Silver Cup, Nettie L, Meridian and True Fissure mines - have had production activities over longer or shorter periods and, as a result of these operations, some considerable information has become available concerning the more intimate details of ore-body geology.

The Winslow Mineral Claim, the principal and central one to be dealt with in this report, was staked prior to 1904 and most of the development work on it was done prior to world war one. It was not, however, until 1939 that a tractor road was constructed through to the property. From 1939 to 1941 a production operation, conducted on a leasing basis, resulted in rehabilitating some of the older workings. As a result of this work some information is available concerning ore values and one of the principal development adits is now open for examination. Certain of the older workings are caved and inaccessible while others are accessible with some difficulty. The property records include a very considerable number of sample assays. The samples are reported to have been taken consecutively as underground work was advanced. The precise points or places sampled are, however, not indicated. In the course of my examination I took numbers of check samples for comparison with those contained in the older records.

In presenting the details descriptive of these properties the Winslow and Gladhand claims are properly to be considered as the key or central holdings. Not only are they centrally located with respect to the consolidated groups but the Winslow-Gladhand vein, from present indications and appearances, is the most important ore structure now known on these properties. Furthermore, the operations sites are the most accessible and in such locations that year-round operations are readily feasible. Operations on certain of the other claims, because of their topographic settings, can probably be conducted during the winter months only at heavy or extraordinary expense.

My examination was made from September 29th to October 3rd, inclusive, 1946. I was accompanied on the property by Messrs. W. J. Scorgie, Albert Lord and George Lindsay. Some 45 samples were taken by myself or under my direct supervision. These were assayed for gold and silver by Messrs. J.R. Williams and Son, Provincial Assayers, of Vancouver, B.C.

PROPERTY.

The properties under consideration in this report, as at present constituted, are in two separate groups. The individual claims are as follows:

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Group 1:	Winslow	L 8680	(C.G)	25
	Gladhand	L 8681	(C.G)	
	Okanagan	L 9127	(C.G)	24
	Enderby	L 9128	(C.G)	
	Lead Queen No. 1		(Location)	
	Lead Queen No. 2		( " )	
	Le Roi No. 1		( " )	
	Le Roi No. 2		( " )	
	Le Roi No. 3		( " )	
	Le Roi No. 4		( " )	
	Gold Nugget		( " )	
	Lakeview		( " )	
	Carl Fraction		( " )	
	Slide		( " )	
	Winslow Fraction		( " )	
	Annie		( " )	
Group 2:	Alice	L 7440	(C.G)	
	Alice Fraction		(Location)	
	Sunshine		( " )	
	Balsam		( " )	
	Sunshine Fraction		( " )	
	Black Pine Fraction		( " )	
	Black Pine		( " )	

There are 23 mineral claims and fractions in all. Five are Crown Granted and the others are locations on which the effecting and recording of assessment work is required annually in order that title may be continuing. The aggregate area is roughly estimated at a little less than 1,000 acres.

#### NEIGHBORING PROPERTIES:

Mineral claims of the Silver Cup group lie a short distance to the north east and probably location claims of this group actually adjoin the Winslow group. The upper terminal of the old Silver Cup tramway is probably about one-half mile distant from the Le Roi No. 4 claim. Claims of the Triune group are less than one-quarter of a mile distant easterly from the Okanagan claim. The U and I claim practically adjoins Winslow claims on the east.

The Cromwell group adjoins the Alice claim - formerly a part of the Group known as the Foggy Day - on the east and the I X L claims adjoin this south easterly group of Winslow Properties on the east. Other mineral claim groups, some of which are at present attracting interest, lie on the south westerly slopes of the ridge between the Winslow Properties and Trout Lake.

#### SITUATION:

No. 1 group of the Winslow Properties straddles the summit of the Silver Cup mountains extending down over the headwaters of Burg (7 Mile) creek on the south west and over the headwaters of Cup creek on the north east.

No. 2 group lies at the headwaters of Laughton (8 Mile) creek and extends from near the summit of the range downwards to the south west.

The location of the Winslow headquarters camp is generally described as being some 7 miles south east from Trout Lake City and about 3 miles north east from Trout lake at the mouth of Burg (7 Mile) creek.



The individual claims of the properties are shown in their approximate geographic relationship with each other and with the physical features of the district in a Mineral Reference Map accompanying this report. Details in respect to the approximate positions of locations or un-surveyed mineral claims are as given me by Mr. W. J. Scorgie.

#### TOPOGRAPHY:

The Silver Cup mountains occupy an area corresponding, roughly, to a segment of a circle, - the chord some 18 miles in length being represented by Trout lake and the upper  $1\frac{1}{2}$  miles of the Lardeau river on the south west and the arc being formed by Lardeau creek on the north, north east and east and by Healy creek on the south east. The height of the arc is represented, also roughly, by the distance from the mouth of Laughton creek on the SW to the confluence of Brown and Lardeau creeks on the NE - a distance of about 6 miles.

The terrain, broken by deeply-cut creek courses, rises from the boundaries of this "circle-segment" to culminate in ridges, high plateaux and peaks from 7,000 to 9,000 feet in altitude. These are the Silver Cup mountains. They are, of course, an integral part of the Lardeau district and of the Selkirk range and may be generally described as a region of high relief characterized by a great valley trending NW - SE with high flanking ranges broken by numerous creek valleys draining to the central valley.

The altitude of Trout lake is 2,400 feet - that of the summit portion of the Winslow group probably reaches to nearly 8,000 feet and that of the Alice-Sunshine group to slightly higher altitudes.

The Winslow claim is at the head of Burg creek which flows throughout its short course from the ridge summit to Trout lake through a deep V-shaped valley with regular side slopes. There is no glacial cirque at its head. The Alice-Sunshine group is at the head of Laughton creek. This creek flows to Trout lake through a deep V-shaped valley with regular side slopes but there are two broad glacial cirques and hanging valleys at its head. The topography is typically alpine in character.

The slopes NE from Trout lake are much more regular than are those on the opposite side of the summit and practically all of the mineral claims are or can be made accessible for exploration work. In respect to a mining operation centered on the Winslow claim the topography is favourable. Many mining operations in the Province have successfully carried forward year-round work under much less favorable topographic surroundings.

#### ECONOMICS.

##### CLIMATE:

The annual precipitation at Ferguson is about 49 inches which figure includes the water from an average of about 22 feet of snowfall. Ferguson, which is situated at the confluence of the North and South Forks of Lardeau creek, is at an altitude of 3,000 feet. Precipitation varies more or less directly with the altitude and both total precipitation and snowfall are considerably greater at and above the mile-high contour than in the valleys. At Glacier on the Canadian Pacific Railway the annual precipitation is given at 58 inches and the aggregate snowfall at 34 feet. The altitude at this point is 4,072 feet. At the Winslow camp which is between 6,000 and 7,000 feet above sea level precipitation and snowfall is probably somewhat similar to that of Glacier.

Temperatures and snowfall in the Lardeau area, generally, are similar to those prevailing throughout the West Kootenay region and, in respect to climate, operating conditions are very similar to those prevailing throughout the Slocan, Ymir, Sheep Creek, Rossland, Nelson and other districts. Provided adequate arrangements are made and suitable facilities and equipment installed mining operations can be carried forward continuously throughout the year.

#### TIMBER:

The mountain slopes on the NE side of Trout Lake are heavily timbered. Timberline is about at the 7,000 foot contour. From the lake margin, (Elevation 2,400 feet), to about the 5,000 foot contour there is excellent commercial timber. Varieties include cedar, fir, spruce, pine and hemlock. Above the 5,000 foot line hemlock and balsam predominate and still higher few trees other than balsam occur.

In the event that a serious effort be made to establish an important development and production operation on Winslow a small sawmill, erected on the mid-slopes of the mountain along the tractor road, would seem an economic necessity.

#### WATER:

Water from the upper course of Burg (7 Mile) creek is available at the Winslow camp and plant site. There is an adequate supply for domestic, mining, plant and metallurgical requirements. This water supply, moreover, is available without any considerable expense for diversion.

#### POWER:

No water power of recognized importance is available in the reasonably close proximity to the Winslow site. Burg and Laughton creeks, in their upper courses, have flows of possible 2 CFS in the dry seasons. While their flows at lower altitudes are doubtless greater - particularly during run-off seasons - the cost of developing low-volume, high-head power and of transmitting this to a plant at Winslow would probably prove quite uneconomical. The creek volumes vary through large limits and the autumn and winter flows are low.

From such information as I could obtain during my examination, I am of the opinion that power requirements can best and most economically be provided by the installation of diesel engines near the operations sites.

#### TRANSPORTATION AND ACCESS:

Revelstoke, a divisional centre on the Canadian Pacific Railway some 380 rail miles easterly from Vancouver, is the usual place of entry to the Lardeau area. There are, however, two other access routes; one from Castlegar and West Robson northerly up the Arrow lakes and the other northerly up the Kootenay lake from Nelson.

From Revelstoke a branch railway extends SE down the Columbia river valley to Arrowhead near the north end of the Upper Arrow lake - a distance of 27 miles. A steam tug and barge service plies between Arrowhead and Beaton - Beaton being situated at the north end of the NE arm of the lake some 9 miles distant from Arrowhead. A road extends from Beaton south easterly following the course of Salmon creek thence over a low divide and down to Trout Lake City at the NW end of Trout lake. The road distance is 12 miles and Trout lake is 1,000 feet higher than the Upper Arrow lake. The road, at its highest point, is several hundred feet higher than Trout lake. This road is in fair condition - there are some grades but minor repairs and servicing are all that is required to make it a reasonably good motor transport route.

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REFERENCES

Numbers of the mineral claims of Winslow Properties are described in the Annual Reports of the B.C. Minister of Mines and in two publications of the Canadian Geological Survey. A list of these references is as follows:

Minister of Mines Reports:Winslow:

<u>Year</u>	<u>Page</u>	<u>Year</u>	<u>Page</u>	<u>Year</u>	<u>Page</u>
1904 --	118	1909 --	101	1933 --	216
1906 --	133	1911 --	154	1934 --	A26
1908 --	101	1914 --	309		

Okanagan

1914 --	310	1915 --	450	1918 --	156
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Alice, (Foggy Day)

1917 --	165	1922 --	217	1931 --	151
1918 --	157	1923 --	234	1934 --	E36
1921 --	161	1930 --	267		

The most comprehensive descriptions are given in the M. of M. Report for 1914.

The physical features and geology of the Lardeau area is described in the C.G.S. Summary Report for 1903 by R. W. Brock and, more recently, in the excellent and most comprehensive C.G.S. Memoir 161 by Drs. J. F. Walker, M. F. Bancroft and H. C. Gunning. Particular reference is made to this Memoir and to the geological map which accompanies it.

HISTORY

The Winslow vein appears to have been discovered and the Winslow and Gladhand claims staked about the year 1904. Gold values of promise were, presumably, discovered in "float" and the vein subsequently located beneath overburden by tranching. Most of the development work was done between 1908 and 1911. In the M. of M. Report for 1911 it is stated that large bodies of ore of satisfactory grade had been opened. The No. 3 tunnel, which represented a successful attempt to locate the vein at a new low-level horizon, was driven in 1911. Disagreement among the interested parties and lack of capital are said to have been responsible for the long period of inactivity which followed. Minor, but apparently short-lived, activity is reported as having occurred in 1933.

Early in 1938 Mr. W. J. Scorgie obtained a lease on the Winslow, Gladhand and Okanagan claims. He opened high grade ore on the Nos. 1 and 1A levels of Winslow and did considerable development. Late in 1939 a syndicate was formed, a small mill was built, and a small-scale production was carried on until the autumn of 1941.

There was considerable prospecting interest in territory at the head of Laughton creek in the early days. The Foggy Day claim which, I believe, is now included in the Sunshine claim, is said to have been first staked about 1905 or 1906. A considerable amount of work was effected in this area. Its rugged location and transport difficulties, however, retarded serious development. In 1917 and 1918 some 18 tons of hand-sorted ore was shipped which assayed about 3.6 ounces gold to the ton. At that time the claim was owned by Mrs. Jowett of Ferguson and it has at various times been under consideration by mining interests.

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At the present time a Company is in process of being organized to develop the two claim groups which are under consideration in this report.

### GEOLOGY

The Silver Cup mountains are centrally located in a belt of late Pre-Cambrian sedimentaries locally known as the Lardeau Series and co-related with the Windemere Formation which occupies relatively large areas elsewhere in the eastern part of the Province.

The Lardeau Series occupies a well-defined belt, about 13 miles wide in the vicinity of Trout Lake and the Silver Cup mountains, and strikes in a NW - SE direction. The rocks include quartzites, phyllites, chloritic schists, carbonaceous schists, slates and limestones all metamorphosed in varying degrees. Structurally they form a major syncline with numerous minor folds one of which appears to constitute a minor anticline folded into the general inverted structure.

These rocks are intruded by numerous greenstone dykes which are co-related with the Kaslo volcanics of Triassic age. These dykes, however, are not recognized as having had any critical or important control of ore-body emplacements.

The Lardeau Series together with narrower flanking widths of still older rocks are very nearly encircled by granitic rocks of the Nelson and Kuskanax batholiths - the former being the older and both believed to be of Mesozoic age. The Lardeau Series rocks are thus considered as occupying a great basin in the intrusive formations and at some, but unknown, depth the entire area is underlain by the plutonic rocks.

Ore-bearing solutions and emanations which formed the ore bodies of the district are considered to have had their origin in these underlying granitic plutonics and are generally considered to be Mesozoic (Jurassic or early Cretaceous) in age.

It is inferred that the major folding and deformation of the Windemere rocks occurred as a result of the Nelson and Kuskanax batholithic intrusions. The fract ring of the metamorphosed bedded formations which gave access to mineralizing solutions is visualized as having been exceedingly complex. Quartz veins carrying commercial values in gold, silver and other metals occur throughout an altitude interval ranging from Trout Lake to the summit of Silver Cup mountains - or more than one mile.

Referring to Map 235A which accompanies C.G.S. Memoir 161. it will be observed that some 23 of the 88 mining properties or mineral claims described occur in that 'circle-segment' area of Silver Cup mountains. On the upper SW slopes of these mountains where the Winslow claims are, for the most part, situated the general strike of the schistose formations is about N 45° W. The dips are mostly NE though, due to local folds, the angles vary through a considerable range. Quartz-sulphide veins occur cutting the schists at varying angles - others appear to follow the beds. Ore shoot localization, in some instances, appears to be due to mechanical circumstances such as abrupt changes in strike or dip with resulting constriction or damming tendencies to penetrating ore solutions. In other instances chemical reasons - such as the mingling or solutions at vein crossings - seem to be indicated.

The Winslow properties are located, geologically, on the SW limb of the great synclinal structure. The veins are characteristically gold-bearing in contrast to the predominantly silver-bearing nature of veins on the NE side of the Silver Cup mountains.



DESCRIPTION OF MINE WORKINGS AND VEIN OCCURRENCES.

There are no properly prepared maps showing the mine workings or the several known vein occurrences with reference to property boundaries and the time of the examination was insufficient for making detailed Brunton surveys. Several sketches accompanying this report are for the purpose of recording my sample locations and assays and to present a general, approximate, picture of the principal workings.

In respect to the altitude figures given, these are somewhat higher than those reported by others. They were obtained from aneroid readings and, at least in respect to altitude differences, are believed to be reasonably correct.

WINSLOW:

The Winslow vein has been explored and partly developed at four horizons and an incomplete attempt has been made to locate it at a still lower horizon. It outcrops, for the most part if not entirely, beneath fairly heavy overburden. It occurs on the right (Northerly) slopes of Burg creek valley and it strikes in a direction diagonal (roughly 45°) to that of the creek course in the V-notch of the valley bottom. It has been reasonably proven to be continuous over a length of more than 400 feet and through a vertical interval of more than 300 feet - its general structure and appearance at both ends and at the deepest point where it has been exposed are such that it may reasonably be expected to persist on both dip and strike unless it should happen to be dislocated by faulting. Its total width is exposed in only two or three places, - these being in the No. 1A tunnel. Two crosscuts show the vein to be in two sections aggregating about 1.2 feet in width. The sections are separated by a band of schist from about 1.5 to 4.0 feet in width. The approximate strike is N 10° E and the dip from 55 to 70 degrees NE.

The upper or No. 1A tunnel, at an altitude of 6,780 feet, has been driven on the footwall section of the vein from the portal to the present face, - a distance of 178 feet. Near the portal it apparently intersects and passes through a 10-foot vein which has a strike of about S 78° W. This crossvein has not been prospected but about 100 feet distant westerly from the tunnel portal there is an accumulation of limonite which apparently is being built up from pyrite leached from it.

The tunnel back has been stoped to the surface from the portal to about the 50-foot point. A raise has been driven about 32 feet from a point about 150 feet from the portal and from the top of this raise two "Y" branches, each more than 50 feet long, have been extended. The raise and its two branches are all in the footwall section of the vein which appears to have an average width of five feet or more.

The gangue consists largely of quartz which, in places, shows some sheeting. There are small amounts of carbonates. Sulphides present are largely pyrite with very minor amounts of galena, sphalerite and chalcopyrite. The pyrite occurs in discontinuous streaks, irregular bunches and disseminations and is not at all uniformly distributed. In ore shoot vein areas free gold is present. For the most part this gold is believed to be intimately associated with the pyrite but it does occur in the quartz removed from sulphides as well. Commercial values appear to occur in definite shoots separated by lean or low-grade vein areas. Conveniences were inadequate for a complete sampling of the drift backs and raises. Sampling conducted while the drift was being driven in 1939-41, as contained in the records of the Syndicate, indicate a general average of 0.77 oz/t in gold across an average width sampled of 5.8 feet. Presumably, however, some of the samples included were from the small stope below and above the level. The general average is probably considerably less than this figure. A preliminary estimate of between 0.3 and 0.4 oz/t in gold is suggested. A complete 5-foot interval sampling of these workings

is required.

Syndicate records of sampling in the main stem of the "Y" raise gives an average gold content of 0.23 oz/t across an average width sampled of 5.6 feet. Information from the same source indicates averages for the east branch of the "Y" of 0.49 oz/t gold across an average width of 5.6 feet and of the west branch 0.19 oz/t gold across an average width sampled of 7.6 feet. The total number of samples from which these raise averages have been computed is 61. As already noted the hangingwall section of the vein is exposed by crosscuts only in two places and this hangingwall section appears to be of about the same width as the footwall section. The results of my own sampling are indicated on a sketch map accompanying this report.

The No. 1 level is at an altitude of 6,740 feet, - of about 40 feet below the No. 1A. This level is caved and inaccessible. Mr. Scorgie has informed me that he encountered ore at a distance of 12 feet and that the tunnel was advanced a distance of about 50 feet to the apparent end of the high grade shoot which was about 40 feet in length. This high grade was mined out to the No. 1A level and above this, again, to the surface. Of this ore 89.19 tons was sorted out and shipped to the smelter. The total gold content is given as 187.038 ounces or an average of 2.0 ounces to the ton. The remaining ore together with from 300-400 tons (estimated) of old dump ore was put through the small mill and values in both concentrates and bullion were recovered. Mill losses probably approached 40%. The total amount of gold contained in the crude ore, concentrates and bullion aggregated about \$24,000. There is some reason for believing that the emplacement of this particular ore shoot was due to the intersection of the Winslow vein with the cross vein. An average of some 47 samples from the level and from the small stope (now filled) above it, representing an average width of 5.5 feet averaged 0.62 oz/t in gold according to the Syndicate records.

The Winslow No. 2 level is caved and inaccessible. It is the mill level horizon and at an altitude of 6,640 - some 100 feet below the No. 1 level horizon. The tunnel is said to be a crosscut for the first 160 feet of its length. The vein was cut at this point and was drifted on for a distance of about 80 feet. Vein widths of 6.5 to 10.0 feet are reported but the assays given in Syndicate records are low-averaging about 0.04 oz/t in gold. The vein, however, judging from the dump material is similar in character to that found elsewhere. It may be that the downward extension of the No. 1 level ore shoot should be searched for to the south rather than to the north of the entering crosscut.

The No. 3 level is at an altitude of 6,540 feet. It is a crosscut driven from the mid-slopes of the Burg creek slope. It intersects the vein at a distance of about 300 feet (paced) from the portal. Only the footwall section 52 inches in width is exposed. It is of hard quartz showing slight traces of sheeting and lightly mineralized with disseminated pyrite. Several thin streaks of siderite or ankerite also occur along sheeting planes. A very heavy flow of water is continuously washing over this vein exposure and it could not be sampled deeply on account of its extreme hardness. My one sample, taken across a width of 52 inches assayed 0.02 oz/t in gold. Samples reported in Syndicate records are given as follows:

No. 1.	Select pieces from broken vein material showing galena,	1.08 Oz Au.
No. 2.	General sample of material broken from vein,	0.24 "
No. 3.	Select pieces of heavier than usual pyrite,	0.53 "
No. 4.	Schist on wall of vein,	0.51 "

This adit, except for the portal timbering, is in good condition. It has located the vein at the most southerly and deepest point yet known and, from appearances

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it is quite as strong as in the upper levels.

The No. 4 tunnel has been driven from a point near the bottom of Burg creek valley at an altitude of about 6,240 feet. It is about 300 feet in length, (paced), and it has been driven in an easterly direction. A short raise has been driven at the end evidently in a 'last-minute' effort to come under the footwall of the vein. The altitude of this tunnel is about 540 feet below that of the upper or 1A tunnel. This is the adit mentioned in the M. of M. Report for 1914 as being under way when operating funds became exhausted. Except for the portal timbering the working is in good condition. It is impossible without surveys to estimate how far it would be necessary to extend it in order to intersect the strike of the vein. From a rough estimate it should not be more than 100 feet.

It might be stated at this point that deeper vein intersections than the No. 4 tunnel horizon will involve relatively long crosscuts since the presumed strike of the vein is such that it should cross to the opposite side of the gulch not far below and its further course southerly should be into the south flank of the gulch. There is a good site for a mill a short distance below the No. 4 portal. In the same general vicinity there are good sites for mining plants and camps. The locality is in fairly heavy timber and quite free from snow slides. Also the sites, are more readily accessible, with reference to winter transportation, than are the present sites near the portal of the No. 2 tunnel.

Northerly or uphill from the No. 1 adit portal the terrain continues, on an even grade of about 25 degrees to the plateau summit at an altitude of about 7,300 feet - or somewhat more than 600 feet above the No. 1A tunnel. There are two caved tunnels above the No. 1A but it is impossible to determine whether or not these have intersected the vein.

The altitude range from the No. 4 level to the summit of the plateau is thus more than 1,000 feet. Assuming that ore shoots are located by preliminary development the aggregate vein area between the two horizons is large and the valley location for plants and camps would merit favorable consideration.

#### LEAD QUEEN.

This claim is on the NW corner of the Winslow group at the head of Sharon basin which drains NE into Cup creek. At an elevation of 7,460 feet a tunnel has been driven into the ridge in a direction about S 76° W and at vertical distance, (estimated), of about 200 feet below the summit. The locality is practically without trees and the slope above and below the portal averages more than 40 degrees. The vertical distance to the basing below is probably about 200 feet and the strike of the vein is nearly normal to that of the mountain slope. Thus a drift tunnel at a depth of 200 feet below the present one is possible. The tunnel is caved tight at the portal. It is probably somewhat less than 100 feet in length. It represents the work of a prospector working intermittently over a considerable period of years. Several tons of ore had originally been accumulated at the portal but most of this has been swept down the mountain side by a snow slide. The vein could not be seen except at some distance down the steep slope. It is said to be 4.0 feet wide in the tunnel face and to be "good ore". It appears to cut across the bedding planes of the schist at an angle of about 25 degrees. The bedding planes of the enclosing rocks are lightly pyritized for distances of 15 feet or more from the vein. Several small quartz stringers also invade the bedding planes for short distances. The ore is entirely different from that of Winslow and resembles, generally, that occurring on the Silver Cup property. The gangue is largely quartz with very minor carbonates and the sulphides include pyrite in bunches and disseminations and coarse-grained

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galena in small masses. A selective sample carrying abundant galena returned an assay of 0.14 oz/t gold and 60.0 oz/t silver,--(Sample No. 22). Sample No. 23 carrying very little sulphides assayed 0.03 oz/t gold and 0.75 oz/t silver. There was no way of determining the proportion of galena in the ore. Presumably this vein may be expected to contain silver to the amount of about one ounce to the percent of lead.

It would be possible to freight ore from this vein across the plateau summit to the Winslow site but there would be some considerable expense for a road. Should further development indicate important ore bodies a separate operation, conducted from the Sharon basin side, would doubtless prove more economical.

#### OKANAGAN:

The Okanagan and Enderby claims are entirely above timber and much of the surface is without vegetation of any sort. The surface slopes at a low angle but, due to glacial gouges, is somewhat rough and rugged - much of it is without overburden and the locality offers splendid opportunity for geological study. There are abundant quartzite beds and barren or low-grade quartz veins. At the time of my examination of this locality it was foggy and snowing and visibility was low and I was unable to do more than examine the main Okanagan showing.

On the Okanagan claim at an elevation of 7,725 feet a well-defined quartz vein which cuts across the bedding planes of the enclosing schists has been rather extensively prospected over a length of about 200 feet. The strike of this vein is in the approximate shape of a gentle arc; at the northern end it is about N 10° W and at the southerly end about N 33° W. Observed dips are from 57 to 65 degrees easterly. Workings include two shafts, each about 14 feet deep, two U/cuts driven on the strike of the vein and some stripping along the outcrop. The vein is from 1.5 to 4.5 feet in width and the principal sulphide present is pyrite which is irregularly distributed throughout the quartz. The most northerly of the two shafts, being filled with water, was bailed out for inspection. A somewhat unusual feature of the vein at the shaft bottom is a "bulge" of quartz outside of the well-defined hangingwall of the vein. This "bulge" carries an unusually large amount of chalcopyrite and sphalerite. Sample No. 28, taken from this occurrence across a width of 1.2 feet, returned an assay of 1.68 oz/t in gold. Other samples taken from this shaft and from the near-by U-cut, (Samples 24 to 30), all carried more or less important gold values. A cross-section sketch of the prospect workings showing sample locations and assays is attached to this report. Samples taken from the southerly shaft and U-cut returned only low values. To the northwest the vein appears to lose its identity after a distance of about 200 feet from the workings,-- to the southeast it appears to narrow for some distance beyond which it widens and is said to be traceable for a long distance.

Doubtless the surface of these two claims has been extensively prospected in years gone by since vein and quartzite outcrops occur in profusion and, due to the absence of overburden, they can easily be traced.

I have been personally informed by Mr. James Main, one of the miners concerned, that in 1940 about 5 tons of ore was mined, hand sorted and shipped to the smelter and that the gross returns were about \$750.00. Smelter return sheets which form part of the Syndicate records include three settlement sheets describing shipments aggregating 2.77 tons which contained 10.128 ounces of gold,-- or an average of 3.6 oz/t. A crosscut tunnel was commenced years ago to open the vein at a depth of from 60 to 70 feet below the outcrop. This working has not, however, reached its intended objective. A disadvantage of this vein and of possible other gold-bearing occurrences on the Okanagan and Enderby claims is that important development can only be effected through shafts. Development work can readily go forward during summers

B. W. W. McD. (Init.)

but winter operations would require expensive preparations. Ore produced in these localities could, however, be trucked in summers or toled in winters to a mill on the Winslow or Gladhand claims.

ALICE:

A good horse trail leads from the Winslow camp and plant site, following the SW side of the Silver Cup summits, to the southeasterly group of Winslow properties. The distance is about 3 miles. This trail gives access to the pass leading to Brown creek which drains easterly to Lardeau creek. It is used, incidentally, by people travelling from Trout Lake to the Cromwell and other claim groups on the easterly side of the range.

There was snow at the higher altitudes when I inspected the workings on these claims and it was impossible to visit certain surface exposures on precipitous slopes.

The Alice showings occur on the steep slopes at the head of the upper glacial cirque and at the head of one of the tributaries of Laughton creek. Rock spalls and slide debris extend upwards for several hundreds of feet above the floor of the cirque. Above this, again, bare cliffs - sloping at angles approaching 60 degrees - extend to the summit of the ridge. Almost at the top of the line of rock debris and at the foot of the escarpments there are four short tunnels more or less parallel to each other which partly expose a flat-dipping vein. This dips easterly, into the ridge, at varying degrees but the average angle appears to be about 15 degrees.

The most easterly of these tunnels is about 75 feet in length. It commences in the footwall rock - encounters the vein at the 60-foot point - and continues across the downward-dipping vein some 15 feet to the face. The strike is about N 07° E. While the vein appears to cut across the bedding planes of the enclosing schists it is apparent that it has a somewhat 'rolling' dip indicating that the bedding planes of the host rocks have had important influence on the development of the vein fracture. Samples 1 and 2 were taken from the vein in this tunnel. While the assays show only low gold values it is evident that some high grade ore was encountered in the vicinity. The original pyrite content of the quartz is largely oxidized. The vein, in this tunnel, is about 1.5 feet in width.

Tunnel No. 2 is about 50 feet northwesterly from the No. 1 and about 15 feet higher. It is about 50 feet in length with a crosscut 15 feet in length. It intersects the footwall of the vein at about the 25-foot point and continues on it for a distance of 25 feet. The vein is from 2.0 to 2.5 feet in width. Samples 3 to 6, inclusive were taken from this working approximately as indicated in the sketch map attached to this report. Sample No. 7, which assayed 3.5 oz/t in gold, was a grab from sorting rejects.

Tunnel No. 3 is about 25 feet northwesterly from No. 2. It is 35 feet in length and, roughly, 5 feet higher than the No. 2. Its course is N 20° E and near the face the vein rolls abruptly downwards, (Easterly). The dip elsewhere is about 12° E. The width of the vein varies from about 1.2 to 2.0 feet. Samples 9 and 10 were taken from this working, - both carried attractive values in gold.

Tunnel No. 4, some 12 feet in length, is about 30 feet northwesterly from No. 3 and about 5 feet higher. The vein is 8 inches wide in the face and it dips 10 degrees easterly. Sample No. 10, taken from the face across an 8-inch width, returned an assay of 0.40 oz/t in gold.

B. W.W. McD. (Init.)

During 1917 and 1918 a total of 18,242 tons of hand-sorted ore was shipped to the smelter from these workings. Smelter returns have a total gold content of 66,479 ounces or an average of 3.63 oz/t.

#### SUNSHINE:

At an elevation of about 7,800 feet a tunnel, some 77 feet in length, has been driven on a quartz vein from 2.0 to 5.0 feet in width. This vein, also, dips gently but at the face, due apparently to the influence of rolling schist beds, it rolls over to a 43-degree easterly dip. Samples 11 to 15, inclusive, were taken from the vein as exposed along the walls of this tunnel. Sample locations and assays are indicated on an accompanying sketch.

This vein is similar in character to the "blanket" vein of the Alice claim and it is quite possible that the two occurrences are really one and the same vein. The two localities are possibly nearly 1,500 feet apart. A pit on the Alice Fraction claim, some hundreds of feet on the opposite or northerly side of the four Alice tunnels, also discloses a flat-dipping vein. While there is no certainty that these three localities all expose the same vein the general character of the occurrences and the character of the mineralization suggest the possibility that such is the case.

The development and possible exploitation of these Sunshine and Alice occurrences presents a somewhat difficult problem. The Alice Fraction end could be explored by diamond drilling. Comparatively short holes would be required. Elsewhere, however, lack of water, difficult terrain and shattered cover rocks would seem to preclude diamond drilling as an exploration method for locating the exact position of the vein.

The most desirable method of developing would be by means of a drift tunnel. This would be reasonably satisfactory provided no faulting occurs. But sudden changes of dip would necessitate abrupt angles and turns in the drift. The conditions of topography and snow are such that development could only be carried on during the summers and from a camp possibly situated some distance away and, likely, several hundred feet lower than the working sites. On the other hand the vein carries high grade gold-bearing ore and further study accompanied by surveys and mapping will doubtless result in determining the best and most economical methods of solving the problems. It might be mentioned that there is an old trail leading from Trout lake, up Laughton creek valley, to the cirque.

#### BLACK PINE:

At an altitude of 7,500 feet and on the northerly ridge rim of another cirque southerly from the Laughton creek one, a shaft has been sunk and opened excavated on a strong quartz-sulphide vein. The shaft appears to be about 25 feet deep and the vein from 3 to 5 feet wide. The strike is about N 55° E or nearly at right angles to that of the schists. Samples 17 to 19 are non-selective grabs from dump material at the shaft. This vein is said to be traceable in both directions from the shaft and over a total distance of possibly more than 3,000 feet. At the time of my inspection we were under the impression that the vein traverses the Black Pine claim but subsequent information suggests that it is on the I.X.L. claims. In any event the up-hill extension of this vein may reasonably be expected to traverse the Balsam claim of the Winslow Groups. The principal reason for making mention of this particular vein occurrence is to indicate that there are other mineral showings on this old "Foggy Day" territory which have as yet received only prospecting attention. It would require a month's time with surveying equipment to adequately study this interesting area.



During the past 40 years many mining engineers and others have examined and prospected these old claim locations. This is the first time, however, that the groups, now under consideration, have been assembled under common ownership. Undoubtedly much information concerning veins, ore and geological details has been obtained throughout the years and this would be very useful now. It will be understood that the descriptions given in foregoing paragraphs are largely from the results of explorations and developments effected since 1938.

#### CONCERNING METALLURGY

With the single exception of the Lead Queen No. 1 silver-lead occurrence all the known ore occurrences on Winslow Properties are, primarily, gold-bearing. Also, these veins, though separated by a distance of as much as 3 miles, are remarkably similar with respect to gangue and sulphide minerals. The gangue is universally quartz with, occasionally, very minor carbonates and without included silicified country rock. The principal sulphide is pyrite - in some instances it is the only sulphide - in other places the veins carry minor amounts of galena, blende and chalcopyrite. Gold is believed to be associated largely with the sulphide minerals though small particles of free gold may occasionally be seen in the quartz entirely removed from sulphides.

These ores may be expected to yield a high gold recovery by cyanidation and, in view of the general economic conditions prevailing at the property, this process, in spite of the higher first cost for a mill, would seem to be the most suitable. However, in the event that ore in sufficient amounts to warrant milling is developed, an ore test by competent authority is essential to determine precise processing details and general flow-sheet design.

The present small mill was obviously designed to salvage whatever values were easily obtainable. The mill, of nominal 25-ton capacity, is equipped with a small jaw crusher, 4' x 4' cylindrical ball mill, home-made classifier - short amalgamation plates and a Wilfrey table. It is belt-driven by a 25-HP Gardiner diesel engine. Details concerning its metallurgical performance are unavailable but it seems unlikely that its gold-saving efficiency could have much exceeded 60%.

#### CAMPS

At an earlier time the property had good and, presumably, adequate living accommodations for a substantial working crew. These are now collapsed. Besides a small shop, store house, stable and the mill the only other building on the property is a small log cabin which will accommodate three or four men. In the event that an important development operation is to be established modern camp buildings suitable for a crew of 20 to 30 men are imperative. The cost of providing such accommodation is estimated at \$10,000 and this figure assumes the availability of lumber from a source on or near the property.

#### RECOMMENDATIONS

Whatever subsequent developments on these properties may disclose, the Winslow vein, from present knowledge, is properly to be considered as the outstanding mineral showing. It has been demonstrated to be commercially gold-bearing and it is unusually large in width. Moreover, its location is such that vein backs of more than 1,000 feet are obtainable with only short crosscut drives. The development sites are already accessible by tractor road and development from at least three horizons can be commenced as soon as facilities and equipment have been provided. I am of the opinion

B. W. W. McD. (Init.)

that preliminary development of these properties should be chiefly concerned with drifting on the Winslow vein at the three horizons. Opinions as to the proper and precise procedures will, doubtless, differ but the preliminary objectives are clear-cut. The following stages of procedure are intended as tentative suggestions and are, of course, subject to alteration or modification to suit such changing circumstances as may arise:

1: Repair and advance the No. 4 edit to its intersection with the Winslow vein. By means of proper surveys determine closely where such intersection should occur, so that in case faulting may have occurred, useless driving may be avoided. This work, I think, should be done by hand-mining methods and as early as in the season as possible. This work stage should be considered completed as soon as the vein is cut.

2: If the vein is successfully located at the No. 4 horizon and if it is favorable in respect to its general appearance, prepare to make this No. 4 horizon the main working level.

3. Erect camps in the valley bottom convenient to this portal site.

4. Install a diesel-driven compressor, - preferably a unit of adequate capacity to operate two rock drills and a drill sharpener. Provide all other installations and equipment necessary for machine mining.

5. Working on a basis of two drills two shifts daily on the 1A, 3, and 4 horizons effect a minimum of 2,000 feet of drift development on the Winslow vein, driving crosscuts at regular, (25-foot), intervals to disclose the full widths.

The cost items of effecting this work would include the following:

- a. Purchase or rental of tractor and bulldozer.
- b. Widening road from Trout Lake to Winslow.
- c. Building short length of new road to No. 4 site,
- d. Providing camps for minimum of 20 men.
- e. Installation of diesel-driven compressor.
- f. Installation of steel-sharpening equipment.
- g. Installation of water and air lines and of miscl. equipment.
- h. Purchase of rock drills and drill steel.
- i. Driving 2,000 feet of drifts.

It is estimated that this programme would require a minimum of \$75,000.

A less ambitious programme, which merits consideration, would involve the installation of a 250-cu ft compressor, the use of one drill two shifts daily and a total of 1,500 feet of vein development. On this basis the completed project may be expected to cost a minimum of \$60,000.

Another alternative would be to employ a diamond drill for a full season to test for vein locations and continuations. In a vein of this type it would be unwise to rely on core and sludge assays for values since it is already indicated that the ore occurs in definite shoots in the vein areas. Assuming a minimum of 4,000 feet of drilling, together with the surveying and mapping of the drilling, veins and mine workings, the anticipated cost would be about \$25,000. I personally favor drift development even if only the smaller equipment is employed. It is of course essential that the mine workings be surveyed, properly sampled and assayed.

B. W. W. McD. (Init.)

In respect to the other vein occurrences on the properties more careful study can be made of these while conducting assessment work. In due course, if conditions warrant, seasonal development with or without a light compressor can be undertaken.

CONCLUSION

In my opinion the Winslow and Associated Mining Properties warrant important exploration and development more or less along the lines indicated in this report. Because of its important width, its steeply-dipping attitude, its known gold-bearing character and its relative accessibility I believe that initial development should be conducted principally on the Winslow vein. Subsequent procedure would depend on the results disclosed by this work.

Respectfully Submitted,

B. W. W. McDougall

Consulting Mining Engineer.

416 Bank of Nova Scotia Building,  
Vancouver, B.C.  
November 12th, 1946.

(SEAL)

Professional Engineer  
B. W. W. McDougall  
Mining Engineer,  
Province of British Columbia



J. R. WILLIAMS & SON  
 PROVINCIAL ASSAYERS  
 BASEMENT, ARTS & CRAFTS BLDG.  
 576 SEYMOUR STREET  
 VANCOUVER, B. C.

October 10th, 1946

RESULTS of Assays made on samples of ore submitted by: B. W. W. McDougall Esq., M.E.

MARK	Gold Ozs.p/t.	Silver Ozs.p/t.						
<u>WINSLOW MINE</u>								
Sample No. 1.	0.05	1.40	<u>Widths</u> 1.5'	<u>Locations</u> Alice M.C. No. 1 tunnel,	60'	from	portal	
2.	0.01	trace	1.4'	" " "	"	opposite	No. 1	
3.	0.50	1.15	2.0'	" " No. 2	"	end of	X-cut	
4.	1.14	3.40	2.5'	" " "	"	wall of	X-cut	
5.	1.04	2.60	2.1'	" " "	"	wall beyond	X-cut	
6.	0.19	0.20	1.9'	" " "	"	end of	stope	
7.	3.50	9.80	Grab	" " Sorting rejects at		tunnel	portal	
8.	0.50	0.95	1.2'	" " No. 3 tunnel,		left side of	wall	
9.	1.54	2.60	1.9'	" " "	"	20' from	portal	
10.	0.40	0.40	0.7'	" " No. 4	"	face		
11.	0.15	0.15	5.0'	Sunshine M.C. Tunnel -	5'	from	portal	
12.	1.22	3.40	3.1'	" " "	- 15'	" "		
13.	0.06	trace	4.0'	" " "	- 24'	" "		
14.	0.04	trace	2.0'	" " "	- 35'	from	portal	
15.	0.15	trace	2.9'	" " "	- 48'	" "		
16.	0.02	trace	1.9'	" " Vertical vein	60'	E from	tunnel	
17.	0.42	2.70	Grab	BLACK PINE OR I.X.L. Non select		from	shaft dump	
18.	0.10	0.70	Grab	" " " " " " " " " "				
19.	0.14	1.10	Grab	" " " " " " " " " "				
20.	0.05	trace	Grab	Winslow M.C. Old dump above	1A	tunnel		

J. R. WILLIAMS & SON  
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 576 SEYMOUR STREET  
 VANCOUVER, B. C.

October 10th, 1946

RESULTS of Assays made on samples of ore submitted by: B. W. W. McDougall Esq., M.E.

MARK	Gold Ozs.p/t	Silver Ozs.p/t.			
<u>WINSLOW MINE</u>					
Sample No. 21.	0.01	trace	<u>Widths</u>	<u>Locations</u>	
			Grab	Winslow M.C.	from old dump above No. 1A
22.	0.14	60.00	Grab	Lead Queen No. 1 M.C.	Select galena from dump
23.	0.03	0.75	Grab	" " " "	quartz from dump
24.	1.16	0.70	1.9'	Okanagan M.C.	face of N U-cut 5' below surface
25.	0.32	0.30	1.2'	" "	bottom of N U-cut
26.	0.40	0.35	1.9'	" "	bottom S end of N shaft
27.	0.40	0.35	2.0'	" "	bottom N end of N shaft
28.	1.68	0.80	1.2'	" "	HW bulge at bottom N shaft
29.	0.24	0.20	1.9'	" "	N end of N shaft 5' above bottom
30.	0.12	0.40	1.8'	" "	S end of N shaft 5' above bottom
31.	0.08	trace	2.0'	" "	surface cut 30' south of N shaft
32.	0.09	2.40e	5.8'	" "	N end of S shaft 4' below collar
33.	0.04	trace	4.0'	" "	S end of S shaft 10' below collar
34.	0.025	trace	4.3'	" "	face of S U-cut 3' below surface
35.	0.05	0.20	10.0'	Winslow M.C. No. 1A tunnel	- X-vein near portal
36.	0.08	trace	3.8'	" " " "	HW in X-C 125' from port.
37.	0.10	trace	4.6'	" " " "	FW at 125' from portal
38.	0.07	trace	5.2'	" " " "	Face of drift, (FW vein)
39.	0.64	0.45	5.1'	" " " "	E wing Y raise 12' from top
40.	0.37	0.60	8.0'	" " " "	W wing Y raise at top.

Assays made by

R. N. Williams

(SEAL)

File No. 76685/727.  
Sheet No: 3.

Phone: MARine 5821

J. R. WILLIAMS & SON  
PROVINCIAL ASSAYERS  
BASEMENT, ARTS & CRAFTS BLDG.  
576 SEYMOUR STREET  
VANCOUVER, B. C.

October 8th, 1946

RESULTS of Assays made on samples of ore submitted by: B. W. W. McDougall, Esq., M.E.

MARK	Gold Ozs.p/t	Silver Ozs.p/t.		
<u>WINSLOW MINE</u>			<u>Widths</u>	<u>Locations</u>
Sample No.41.	0.22	0.30	5.0'	Winslow M.C. No. 1A tunnel - Y raise 12' from b.
42.	0.01	0.24	9.3'	" " " " HW in X-C 148' from P.
43.	0.02	trace	4.3'	" " No. 3 tunnel - vein at face of X-C

NOTE: These assays are of samples taken by me or under my direct supervision.

B. W. W. McDougall

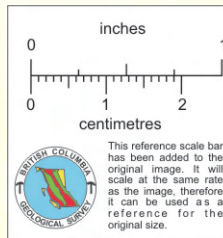
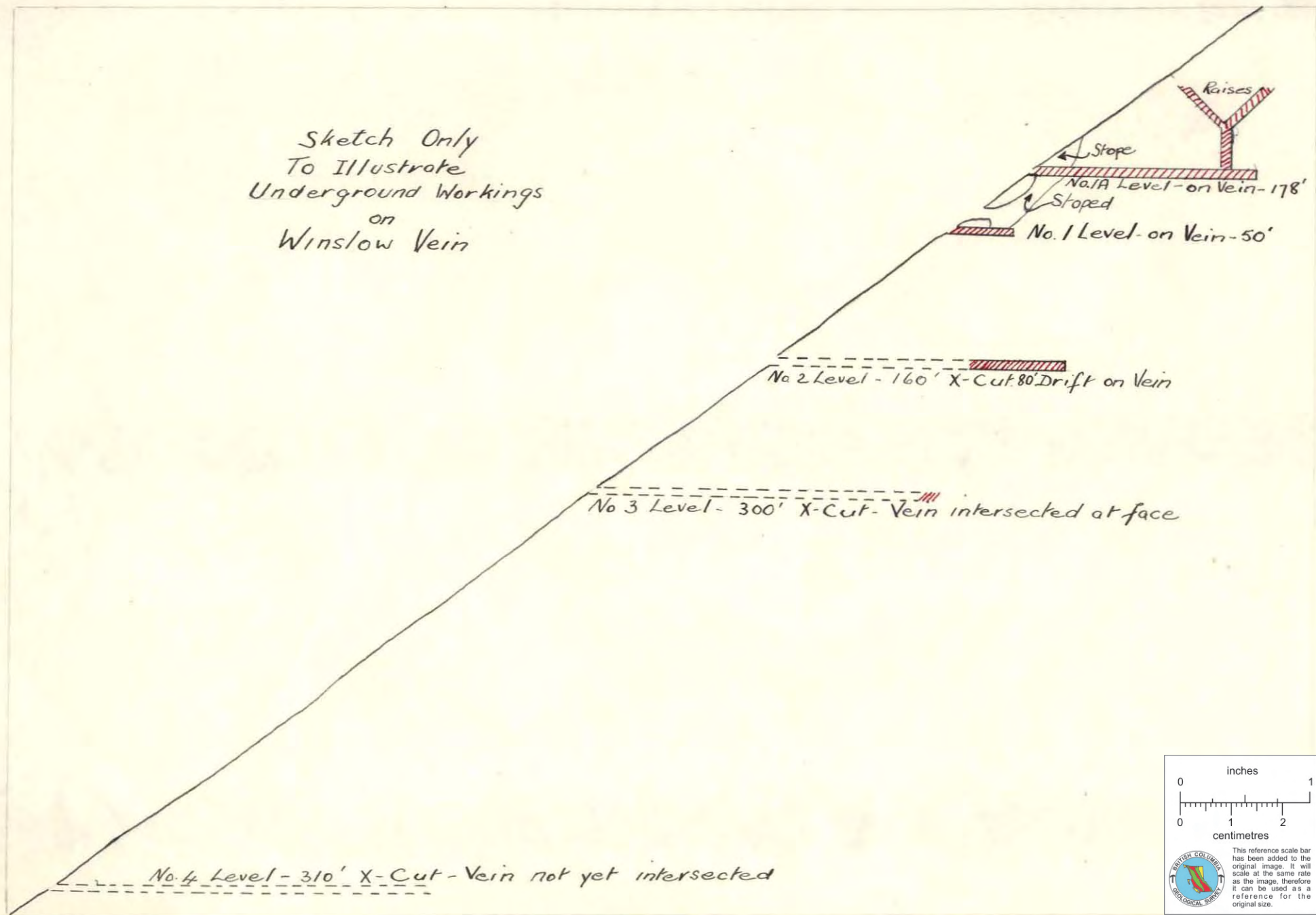
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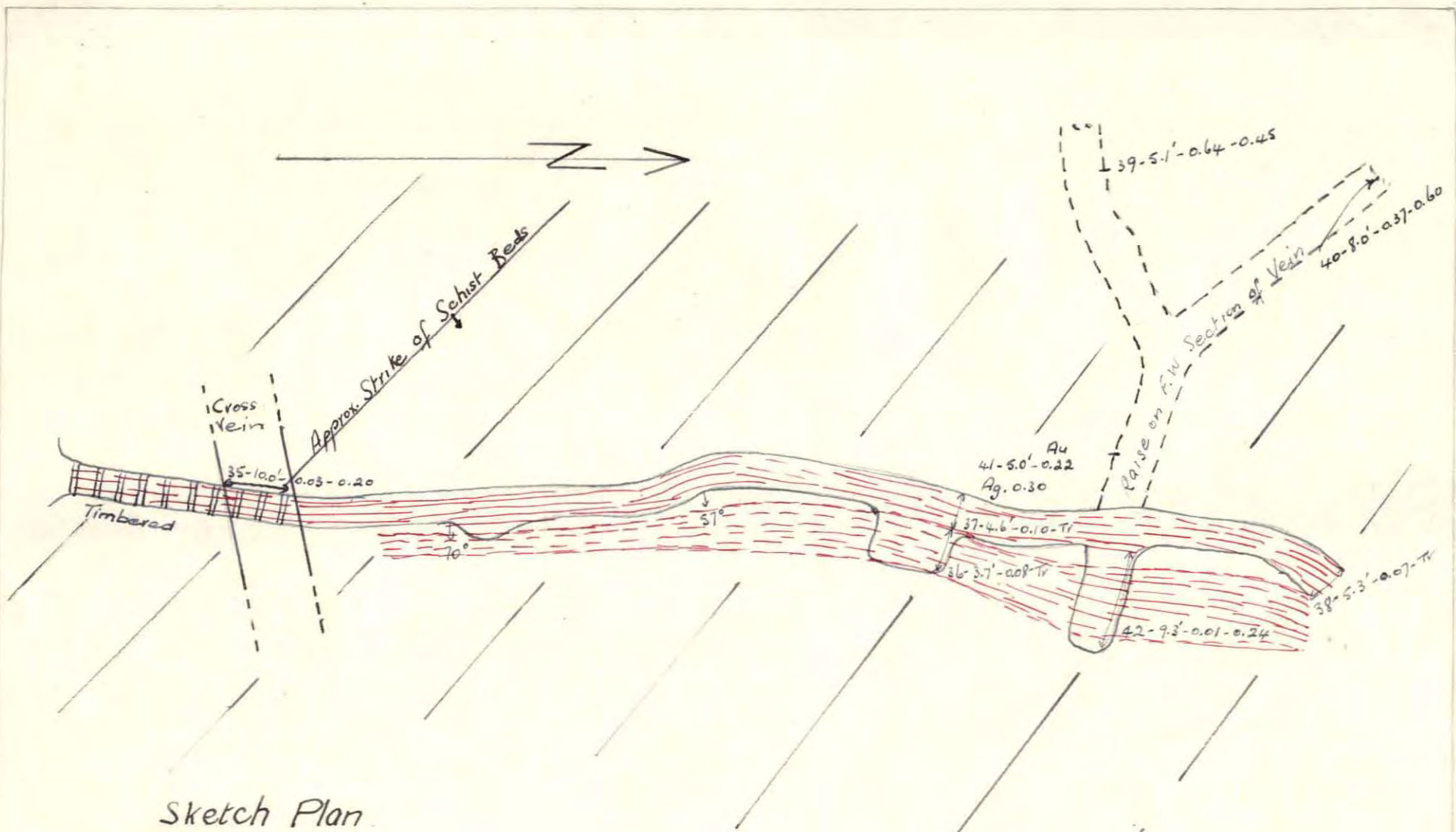
R.N. Williams.

(SEAL)



Sketch Only  
To Illustrate  
Underground Workings  
on  
Winslow Vein

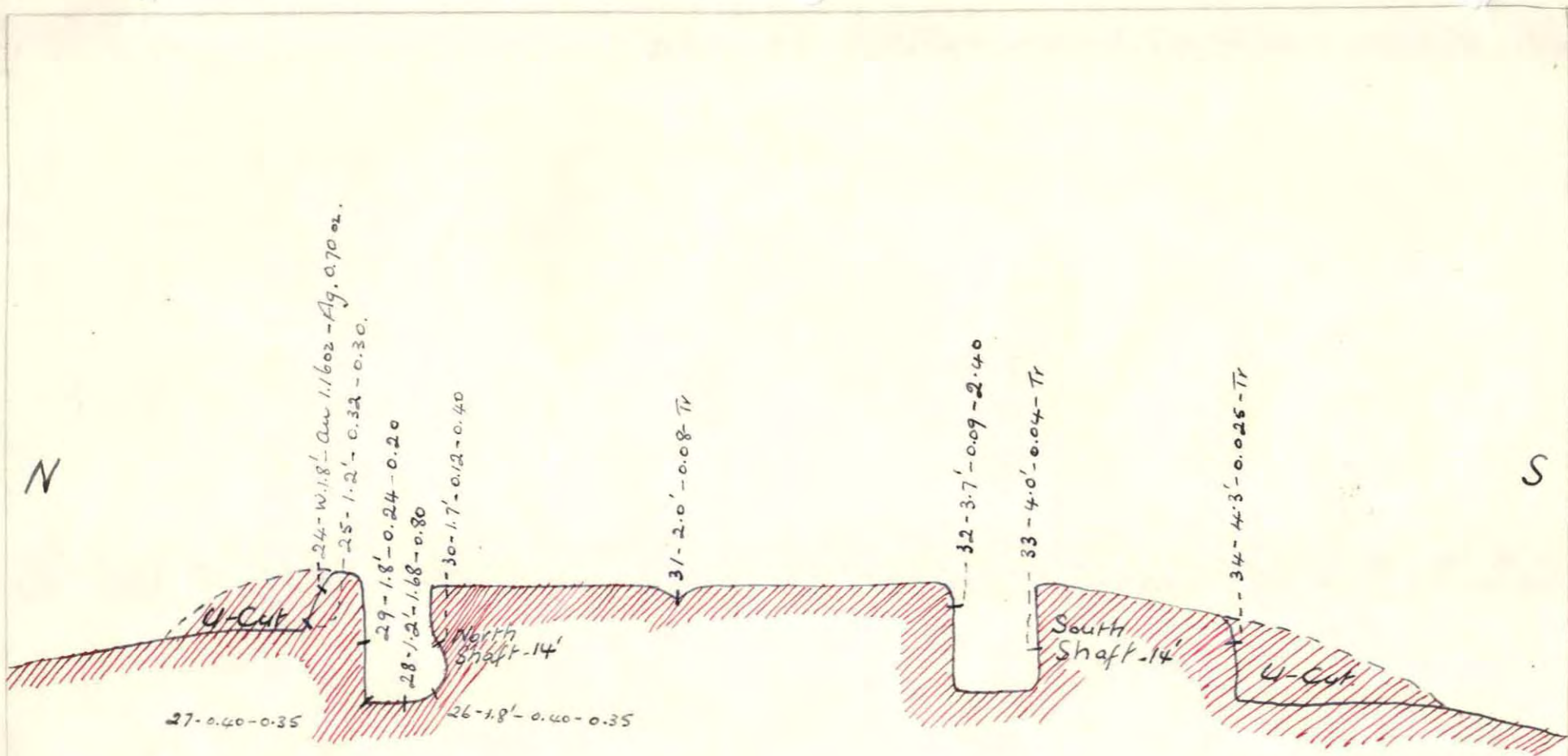




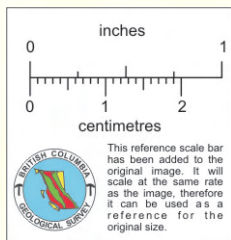
Sketch Plan  
 No 1A level  
 WINSLOW MINE  
 Showing Sample Locations and Assays  
 Scale 1" = 20'

inches  
 0 1  
 centimetres  
 0 1 2  
 This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.





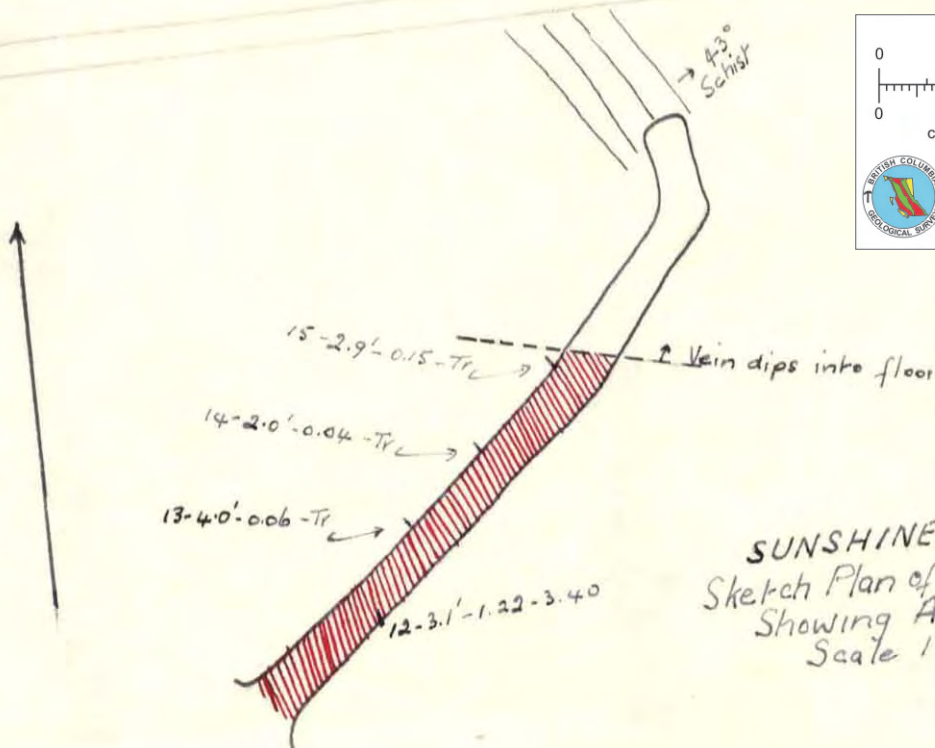
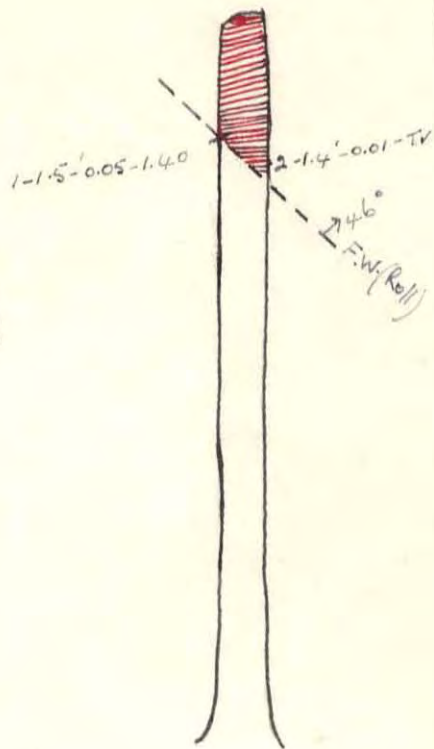
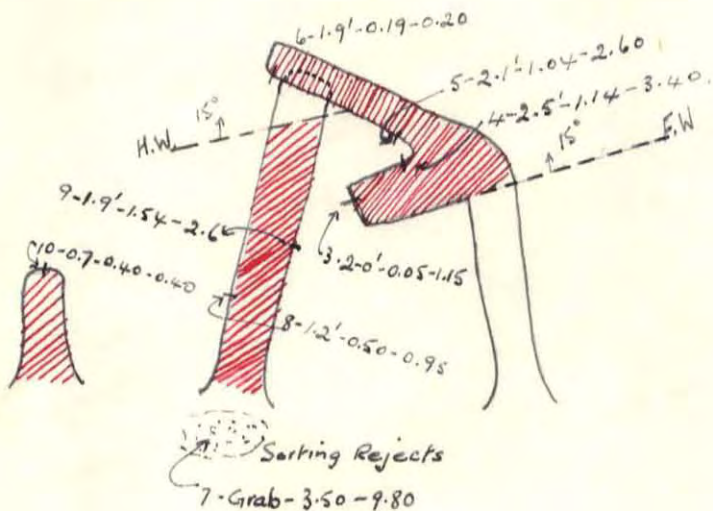
OKANAGAN MC.  
Sketch Section in Plane of Vein  
Showing Sample Locations and Assays.  
Scale 1" = 20'



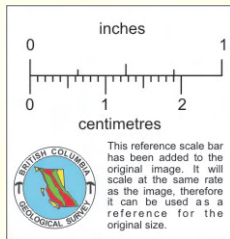
Oct. 1946.



ALICE. M.C.  
 Sketch Plan of  
 the Four Tunnels  
 Showing Assays  
 Scale 1"=20'



SUNSHINE M.C.  
 Sketch Plan of Tunnel  
 Showing Assays  
 Scale 1"=20'



NOTARIAL CERTIFICATE

OF TRUE COPY

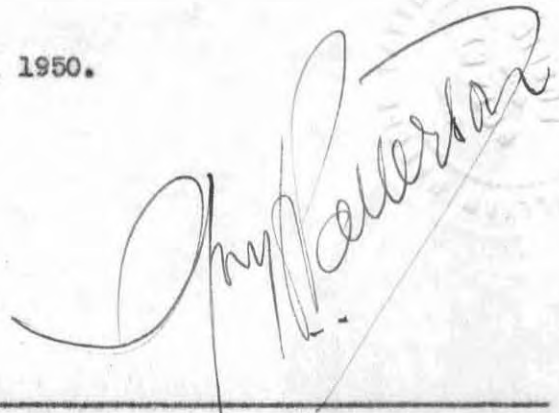
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Province of British Columbia :

To Wit: :

I, William Harold Patterson, a Notary Public in and for the Province of British Columbia, by royal authority duly appointed, residing at 942 West Pender Street, in the City of Vancouver, in the said Province, do certify that the paper writing hereto annexed is a true copy of a document produced and shown to me and purporting to be a report on the Spider Mine by B. W. W. McDougall, B.A., B.Sc., dated December 12th, 1949, the said copy having been compared by me with the said original document, an act whereof being requested, I have granted this certificate under my notarial form and seal of office to serve and avail as occasion shall or may require.

Dated this 21st day of February, 1950.



A circular notary seal is partially visible behind the signature, containing the text "NOTARY PUBLIC" and "PROVINCE OF BRITISH COLUMBIA".

---

A Notary Public in and for the  
Province of British Columbia.

B.W.W. McDougall, B.A., B.Sc.  
Consulting Mining Engineer

Registered Professional Engineer  
Province of British Columbia

Telephones:

Office, Pacific 1631  
Residence North 1616

Mine  
Examinations  
Reports  
Appraisals  
Consultations  
Management

416 Bank of Nova Scotia Building

VANCOUVER, B.C.

December 12th, 1949.

The President and Directors,  
Sunshine Lardeau Mines Limited,  
942 West Pender Street,  
Vancouver, B.C.

Dear Sirs:

As per your instructions I have made an inspection of the Spider Mine situated in the Camborne area of the Lardeau Mining Division, B.C.. Attached hereto please find my report. I trust that this will provide you with the information you require.

Yours very truly

B.W.W. McDougall (Sgd)

Consulting Mining Engineer



REPORT ON  
THE SPIDER MINE  
VICINITY OF CAMBORNE  
LARDEAU MINING DIVISION  
BRITISH COLUMBIA

416 Bank of Nova Scotia Building,  
Vancouver, B.C.,  
December 12th, 1949.

B. W. W. McDougall,  
Consulting Mining Engineer.

## THE SPIDER MINE

LARDEAU MINING DIVISION, B.C..

### INTRODUCTION

This report is based principally on an inspection made on November 12th to 16th, 1949. I was accompanied on the property by Mr. W. J. Scorgie who, in the capacity of Managing Director of Sunshine Lardeau Mines Ltd., has done much work in rehabilitating the premises and in mining, sorting and shipping a carload of ore to the smelter for test purposes during the present year.

### PROPERTY

#### MINERAL CLAIMS:

The Spider Group consists of six mineral claims and fractions which are listed as follows:

<u>Name of Claim</u>	<u>Date of Recording</u>
Anaconda	July 25th, 1940
Gold Bird	Aug. 1st, 1939
May Fraction	Aug. 1st, 1939
Spider	Nov. 3rd, 1931
Spider No. 1	Nov. 1st, 1931
Winton	Dec. 22nd, 1936

All claims are locations and subject to the performance and recording of annual assessment work to the amount of \$100.00 each in order that title be maintained in good standing. The territory included by these claims is probably approximately that covered by the original Spider Group mentioned in the earlier Official reports. Also - the area was, at one time, included in a larger Group then known as the Multiplex.

#### OTHER PROPERTY:

The Sunshine Lardeau Mines Company also holds an option to purchase the old Meridian mill site together with all the buildings situated on it. These buildings are briefly described as follows:

1. Mill Building - except that all mill machinery has been removed the structure is about as it was when in use by the Meridian Company. The walls and roof are sheathed in galvanized iron which circumstance has greatly added in preserving it.

2. Other Buildings - include warehouse, assay office, oil-storage building, bunk house and staff house. All have galvanized corrugated iron roofs and except for minor repairs are in good useable condition.

#### SITUATION:

The property is situated astride Pool creek about two miles easterly from the confluence of this stream with Incomappleux river and the old mining camp of Camborne. The Spider claim, on which all the mine workings are situated, is on the southerly side of the creek. Camborne is in the river valley some five miles NE from the village of Beaton which is at the northerly end of the NE arm of the Upper Arrow lake. It is in the Lardeau Mining Division of British Columbia. Maps showing the geography of the district accompany this report.

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TOPOGRAPHY:

The Lardeau District is almost entirely within the Selkirk mountain system and, on the whole, it is extremely rugged topographically. It is characterized by deep valleys flanked by lofty ridges which culminate in peaks ranging from 6,000 to 9,000 feet in altitude.

The valley of Incomappleux river is a NE continuation of the Arrow Lake depression. Pool creek which flows into this valley from the east occupies a steep, narrow V-shaped valley. The lower 200 feet, more or less, of the valley slopes are in many places from nearly vertical to well upwards of 45 degrees and the creek flowing through the canyon is tumbling 'white water' throughout much of its course.

On the Spider claim, which lies immediately south of Pool creek the terrain, for the most part, slopes evenly upwards to the south at angles of from about 40 to 45 degrees. There are one or more minor gulches but the generally even nature of the slopes is characteristic. Trails and roads can be bulldozed to all points of known interest in the vicinity of the present workings. The altitude of the Upper Arrow lake is about 1,390 feet, - at the east rim of the valley near the mouth of Pool creek it is about 1,700 feet and on the Spider claim in the vicinity of the mine workings elevations range from about 3,000 to 3,750 feet above sea level.

ECONOMICSCLIMATE:

At Beaton precipitation and temperatures are probably similar to those obtaining at Revelstoke where the average annual precipitation is about 42 inches of which about one-third, or 14.8 feet, falls as snow. On the Spider Group some 1,500 feet higher precipitation is probably somewhat similar to that of Ferguson where the average is about 49 inches including the water from about 22 feet of total snowfall. Temperatures are not extreme. In winters sub-zero weather occasionally occurs but, usually such low temperatures prevail for only short periods.

Year-round operations may be carried on provided adequate winter preparations are made. The Meridian mine operating from headquarters at the lower end of the Pool creek trail conducted mining and milling operations during two winters. The road between Beaton and the Meridian mill requires ploughing after storms and at times haulage by tractor-drawn vehicles must be resorted to.

TIMBER:

Much of the Spider Group territory is forested. Trees include fir, hemlock, spruce and cedar. Logging operations are now under way in Incomappleux valley NE from Camborne. The valley has been and still is noted for its large stands of cedar suitable for power and communications poles. A saw mill is in operation at Arrowhead.

WATER:

Water under such head as may be required is available for mining and domestic purposes at the mine. The source is a small creek which is said to flow continually throughout the year.

Water for milling purposes, assuming that use will be made of the



conveniently-situated Meridian mill site at the rim of Incomappleux valley, will probably have to be pumped from Pool creek. The creek flows directly past the mill building but, because of the precipitous canyon through which the creek debouches, it will probably be impractical to bring water in to a mill-supply tank under gravity flow.

#### POWER:

In the early '30s the Meridian Company developed hydro and hydro-electric power on Pool creek. The creek was dammed at a point about one mile up stream from the mill and water was conveyed to a water-driven compressor and a generator in the mill building. Approximately 15 cfs of water conveyed through about one-mile of wood-stave and steel pipe under a head of 450 feet developed about 500 horse power. The dam, though still in place and apparently in good condition, is now filled in with stream debris and the flume take-off is in poor repair. The wood-stave pipe (50-foot head) though still in place has probably seriously deteriorated and the steel pipe has been taken away. The pelton wheel and water-driven compressor are still in place and probably in usable condition. This power site is available for the staking. For an operation of 100 tons per day upwards the rebuilding of the power project would warrant careful consideration. However for a small operation, such as is now contemplated, it will be much cheaper and altogether more satisfactory to use a diesel engine for mill power.

Diesel or gasoline engines will be required at the mine for driving compressors. There is at present a small gasoline powered compressor unit installed at the portal of the No. 5 tunnel. The Company also owns a second compressor unit of about the same capacity.

#### TRANSPORTATION:

The nearest rail point to this section of the Lardeau District is Arrowhead which town is the terminus of a Canadian Pacific branch line which follows the Columbia river valley from Revelstoke - a distance of 27 miles. A train operates twice weekly between these points. The C.P.R. S.S. Minto plying the Arrow Lakes between West Robson (Junction point for Trail) and Arrowhead also makes two round trips weekly. A privately-owned concern maintains a barge service between Arrowhead and Beaton - a distance of 10 miles. On demand heavy carload freight may be landed in cars by barge at Beaton for unloading empty cars on barges made available at Beaton for outloading ore, concentrates or other materials destined for Trail or elsewhere.

From Beaton a road leads NE up Incomappleux valley to Camborne and the Meridian mill site - a distance of 5 miles. As has already been mentioned this road is now used by heavy logging trucks and it can be kept open during winters by ploughing. However, for a period of perhaps two months it may be necessary to use tractor haulage.

From the Meridian mill an excellent trail, following the south bank of Pool creek, leads to the Spider mine camp - a distance of about 2 miles. A small-sized crawler-type tractor can use this trail at the present time though the first mile of the distance is too steep for effective economic transport. The upper mile of trail distance has a somewhat lower average gradient.

In the past all transport between the Meridian mill and the Spider claim has been by pack animals and this is one reason why the property has not been

more fully developed and exploited. The topography of the terrain between mine and mill is such that a tramway for the full distance between the two points would be difficult and expensive to construct.

It is proposed to instal a cheap jig-back aerial tramway from a point on or near the trail above the steeper grades - possibly about one mile down hill from the mine - to the mill. The road above this point would be widened if and where necessary and transport between the mine and the upper tramway terminal would be by means of a crawler-type tractor and a suitable trailer. The present transport plan between the mine and the Meridian mill site thus involves the construction of a jig-back tramway perhaps somewhat more than one half mile in length, widening the upper mile of the present trail, installation of ore bins at the tramway terminals and the acquisition of a suitable tractor and trailer for transporting ore to the upper terminal and for carrying fuel oil, explosives, groceries and other supplies back to the mine. A careful survey is required to select the cheapest and most satisfactory sites for these transport links. At the time of my recent visit fog prevented satisfactory inspection. It may be found desirable to re-route a part of the upper portion of the trail in order to secure a good line for the tramway.

#### GENERAL:

Convenient access and transport are already available to within two miles of the property. Operating conditions, generally, are similar to those pertaining to many mining properties in the Lardeau and Kootenay districts.

#### HISTORY

The Spider claim and certain contiguous territory was first staked about 1909. Development by hand-mining operations, presumably by the original owners, was carried forward until about 1914 and a small ore shipment is reported as having been made in 1912. In 1914 the original Spider locations were acquired by the Multiplex Mining and Milling Company and a number of additional claims were staked or otherwise acquired. Intermittent small-scale operations were carried on for a number of years and several small ore shipments were made. The Company was, however, inadequately financed and comparatively little useful and systematic development was accomplished.

The two central claims of the original Spider Group were restaked in 1931 and four others were staked in 1936, 1939 and 1940. Control of the resulting 6-claim Group was acquired by the Sunshine Lardeau Mining Company in 1949

#### REFERENCES

Brief descriptions of the Spider and Multiplex operations are given in the Annual Reports of the Minister of Mines, B.C., for the years 1909 to 1936.

The general and geological features of the Lardeau District are given in Memoir 161 of the Canadian Geological Survey by Drs. J. F. Walker, M. F. Bancroft and H. C. Gunning. In this excellent publication the Multiplex (Spider) Group is described on pages 85-88. Special attention is called to C.G.S. Map No. 235 A of The LARDEAU AREA which accompanies this Report.

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GEOLOGYGENERAL:

Reference is made of C.G.S. Memoir 161 for detailed descriptions of the Lardeau District.

The Lardeau area is that section of territory extending NW from the north end of Kootenay Lake to within a few miles of the Illicillewaet river and the main line of the Canadian Pacific railway. It is about 70 miles in length and from, roughly, 15 to upwards of 20 miles in width. Being in the heart of the Selkirk mountains it is exceedingly rugged topographically; altitudes range from about 1,390 feet at the Arrow lake to upwards of 8,000 feet at the higher peaks.

The rocks underlying the central portion of this belt consist of schists, quartzites, phyllites, slates and limestones of later Pre-Cambrian age and are known as the Lardeau Series. This series is bordered by two slightly older formations - one known as the Badshot Limestone and the other as the Hamill Series. The whole of this late Pre-Cambrian is partly bordered by intrusive rocks - mainly granodiorites - of the Nelson and Kuskanax batholiths of Jura-Cretaceous age. Structurally these rock formations form a great syncline a striking feature of which, as shown in C.G.S. Map 235 A, is the persistence of the Badshot limestone belt on both margins of the later Lardeau Series formations. As is characteristic in large structures of this character, these are innumerable minor folds, overturned folds and other deformations. Dips are characteristically steep and shearings are, for the most part, parallel to the long axis of the syncline. Ore mineralization is presumed to be related to the Jura-Cretaceous intrusives which partly border and probably underlie the metamorphosed Pre-Cambrian sediments and volcanics.

LOCAL:

The Spider property is situated nearly midway between the SW and NE borders of the Lardeau Series. The rocks exposed in the mine workings are mainly phyllites and chlorite schists with minor beds of argillites. The varying rock types are conformable in strike and dip - the strike being about NW - SE and the dips from 70 to 80 degrees NE. Some shearing has probably occurred parallel to the planes of schistosity.

Traversing the Spider claim in a general NW - SE direction in the vicinity of the mine workings - and perhaps extending to Pool creek on the NW and considerably farther up the mountain to the SE - is a belt of chlorite schist which has been so completely altered by metamorphism that its original character is obscure. The rocks are greenish in color and resemble greenstones. It is thought that this rock type may have originally been an intrusive andesitic sill. Besides having well-defined bedding plane structure - conforming to the general attitude of the Lardeau Series in the vicinity - this rock member has two series of well-developed joint planes. One set strikes about NE-SW and dips steeply to the NW and the other strikes about N 10° W and dips about 80° E. These joint and bedding plane fractures were the channels through which mineralizing solutions penetrated and in which sulphide mineralization occurred. The chlorite schists are altered to carbonates in irregular patches across a belt roughly 50 feet in width and of unknown length. The resulting rocks are grey in color in the immediate vicinity of the ore occurrences and this distinct carbonation color gradually deepens to the general shade of the original chlorite schists as distance from the ore occurrences is gained. Ore occurs over short lengths where two sets of joint planes cross - and, to a lesser extent, along the flat-lying seams. The process of rock



alteration by carbonation, development of chrome mica and deposition of sulphide minerals by replacement are all stages of the same mineralization process. Ore minerals include galena, blende and pyrite with minor amounts of grey copper. Due to the high silver content of this latter mineral it is suspected that the grey copper approaches stephanite in composition. There are minor amounts of other sulphides and, also, a small gold content. It is not known with which mineral the gold is principally associated. The sulphides, though occurring in sizable masses, are so intimately mixed that effective hand-sorting is quite impossible and it probably due to this fact that earlier operators found it impossible to sort out a satisfactory shipping product. The mine workings are limited to extent and disclose no well-defined pattern for the ore occurrences except that these occur largely in the N-S joint-plane zones.

It might be noted that the ore and vein occurrences on the Spider claim differ strikingly from those which are found immediately on the North side of Pool creek some little distance away. Here the veins are relatively large, carry heavy pyrite content and consistent, though relatively low, values in gold.

#### MINE WORKINGS.

The altered or carbonated zone is partly explored over a length of about 750 feet and through an altitude range of more than 700 feet. The mine is opened by seven adits of which only the upper two are connected by upraise. There is little that can be seen of surface outcrops. In the following descriptions each adit level will be dealt with separately. Elevations indicated are as determined by aneroid readings which differ somewhat from figures given by other engineers. In any event the numbers of the several adits and levels are sufficient for identification.

#### NO. 7 LEVEL: Elev. 3,030'

This level is now caved at the portal. It was driven to intersect the projected position of an orebody located on the No. 6 level above. It is said that this adit crosscutted the projected position without encountering ore. Also, that though the working penetrated partly carbonated chlorite schist it has not disclosed the dense gray carbonates in which the orebodies characteristically occur. Well carbonated rocks in the vicinity of the outcrop at the No. 6 tunnel horizon and an apparent fault which displaces the ore in the No. 6 tunnel suggest that exploration on the No. 7 horizon is far from complete. In any event only one vein has been searched for - the others lie some hundreds of feet to the south of the No. 7 level face. Workings on this level aggregate about 320 feet.

#### NO. 6 LEVEL: Elev. 3,112'

An adit about 48 feet in length intersects a joint-plane vein at very shallow depth. This vein strikes N 12° W and dips about 76° E. Ore occurs over a length of about 25 feet. To the NW the vein is but a few feet below the surface and to the SE it is dislocated by a minor fault. Crosscutting on the inside of this fault is said to have revealed ore in the drill holes of the last round drilled. Due to ore sorting operations which were under way at the time the round was not blasted and the solving of this fault to prove the further continuance of the orebody to the SE cannot be confirmed. A winze was sunk on ore to a depth of 12 feet. Widths of 5 feet and more of excellent ore are disclosed at the collar. Sample No. 1 taken across a pillar near the fault, across a width of 18" assayed, - Au 0.20 oz/t, Ag 16.50 oz/t, Pb 9.80%, Zn 7.5%.

One taken from a raise about 8 feet above the drift back, across a width of 40" assayed, - (Sample No. 2), Au 0.11 oz/t, Ag 30.30 oz/t, Pb 26.30%, Zn 10.70%. It is to be noted that this vein is entirely different from those which are opened in the higher levels. The total length of workings on this level is about 125 feet.

#### NO. 5 LEVEL, Elev. 3,502'

This level is the closest to the mine camps. The tunnel, together with spur workings from it, aggregates more than 500 feet of work. Most of this has been affected entirely outside of the carbonated zone. Lightly carbonated rocks were observed over a short length and ore minerals occur at one point but were not drifted out. These workings are in excellent physical condition and probably afford the quickest and cheapest access for immediate underground exploration. The projected position of the downward extension of orebodies which are opened on the level immediately above is still some distance SE from the face of the workings.

#### NO. 4 LEVEL, Elev. 3,467'

Workings on this level aggregate more than 500 feet. A crosscut adit intersects a joint-plane vein which strikes about N 12° W and dips 75° to 80° E. A second more or less parallel vein is also opened on this level. Raises and small stopes have been excavated in both veins and small shipments of hand-sorted ore have been made. The ore shoot lengths appear, in each case, from about 30 to 35 feet. Operators were obviously principally interested in locating and opening ore occurrences which could be exploited by hand-sorting methods. Ore remaining in the stope backs is of excellent grade. A winze has been sunk to a depth of 48 feet at the intersection of the adit with the first vein. This working is not readily accessible, - it is said to be in good ore throughout and the ore widths, in places, exceeds 5 feet. Two samples, one from each of the two stope backs, assayed as follows:

No. 3 Width 36", - Au 0.06 oz/t, Ag 30.80 oz/t, Pb 16.8%, Zn 21.3%

No. 4 " 40", - " 0.11 " , " 58.70 " , " 16.80% " 16.1%

These samples were taken across obvious ore backs in order to obtain a reasonable approximation of ore values in orebody structures.

#### NO. 3 LEVEL, Elev. 3,696'

This is a grass roots tunnel which followed a narrow joint-plane occurrence for some little distance. The sulphides exposed, though narrow, appear to be of similar grade to those occurring elsewhere. A short raise was driven through to the surface and evidently the ore was stripped for shipping. This ore occurrence may be related to the first vein encountered in the No. 4 tunnel below. Workings aggregate about 120 feet.

#### NO. 2 LEVEL, Elev. 3,706'

This tunnel encounters a vein at about the 40-foot point and a drift follows it for a distance of about 80 feet. The vein strike is about N 10° W and the dip is steeply to the east. It may be related to one of the veins opened in the No. 4 tunnel but this is not yet proven. The vein has been stoped through to the No. 1 tunnel above over a maximum length of about 60 feet. The vein exposed in this stope back though narrow carries high grey copper content and assays high in silver. Sample No. 5 taken across a 15-inch width of stope back assayed, - Au 0.14 oz/t, Ag 171.55 oz/t, Pb 27.3%, Zn 6.0%. Sample No. 6 was taken across a 30-inch width from the bottom of a stope pillar, - it assayed, - Au 0.06 oz/t, Ag 32.2 oz/t, Pb 10.8%, Zn 7.7%. Workings on this level, exclusive of stoping, aggregate about 120 feet.



NO. 1 LEVEL, Elev. 3,741'

This tunnel intersected the vein at the 32-foot point. The orebody having been stoped upwards to the level from below and above the level towards the surface, is largely inaccessible. The ore which was extracted carried considerable grey copper and, obviously, must have assayed high in silver.

Mine workings on these seven levels aggregate a little more than 2,000 feet and with the exception of the No. 1 level and the caved portal of No. 7 level all workings are in good condition. Little timber is required except for chutes and in stoping. The ground stands well and the veins dip steeply which circumstances are of decided importance in respect to mining costs.

CONCERNING ORE

Altogether at least three and perhaps four entirely separate veins appear to have been disclosed and it is reasonably possible that others occur in the immediate or near vicinity of the present workings which have not yet been discovered.

Ore widths vary from a few inches to upwards of five feet. Since all orebodies which have been found have, to a large extent, been stoped it is impossible to determine a reasonably precise average width. Also- in certain sections narrow bands of ore follow more or less flat-lying joint planes away from the main bodies of the shoots to gradually fade out some feet distant. The vein material cannot readily be 'stripped' and the blocky nature of the wall rocks is certain to result in some considerable degree of dilution with consequent lowering of the grade of broken ore. In the event that a production operation should be established the matter of installing a waste-picking belt ahead of the crusher is likely to warrant serious consideration. Such ore shoots as have already been discovered are short and the exploration work which has been done does not reveal any pattern from which estimates concerning the frequency in which other shoots may reasonably be anticipated, can be based.

Likewise, even with a complete sampling of present stope backs and pillars, it would be difficult to determine a precise average grade for the ores which remain in the partly-worked orebodies now exposed. The six check samples which I took were all from more or less typical ore exposures in ore shoot areas. Disregarding sample No. 3005 which was taken from the back of a stope on a narrow vein carrying high grey copper content and which assayed 171.55 oz/t in silver, a rough numerical average gives approximately the following metal values, - Au 0.10 oz/t, Ag 33.0 oz/t, Pb 16.0%, Zn 12.0%. Assuming waste-picking ahead of the ball mill feed to remove most of the over-break dilution, an empirical ore-value figure is suggested as follows: Au 0.10 oz/t, Ag 25.0 oz/t, Pb 10.0%, Zn 6.0%. Assuming overall mill recoveries of 90%, and at present metal prices, such a grade of ore is valued at approximately \$45.00 per ton on the basis of smelter-pay figures.

There is a relatively small tonnage of ore remaining in stope backs and pillars. The 48-foot winze below the No. 4 level is said to be entirely in ore of good width and values. The No. 5 level has not been driven far enough to explore the downward projection of this shoot but this objective is considered as a promising one for the occurrence of important possible tonnage. The short winze below the No. 6 level suggests the probability that additional ore occurs below

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this level on an entirely different vein from those developed on and above the No. 4 level. Though the No. 7 level did not encounter ore it is not at all certain that exploration is exhaustive. There are no maps and without these it is impossible to direct underground work properly. A considerable amount of ore is scattered over the several dumps. Most of this can be recovered by the use of a small bulldozer aided by a simple drag-line device.

An estimate of the ore proven and inferred by present workings, made by another engineer, is as follows:

Proven ore,	3,600 tons
'Indicated' ore	<u>3,200</u> tons
Total	6,800 tons

I have carefully examined the details of this estimate and it is evident that the computation was carefully compiled.

The merit of this mine lies in its undeveloped possibilities rather than in the present-known and partly worked out orebodies. I think it is reasonably certain that carefully directed exploration and development will reveal not only depth extensions of known ore shoots but others at present wholly unknown. The nature of these deposits, however, indicates that the property is likely to be one capable of supporting relatively small-scale production of relatively high grade ore.

Numbers of small shipments of hand-sorted ore have been made from the Spider mine in past years. I do not know, however, of any complete record of these shipments. During 1949 Mr. W. J. Scrogie, Managing Director for Sunshine Lardeau Mines Ltd., made a trial shipment of hand-sorted ore from the several ore exposures in the mine. In preparing this shipment it was found quite impossible to sort out clean galena from the mixed sulphide masses. Galena, being the most friable of the three principal sulphides present, shatters more readily than do the other two. Details of the shipment are as follows:

Date of Shipment,	October 7th, 1949,
Dry Weight of Shipment	26,028 tons,
Assays,-	
Gold	0.12 oz/t
Silver	36.20 oz/t
Lead	18.9 %
Zinc	13.5 %
Iron	19.3 %

	Per ton	Per Shipment
Gross value	\$ 79.10	\$ 2,059.01
Freight & Treatment Chgs.	20.20	526.86
Net Value	58.90	1,532.15

Shipment was made to the lead plant at Trail and only about one-quarter of the zinc was paid for. The iron content from pyrite which could not be sorted resulted in a penalty of \$4.25 per ton. Thus the zinc value loss and the iron penalty resulted in a 'loss' of about \$8.00 per ton compared with what would have resulted had separate lead and zinc concentrates been shipped.

The experience derived from making this shipment very clearly indicates that this ore must be milled to make two shipping products in order to make the most from the pay metals contained in the ore.

CONCERNING MILLING

The Sunshine Lardeau Company has decided to provide milling facilities and arrange for transporting ore to the mill by aerial tramway and motor haulage as early in 1950 as weather conditions permit. To this end it has acquired an option to purchase the old Meridian mill buildings. Besides the mill building the structures include a warehouse, assay office, oil house, bunk house and staff house. All these buildings are in good usable condition. It is planned to instal a processing unit having a capacity of 30 tons daily in the mill building, Dieselpower will be used and the plant will be designed to make both lead and zinc concentrates. A general ore sample has been sent to Denver for the purpose of obtaining flow-sheet details.

It might be mentioned here that the cost of operating a 30-ton unit three shifts daily would be about 25% more than that resulting from operating a 50-ton unit two shifts daily. The larger unit, of course, also provides more elasticity in that a larger tonnage can be treated by operating it on a three-shift basis. The difference in cost of the two units is considerable and until larger ore resources may be opened the Company is adverse to making the larger capital expenditures. The Company has been influenced in making its decision to instal the mill and ore-transport facilities largely for the following reasons:

1. It considers that there is already sufficient ore available and indicated in the mine and on the dumps to largely offset the costs of the mill and the ore-transport devices. In any event the further development of the mine would require capital expenditure for transport facilities whether a mill was in operation or not.
2. If important mining work were done prior to the commencement of milling much of the ore now available on the dumps would become excessively diluted with waste and, accordingly, be lost. Also new ore that may be encountered in underground development cannot be safely stock-piled on the steep mountain side without serious loss.
3. The Company believes that the possibilities of locating new orebodies are, of themselves, sufficiently good to warrant immediate milling preparations. This reason is, of course, an opinion but one supported by favorable facts so far as these can be known.

MINE BUILDINGS AND FACILITIES

The mine camp buildings consist of two closely-spaced log buildings. They are in good condition and large enough to accommodate a crew of about 12 men. In order to carry on a mine development programme employing two drills on a two-shift basis a crew of about 15 men will be required. It will be necessary to provide another building.

A one-drill compressor powered by a gasoline-driven engine is now installed at the portal of the No. 5 tunnel. The Company also owns a second unit of about the same capacity. This second compressor would probably be installed at either the No. 6 or No. 7 tunnels.

GENERAL RECOMMENDATIONS

It is difficult to set forth precise detailed recommendations at this time since these will depend on equipment items that may be decided on and on other factors which are not firmly established at present. The recommendations, generally, are based on the Company's decision to commence production operations

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from the ore now available by constructing a mill as early as possible. This, of course, necessitates a mine exploration and development programme for the purpose of opening additional ore at the same time. It is assumed that arrangements for the purchase of suitable mill and power equipment will be made during the present winter and, in general, that arrangements for getting construction and mining operations under way as early in the coming year as possible will be planned in detail.

1. Decide after careful cruising and surveying on the details of mine to mill transport. As mentioned earlier in this report, the method of transport is most likely to be a combination of motor haulage and aerial tramway. Trail widening, rebuilding of small bridges across several small gulches, such re-routing of road as may be required and the installation of the aerial tramway should be commenced as early as the season permits. The major items of transport equipment are a small crawler-type tractor with a suitable trailer designed to carry a load of five tons or more and aerial tramway equipment and materials. In respect to the latter items - much of this equipment is available near the site.

2. Installation of the milling and mill power equipment can and should be commenced and carried to completion at the same time as the transport facilities are being provided.

3. At the mine the second compressor should be installed and made ready for operation and camp facilities for a crew of about 15 men put in readiness.

4. The mine should be surveyed and accurately mapped and from the information thus provided a mining programme should be properly planned. In a general way it is believed that exploration and development may best be conducted by extending the No. 4 and No. 6 adits SE following, as closely as possible, the carbonated zone and by extending short-range diamond drill holes to the NE and SW limits of this zone at regularly spaced intervals. This work may possibly be materially assisted by using simple geophysical methods. The search for new ore-bodies can obviously be most economically effected by this method since over the course of even a year's time hundreds of feet of futile crosscutting would be avoided.

#### CONCLUSION

Exploration and development already effected at the Spider mine has demonstrated that at least three separate ore-bearing veins occur within an area roughly 1,000 feet long by 50 feet wide. The altitude range of these veins is about 700 feet. Within this area exploration is still incomplete and other veins may exist which have not yet been discovered. Also - none of the known ore occurrences, so far as is now recognized, have been opened to their depth limits. The total length of strike over which the carbonation process has been operative has not been determined but it obviously extends to the NW and SE of the present mine workings.

Ore shoots are short and are almost certain to be erratic in their mode of occurrence though this feature is, to some extent, compensated for by the relatively high grade character of the ore. Limited exploration openings and lack of pattern in respect to the known veins prevent soundly-based predictions as to the probable limits of this ore-bearing belt or of the frequency with which shoots may be expected to occur within its limits.

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It is estimated that, within the limits of present mine workings, there is reasonably assured and possible ore amounting to several thousand tons which can be mined and milled at a profit and, I believe, the prospects for discovering more ore shoots are good. Obviously the life of this operation depends on the fortunes of further underground development.

Respectfully Submitted

B. W. W. McDougall (Sgd)

Consulting Mining Engineer

416 Bank of Nova Scotia Building,  
Vancouver, B.C.,  
December 12th, 1949.

CERTIFICATE OF ASSAY

J. R. WILLIAMS & SON  
Provincial Assayers and Chemists  
Office and Laboratory:

#90018/023.

Sunshine Lardeau Mine

580 Nelson Street, Vancouver, B. C.

I hereby certify that the following are the results of assays made by me upon samples of ORE herein described and received from Mr. B. W. W. McDougall, M.E. November 21st, 1949.

MARKED	GOLD		SILVER		LEAD		ZINC		GROSS TOTAL VALUE
	Ounces Per Ton	Value Per Ton	Ounces Per Ton	Value Per Ton	Ounces Per Ton	Value Per Ton	Ounces Per Ton	Value Per Ton	(2000 lbs.) Per Ton
		\$		\$		\$		\$	
							Widths		
Sample No. 3001. 1	0.20		16.50		9.80		7.50	18"	No. 6 Level - in pillar near fault.
3002. 2	0.11		30.30		26.30		10.70	40"	No. 6 Level - in raise 8' above drift back
3003. 3	0.06		30.80		16.80		21.30	36"	No. 4 Level - No. 2 vein raise 35' above floor
3004. 4	0.11		58.70		16.80		16.10	40"	No. 4 Level - No. 1 vein raise 25' above drift floor
3005. 5	0.14		171.55		27.90		6.00	15"	No. 2 Level - Stope back 35' above drift floor
3006. 6	0.06		32.20		10.80		7.70	36"	No. 2 Level - Drift back in pillar below stope
<p><u>NOTE:</u> The above assays are of samples taken by me at the Spider Mine in the Month of November, 1949.</p> <p align="right"><u>B. W. W. McDougall</u> (Sgd)</p>									

Gold calculated at \$ \_\_\_\_\_ per ounce  
Silver calculated at \_\_\_\_\_ cents per ounce

Calculated at \_\_\_\_\_ cents per lb.  
Calculated at \_\_\_\_\_ cents per lb.

NOTE - Pulps of Samples retained 2 months from date of Receipt.  
Rejects 1 week unless otherwise instructed.

R. N. Williams Provincial Assayer  
(Sgd)

1538 Edmonds Street,

New Westminster, B.C.

August 27, 1948.

Directors,  
Sunshine Lardeau Mines Limited,  
942 West Pender Street,  
Vancouver, B.C.

Dear Sirs:

In accordance with your instructions I have made an examination of the Elamere Group of Mining Properties, situated in the Trout Lake Mining Division of British Columbia. Attached hereto please find my report. I trust that this will provide you with the information you require.

Yours very truly,



W. J. Scorgie.



## REPORT

### Elsmere Group, Trout Lake, B.C.

Property The property, consisting of six claims, 316 acres in all, is located about 10 miles from the town of Ferguson, near the head of Ferguson Creek on the north fork of the Lardeau River, in the Trout Lake Mining Division, B.C.

History This group of claims was originally located by Hillman, Kennedy and Frazer. In 1916 the property was sold to American interests for \$45,000, who formed the Circle City Mines Ltd. Under this management the property was partially developed by open cuts, winzes, and three tunnels, and satisfactory results were obtained. At the end of the season's work in 1918, it was the company's intention to press development work with the view of proving up sufficient ore for the erection of a concentrator. However, the war's end brought on a slump in metal prices, dried up development funds, and the company was forced to suspend its operations, eventually to drop the property when conditions did not improve. No further work was done up to the present time. This property was favorably reported on by the Minister of Mines in the Annual Reports for the years 1917 and 1924.

Title Ownership of the property is vested with the Crown, and held under right of location by James Main, Evelyn Daney, and Seldon Daney, Jr., all of Ferguson, B.C.

Topography and General Conditions. The mine is situated at elevations ranging from 5800 to 5700 feet on the south slope of a divide which separates the Trout Lake Mining Division from the Ainsworth Mining Division, and the claims trend in a north-westerly direction from Ferguson Creek. The area is not excessively rugged, the overburden is light, and there are fair stands of timber, sufficient for mining purposes. A good camp site exists with an abundant supply of water for all needs. The buildings put up during the first operations are now broken down.

From the present workings there is a good trail to Circle City, a distance of  $2\frac{1}{2}$  miles. This trail can be easily widened into a good road by means of a bulldozer. The remainder of the distance from Circle City to Ferguson, 7 miles, needs only to be cleared out, this portion having once been surveyed by the C.P.R. for a proposed railway grade.

With proper preparations, work on this property can be carried on the year round.

Character of Ores. The ores are medium to fine-grained sulphides of galena carrying silver values in varying quantities, low percentages in zinc, and undetermined values in copper.

Geology and Ore Occurrences. The mine is situated in what is known as the Lime Dyke Belt, a regional feature that is from 100 to 200 feet wide, and ten to fifteen miles long, striking in a north-westerly direction; the dip is about  $70^{\circ}$  to the north-east. The ore occurs as a replacement in the hanging wall of the limestone along the contact of a green chlorite schist. There is some indication that ore also occurs in part as a true fissure vein, and, to a lesser extent, in the chlorite schist. Geologically, this area is considered to be an outlier of the Pre-Cambrian Age.

At the time of my first visit to the property on the 19th and 20th of July, I traced the outcropping of ore for a length of 1250 feet, which showed widths of from 8 to 12 feet. At the last observable exposure the mineralized

zone is strong and well-defined, having a greater width than elsewhere, being about 12 feet wide at this point.

Farther along the projected strike, and on the down-hill side of it, I noted specimens of high-grade float, some being several hundred pounds in weight and composed of almost solid galena. Presumably these originated from the mineralized zone above. I did not take any samples or assays of this float as any such information at this time could only be misleading. The mineralized zone does not appear to be heavily covered; therefore I suggest that extensive trenching be carried out at short intervals along the projected strike with a view to picking up the source of this high-grade float.

Underground Development. The only development work done is on the lower or southern end of the property. In all, three tunnels have been driven, which are still in good shape, although some scaling will be required to put these old workings into a safe condition.

The upper tunnel, at an elevation of 6200 feet, is driven in for a length of 50 feet along the limestone contact. The walls are well defined and commercial ore is exposed for a width of from 2 to 3 feet, with almost 3 feet showing at the face. The main tunnel, 350 feet below the upper tunnel, is driven in for a length of 320 feet. This tunnel was started diagonally in the limestone as a crosscut, the objective being to intersect the schist-limestone contact. However, 40 feet from the portal, ore was encountered in the limestone, and the remainder of the distance to the present face was driven in this ore, the objective still being short of 50-60 feet. The width of this ore occurrence is not known as no crosscuts were made, although both walls are in ore. A composite sample taken by me in this tunnel gave these values: gold .005 oz/t, silver 1.3 oz/t, lead 47%

The workings just described are on #1 Elsmere Claim. On the adjoining claim to the north, a short crosscut tunnel, about 18 feet long, intersects the contact zone. At this point, a winze, 8 feet deep, was sunk which exposed highly mineralized vein material 2 feet wide, which assayed: gold .005 oz/t silver 50.2 oz/t, lead 78.8%. Between this point and the upper tunnel on #1 claim, the following samples were taken in the open cuts: 110 feet south of above, a 3 foot channel sample gave: gold, trace; silver 1.2 oz/t, lead 11.9%; the next sample 100 feet south gave over 2 feet: gold, trace; silver 1.0 oz/t; lead 23.6%; twenty feet farther south a 2 ft. channel showed; gold .005 oz/t; silver 0.8 oz/t, lead 17.2%; forty feet south a 4 ft. channel gave: gold .005 oz/t; silver 1.1 oz/t, lead 26.1%; and the final sample taken above the upper tunnel of #1 claim over a 3 ft. width assayed: gold .005 oz/t; silver 66.9 oz/t; lead 61.2%

Conclusion: The Elsmere group of claims lie along the strike of the Lime Dyke Belt for a length of six claims, or 9000 feet. For 1250 feet of this distance, promising exposures of ore have been traced with excellent indications for picking up more ore along the strike. Where exposed, ore widths vary from 2 to 12 feet, but no average width can be given at this stage.

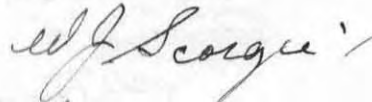
It must be borne in mind that these early operations were primarily in search of high-grade silver deposits; therefore little attention was given to galena ores that were low in silver values. This certainly must have been the case when the lower tunnel was driven. This tunnel was started in the limestone as a diagonal crosscut, the objective being to reach the schist-limestone contact where silver values were believed to exist. When forty feet in from the portal, the tunnel entered ore of a replacement character and continued in this ore for 280 feet to the present face, short of its objective by possibly 50 or 60 feet. Although a composite sample taken by myself of the face and walls shows lead values of 47%, no attempt had been made to define by means of crosscuts the extent of this apparently large lead-bearing body.

My examination of these workings leads me to believe that properly-conducted exploration should result in the development of good grade lead ore. This can best be begun by continuing the present tunnel to and along the contact, with side crosscuts into the limestone to determine the extent of the replacement. Further work would depend on the results obtained.

In view of the promising surface indications observed on the northerly end of the traced zone, I feel that this area should receive intensive exploration and development. This work can be carried out economically and would bring quick results.

In conclusion, this preliminary examination indicates that the principal values are in lead, with lesser amounts of silver, and that, at the present high price for lead, this property merits considerable development.

Respectfully submitted.



W. J. Scorgie,  
Trout Lake, B. C.

August 27, 1948.