93H/4E(3W
93A/14W

BARKERVILLE MINING COMPANY LTD. N.P.L. 014896

ANNUAL PROGRESS REPORT, 1946.

During 1946, Barkerville Mining Company Ltd., N.P.L. held Crown Granted and located mineral claims in the following parts of the Barkerville Gold Belt; on Proserpine Mountain, 60 claims, on Antler Mountain, 47 claims, on Island Mountain, 56 claims, making a total of 163 Crown Granted and located claims. Titles to these claims are vested in several different owners, Barkerville Mining Company Ltd. holding the ground by options to purchase, options on treasury stock and by location. These areas, aggregating approximately 7000 acres or 11 square miles were explored, prospected and geologically mapped.

93H081 On Proserpine Mountain, underground work was performed in the Warspite area consisting of 913.5 feet of drifting and crosscutting and 1704 feet of diamond drilling. On Xmas, Pin Money, Rex and Hen Groups and on the property of Proserpine Mines Ltd. 37,985 feet of surface trenching were done with a bulldozer. This work was carried out from the Proserpine camp near the summit of the mountain at elevation 5540 feet. The new road from Barkerville to the camp, 4 miles in length, started in 1945, was completed during the year.

X-REF 93H008 On Antler Mountain, on the property of Proserpine Mines Ltd. 13,870 feet of bulldozer trenching were performed. Several old tunnels and shafts were cleaned out and retimbered. Two and a half miles of bulldozer road were constructed from Grouse Creek to the summit of the mountain. The work was carried out from the Grouse Creek camp, elevation 4725 feet, and from a subsidiary camp on the summit of Antler Mountain at elevation 5820 feet. To serve the lower camp, two miles of wagon road were widened and regraded to be passable for trucks.

X-REF On Island Mountain, 13950 feet of bulldozer stripping were attempted but conditions are unfavourable for this type of exploration owing to heavy overburden and much of the work failed to reach bed-rock. 219 test pits, of aggregate footage 1581 feet, were sunk; 96 of these reached bedrock within 10 feet. A partial cross-section of the area was obtained by 1262 feet of surface diamond drill holes. Two small camps were maintained on Island Mountain during the execution of this work.

Surveying and Engineering. A 500 scale geological map of 11 miles of the Gold Belt was completed during the year. For this purpose

553,301.47 feet of survey line were laid out on the ground.

Major items of mechanical equipment purchased in 1946 were a Caterpillar D7 bulldozer and a 2-ton Chevrolet truck.

On completion of the surface program of exploration, the operation was closed down October 31st and all equipment stored in the Barkerville warehouse. Operations may be resumed in 1947 at a minimum expense since all roads and campsites were left in excellent condition.

Respectfully submitted,

"C.E. Gordon Brown"
Mine Manager.

BARKERVILLE MINING COMPANY LIMITED
N. P . L.

Wells, B. C.
24 Jan. 1947.

93 H/3W & 4E
93 A/14W

BARKERVILLE MINING COMPANY LTD. N.P.L.

PROGRESS REPORT, PERIOD 1 JANUARY TO 31 OCTOBER, 1946.

The holdings of the Barkerville Mining Company Ltd. N.P.L. in the Barkerville Gold Belt, during the period 1 Jan-31 Oct 1946, consisted of the following groups of claims:

Group.	Held by	No Claims.	
On Proserpine Mountain:			
Proserpine Gold Mines Ltd.	Option on stock	20 (CG)	
Pin Money	Option to purchase	1 (GG)	
Rex	do do	8 (loc)	
Hen	Owned by location	4 (")	
Xmas	Option to purchase	6 (")	
Shamrock	do do	12 (CG)	
Elsie	Owned by location	9 (loc)	60
On Antler Mountain:			
Proserpine Mines Ltd.	Option on stock	21 (CG)	
do	do do	4 (loc)	
Antler Mountain	Option to purchase	10 (loc)	
Stevens	Owned by location	12 (loc)	47
On Island Mountain:			
Bluebell	Option to purchase	8 (loc)	
Lode	Owned by location	8 (loc)	
Willow	Option to purchase	4 (loc)	
Cariboo Consol.	Purchased outright	7 (CG)	
Dawne	Owned by location	2 (loc)	
V.E.	do do	8 (")	
Peak	do do	10 (")	
Spec	do do	9 (")	56
		Total	163 claims

These represent a total of approximately 7000 acres or 11square miles. The holdings consist mainly of undeveloped mineral claims, astride or adjacent to the trend of the Barkerville Gold Belt. The holdings of Proserpine Mines Ltd on Proserpine and Antler Mountains alone have veins exposed which carry commercial gold values. However, a large production of placer gold has been obtained from streams that traverse the properties, particularly, Grouse Creek, Williams Creek, Mosquito Creek and Conklin's Gulch.

The district is part of the plateau region of British Columbia in which the topography is mountainous without being rugged. The mountain summits are rounded and rise to a general elevation of 6000 feet. The towns of Wells and Barkerville lie in the valley bottoms at elevations of 3900 and 4200 feet respectively. 95% of the area is drift covered and thickly wooded with spruce and balsam.

The property is divided into two units. To the north west of the

town of Wells, on Island Mountain, 56 claims cover 15000 feet of the northwesterly extension of the gold belt. South east from Barkerville, 60 claims on Proserpine and 47 claims on Antler Mountains cover another 20000 feet of the belt, starting at a point 9000 feet south east of the town. Between the two units, 37,500 feet of the belt is held by Cariboo Gold Quartz, Island Mountain and Williams Creek companies: the two producing mines are located at the northwest end of this strip.

Organization and Communication. No single camp could serve this large territory. During 1946, the following camps were operated:

Location	Time Open.	Av. No. Men.	Distance from Mine Office, Wells
Proserpine	1 Jan-31 Aug.	15	8½ miles
Grouse Creek	1 Sept-31 Oct.	10	10½ "
Antler Mountain	July 1 - 14	4	13½ "
" "	23 Jul - 22 Aug.	4	13½ "
" "	Sept. 16 - 23	3	13½ "
" "	Oct. 7 - 14	4	13½ "
Island Mountain (Spec)	25 Apr. - 15 Sept.	4	3 "
Island Mountain (Boyles Drill Camp)	4 July - 22 Sept.	7	2½ "

The main camp was located at the Warspite adit on Proserpine, at an elevation of 5540 feet; it served stripping, road building, and mining operations in this locality. Supplies were distributed from a central warehouse in Barkerville. All camps were tent camps.

The functions of administration and engineering were carried out from the Company office in Wells, where, in addition to the writer, two engineers and an accountant had their headquarters. Owing to the scattered character of the operations, overhead costs were materially increased by the necessity of providing tranpsortation to maintain communications between the office and the various camps. Two cars, a light delivery and a 2-ton truck were used for this purpose and, during the winter months a team of horses maintained the Proserpine camp in supplies. Frequently these facilities were overtaxed and in some cases use was made of employees' private cars, the Company paying for gas and repairs.

At the Proserpine camp, supervision was entrusted to a foreman, daily visits being made by some member of the staff. The other camps, however,

were directed entirely by the staff; most of this work had to be paid for on a contract basis since close supervision could not be given.

WORK PERFORMED DURING 1946.

Underground Program, Warspite and Tipperary M.C. Proserpine Mt.

The underground program, which started in December, 1945, was continued throughout the months of January-July 1946. The object was to test, at shallow depth, the vicinity of the Warspite tunnel in which an oreshoot 97 feet long is exposed. From the south east end of the Warspite vein, a heading 545 feet long was driven on line towards the Horseshoe vein on the Tipperary claim. Upon reaching the estimated position of the objective, a northerly striking fault with very heavy ground for 125 feet was encountered; the Horseshoe vein was not at first found.

A second heading was driven 126 feet southeast along a bed of hard quartzite, 14-30 feet wide, containing a large number of transverse veinlets of quartz and pyrite, having high gold values. The quartzite bed is strongly silicified for more than 200 feet and, locally, consists mainly of quartz. It was thought possible that an increase in the number of sulfide veinlets might occur, sufficient to constitute an ore body. However, although the bed was proved, by drifting and subsequent diamond drilling, to be continuous for at least 400 feet, no commercial ore was found. The average of face samples was 0.086 oz/ton and of muck samples 0.063 oz/ton gold.

A third drift was advanced 20 feet northwest on another vein fracture, exposed near the portal. This working disclosed bodies of quartz pyrite and galena in "horsetails" on the walls of the fracture. Several high assays were obtained but the heading was stopped as it was approaching the heavy ground of the Warspite fault, close to the surface.

In June and July a limited program of diamond drilling was undertaken and 1704 feet of short hole were drilled. The object was to investigate, first, the vicinity of the Warspite fault, second, the silicified quartzite mentioned above and lastly, the vicinity of the Tipperary fault. The only gold values obtained were in the last mentioned locality where two parallel holes, drilled due north on either side of the Tipperary fault showed low grade intersections. One hole on the east side of the fault contained two feet of quartz at 30 feet. This was investigated with a crosscut from the end of the tunnel and was found to be a zone of small

bedded veins, containing abundant sulfides, probably the downward continuation of the Horshoe vein. Assays were not very high, the best being 0.24 oz/ton across 12 inches. The other hole on the west side of the fault, gave sludge assays of 0.10 to 0.18 oz/ton for 30 feet but there was no core from this section. To investigate this occurrence, the surface, 140 feet directly above, was stripped 100 feet wide with the bulldozer; two small veins that would pan free gold were found but nothing that would assay. No crosscutting was done on this hole as it was thought that the hole had run into the fault and the ground is very heavy.

The Warspite workings are situated entirely inside the dark quartzite and argillite rocks within 50-150 feet of the contact with the light calcareous quartzites of the Baker member. The ground explored is bounded on the west by the Warspite fault and on the east by the Tipperary fault; the distance between the two faults is 600 feet. Work was stopped because, although the section is well mineralized and though many high samples were cut, no commercial ore (other than the Warspite vein, previously mentioned) was found. It was thought unwise to continue to spend money at such shallow depth.

The work was carried out from a tent camp at elevation 5540 feet. During the months Jan-Apr, snow conditions were severe and drifts frequently piled up to a depth of 16 feet, covering the compressor house and snow shed at the portal. Air was supplied by a CIR 220 c.f.m. at this altitude. Some concessions had to be made in the matter of wages to keep a crew at this kind of a job. Under these conditions, costs were necessarily high. Altogether, 964.5 feet of drifting, crosscutting, raising and sideswiping were accomplished. 913.5 feet of this total was done in 1946 at a cost of $10,445.97 for direct underground costs or $11.44 per foot: costs for maintaining camp, cookhouse and compressed air were $9,880.30 or $10.81 per foot. Therefore the total cost of the work was $20,326.27 or $22.25 per f foot in 1946.

Surface Exploration.

Surface work was done, wherever possible, with the bulldozer. This machine, a Caterpillar D7, equipped with Kay Brunner hydraulic angledozer and Hyster winch, was purchased in April for $13,489.62. This size of machine is probably the best for the work in this country as it

is capable of pushing the largest timber encountered without undue delay. The blade supplied was faulty in manufacture and caused considerable trouble and expense. The blade was also too wide (15 feet) for stripping in deep ground since a wide blade causes difficulty in disposing of spoil. The weight of the machine (17½ tons) is a disadvantage when stuck in a mud hole as a good sized tree must be found to pull out. However, the greater reserve of power is on the side of the larger machine, occasioning less wear and faster work.

Road Work Proserpine Mountain.

In order to operate the Proserpine camp throughout the summer, it was necessary first to continue work on the road, started last year. The spring breakup caused considerable damage to the rough grade made last fall, large sections of the road being washed away by the melting snow. In order not to tie up the bulldozer for hauling supplies it was considered cheaper to install ditches, culverts and to corduroy some sections to make a truck road. This work was done in May and June at a cost of $3523.49. The total cost of the road was thus brought up to $9480.98, of which the government has paid $2000.00 to date.

Surface Exploration, Proserpine Mountain.

35,000 feet of bulldozer stripping had already been done by the Privateer Company during their option in 1940. This work exposed the Basal and Lowhee members and part of the Rainbow. Several hundred veins were discovered during this work but few of these contained any gold on the surface. Several areas where gold did occur were further prospected, being completely exposed by stripping overburden 50-100 feet wide. 37,985 additional feet of stripping were done on the Xmas, Pin Money, Rex and Hen claims as it was thought that the Rainbow member might pass through the Pin Money and Rex groups. Although dark quartzites and argillites were found on these groups, the distribution of these rocks is now interpreted as being due to close folding; that is, the dark rocks are implicated with the light quartzites, the nose of a large fold occurring on the Rex Fraction claim. Therefore, the southeasterly extension of the Rainbow member passes through the Proserpine Mines Ltd. ground as mapped by Dolmage in laying out their underground work in 1939.

A number of veins were found on the Pin Money and Rex Fraction claims,

situated in the dark rocks near the contact with the Baker, containing galena and pyrite but low gold values. An area of Quartz stringers, adjacent to the Independence fault was found on the Rex No. 1, where free gold could be panned. This place was drilled to a depth of 10 feet with the portable compressor and blasted over an area of 60 by 60 feet; mucking was done with the bulldozer. Sulfides were found in the bottom of the cut where an assay of 0.10 oz/ton was obtained; no values could be found at the surface.

Conditions for stripping on Proserpine Mountain were generally good except on the north east side where deep ground was encountered. The bulldozer was followed up by two men prospecting with the gold pan; all quartz veins were broken into. A number of places were found where free gold could be panned; all these were in or adjacent to northerly striking faults. Few veins and no commercial assays were found in the light coloured calcareous quartzite rocks of the Baker and Lowhee members.

Surface Exploration, Antler Mountain.

After completing surface work on Proserpine, camp was moved to Grouse Creek starting 1 September. The narrow trail from the Antler road was widened and relocated for two miles to the portal of the North adit at a cost of $1,486.61. Additional work required to make this into a good truck road for future operations will cost about $1,000.00: installation of two large culverts to cross Grouse Creek and a small amount of rock work are still necessary.

Preliminary prospecting and surveying of Antler Mountain had been carried out at intervals all summer from a camp on the summit. It was not until the 1st October that a start could be made on the road up the steep side of the mountain to get the bulldozer to the top. On 7 October, stripping started and double shifts were worked to do 13,870 feet of stripping before snowfall caused abandonment of the work on 14th October. Most of this work was concentrated on the Grouse claim where a vein, carrying galena and pyrite, with good values in gold, silver and lead had been discovered by Armstrong in earlier work. This vein is 110 feet long, occupying a N 30 W fracture, bounded by two strike faults; average values on the surface are 0.327 oz/ton over 2.15 feet. The two best samples ran 0.84 gold over 4 feet and 0.26 gold, 16.52 silver, 68% lead over 3½ feet. Several other veins, some with the same attitude and some being transverse veins, were discovered in the vicinity; at least three are gold bearing,

with silver and lead values. In the same general area, an old tunnel, the Dufferin ledge, 216 feet long was opened up and retimbered. This tunnel follows a quartz vein but is lagged tightly from portal to face. Some ore from the dump, containing massive galena, ran 0.44 oz/ton gold and 44 oz/ton silver. These veins are all located near the contact of the Rainbow and Baker members. Owing to the lateness of the season, it was not possible to complete the prospecting of this area but the results, so far, appear to be distinctly promising.

Surface Exploration, Island Mountain.

At the north west end of the belt, conditions for surface work are much inferior to those on Antler and Proserpine Mountains. Stripping was attempted with the bulldozer and 13,950 feet of trenches were dug to a maximum of 10 feet in depth. Very few exposures of bedrock were made and it was soon realized that the average depth of overburden is too great for this method of prospecting.

It was therefore decided to try to work out the geology by sinking a large number of test pits. Four men were employed all summer digging pits on lines laid out by the engineers. The pits were taken down to 9 or 10 feet, when they were abandoned if no bedrock was found. 219 pits of an aggregate footage of 1581 feet were dug; 96 of these or 43.7% reached bedrock within 10 feet. The contract price for pit digging was set at $2.00 per foot. Using this method, it was impossible to do any systematic prospecting for veins, but the distribution and attitudes of the various rock formations was worked out over a large area. In this way, the upper contact of the B.C. argillite and the approximate distribution of the dark quartzites of the Rainbow member were traced across Bluebell, Consolidated and Spec groups for about 7000 feet. Two northerly striking faults of large displacement and one smaller fault were worked out.

A serious obstacle to geological mapping on the northeast slope of Island Mountain is the fact that the rocks have an average dip of 35-45 degrees, which nearly coincides with the slope of the hillside. In addition, the formations are disturbed by extensive drag folding, so that, even if there were no overburden at all, the structure would be exceedingly difficult to work out. In an effort to obtain sections to aid in the interpretation of the folding, 1262 feet of diamond drilling was done by

Boyles Bros. during the months of July - September. Extreme difficulty was experienced in getting the holes down at all in these rocks. This was probably because of the high degree of fissility of these rocks, due to drag folding, and because of deep disintegration of the rocks by weathering; these conditions caused constant caving at many points in the hole. Holes were constantly being cemented, often after only one or two shifts drilling. Core recovery averaged 25% or less with EX size core: change of core size to AX had little effect in increasing recovery and no effect at all on facilitating drilling. Boyles Bros. account for the work has not yet reached this office but it is known that the costs of the drilling were in excess of $8.00 per foot.

Information gained from this drilling was disappointing owing to low core recovery. Several quartz veins, one at least containing sulfides, were encountered but the only thing to show for them in the core box was a few little pieces of quartz and a wooden plug marked "lost core": sludge assays gave no results as holes usually caved along their entire length. However, the percentage of dark quartzite found in three holes was sufficient to check the position of the Rainbow member and a fourth accurately located the contact of the B.C. Member.

Summary of Bulldozer Stripping.

The following table gives a summary of the bulldozer work done on the various groups. For the sake of completeness, the 1945 figures are also given.

Group	1945	1946	Total
Proserpine Mines Ltd.) Proserpine Mt.)	2,000 ft.	13,205 ft.	15,205 ft.
Proserpine Mines Ltd) Antler Mtd)	___	13,870	13,870
Rex	6,400	5,980	12,380
Hen	-	5,400	5,400
Pin Money	-	10,390	10,390
Xmas	-	3,010	3,010
Willow	-	7,400	7,400
Cariboo Consol.	-	1,900	1,900
Bluebell	-	1,950	1,950
V.E.	-	2,700	2,700
	8,400 ft.	65,805 ft.	74,205 ft.

Direct costs of this work, including operator's and helper's wages, fuel, oil and grease, repairs to bulldozer, and all wages connected with prospecting the stripping, amounted to $6,055.61 or 9.2 cents per foot: adding depreciation of 20% for the first years operation of the bulldozer, total direct cost of the work was $7,753.53 or 13.3 cents per foot.

Surveying and Engineering.

In addition to the layout of bulldozer stripping, road location, test pits and other work, the detailed geological mapping of the entire Barkerville Gold Belt, including the properties of other companies, was considered to be of paramount importance in 1945 and 1946. A very large amount of surveying was found necessary for this purpose. In 1945 a base map on a scale of 500 feet to an inch was plotted from surveyors' records for 11 miles of the gold belt and all geological and engineering observations were recorded thereon. Additional maps to the scales of 200 feet to 1 inch and 100 feet to 1 inch were drawn where required for greater detail. The following table shows footage of transit and stadia lines laid out on the ground.

	1945	1946
Proserpine & Antler Mts.		
Transit Survey	46,590.98 ft.	160,589.58 ft.
Stadia Survey	60,700.00	123,500.00
Island Mt.		
Transit Survey	-	91,920.91 ft.
Stadia Survey	-	70,000.00
	107,290.98 ft.	446,010.49 ft.
		107,290.98
	Total	553,301.47 feet

Two crews were used during most of 1946. Total direct costs of this work, including transportation, amounted to $5,123.62 or less than 1 cent per foot.

Cost Accounting.

Accurate costs werekept on all phases of the work. Summaries of direct costs only are given in this report. Since the books are not yet closed for 1946, and some items have yet to be charged through the Vancouver office, no distribution of overhead is yet possible. It is hoped to present a detailed analysis of costs, including a study of the variation of bulldozer costs in different types of ground, at a later date.

SUMMARY OF GEOLOGICAL RESULTS.

A complete geological study of the mass of information collected has yet to be made. During the progress of operations, the staff was too much occupied with the layout and direction of the work actually proceeding on the ground to be able to make an accurate appreciation of the results. Several months of study could well be applied to weighing all the factors and placing them in their current perspective. However, it is possible here to give a short summary of those conclusions which appear reasonably certain.

Results of Surface Prospecting.

It is unfortunate that, with the exception of a promising area containing gold-silver-lead veins on Antler Mountain, no showings of importance, that were not known previously, were discovered by surface work, despite the large footage of bulldozed stripping accomplished. This, in itself, is insufficient to condemn the properties for future underground work since the two producing mines in the district were similarly deficient in surface showings. The work has served to define the geology and to clarify innumerable problems pertaining to thelayout of underground openings to give the best results. In any case, an underground program, undertaken without prior examination of the surface, would have been unjustifyable.

Differences between the two ends of the Belt.

Since the two producing mines are located at the north west end of the belt while much of the Barkerville ground is situated at the other end, it would be well to examine the essential differences in structure and ore deposits. The following appear to be the most apparent differences.

(1) The Fold Pattern. Evidence has been found to substantiate Benedict's theory that the Rainbow at the Island Mt. mine occupies the overturned limb of a recumbent fold. He deduced this by the nature of the drag folding in the mine; this type of folding is accompanied by relatively flat dips of the schistosity (30-45 degrees). The same type of folding is also seen in the Myrtle tunnel near Barkerville, only in this case the dips of the schistosity are steeper (45-55 degrees). At the other end of the belt, on Proserpine and Antler Mountains, the dips of the schistosity are much higher (65-90 degrees), and a different type of drag folding is evident. Thus, proceeding along the Rainbow member from north west to south east, we have, successively, a strongly overturned limb on Island Mountain, an amount of overturn becoming

less throughout the Cariboo Gold Quartz, Myrtle and Williams Creek properties and, finally, on Proserpine and Antler Mountains, a limb which is only very slightly overturned and which may indeed be vertical. In every case where drag folding may be clearly seen, this theory is substantiated; it is also checked by the changes in dip of the schistosity. The effect of the discovery of this overturn on the accepted ideas of the stratigraphy of the district has not yet been considered.

(2) The Fracture Pattern. The effect of the difference of dip of the schistosity at either end of the belt on the type of fracture pattern developed is pronounced. In Cariboo Gold Quartz and Island Mountain mines, vein fractures have developed on two sets of shear planes and on the transverse tension planes. On Proserpine and Antler Mountains, owing to the near coincidence of one of the shear planes with the planes of schistosity, by reason of the latters' steeper dip, vein fractures occupy strike faults and are widest where they diverge slightly from exact parallelism with the schistosity. Here also veins have developed on transverse tension planes. Therefore a different type of ore body should be expected in the south east end of the belt in which the veins strike N 20-30 W, almost parallel to the faults (N 15-20 W), with tension vein systems similar to the producing mines.

(3) Mineralization. A change in the mineralization from gold in pyrite to gold-silver-lead in pyrite and galena occurs progressively from northwest to southeast. Galena first becomes prominent south of the town of Barkerville and becomes abundant towards the south-east end of Proserpine Mountain.

(4) Lithology. It is thought that not much change in the character of the rocks occurs proceeding south east except that a few beds of green chlorite schist begin to appear on Proserpine Mountain; these increase on Antler Mountain and attain considerable thicknesses on the Antler Creek section. Also the distribution of the rocks changes; thus, the Baker and Rainbow become thicker on Proserpine and Antler and the Lowhee appears to pinch out at Grouse Creek. Part of this effect may be due to folding on a large scale.

All the evidence cannot be given here, but the foregoing generalizations appear to be justified by the facts. The items that follow are mainly statistical observations that have a geological application to any contemplated program of underground work.

Referring to Proserpine and Antler Mountains:

(1) The best and most numerous showings occur near a contact of light and dark quartzites. Thus the Westport, Black Jack, Wilkinson, Conklin, Warspite, Grouse and Star Frac. showings are either in the upper 200 feet of the Rainbow or just inside the light quartzites of the Baker. Similarly, the Stedman, Forrest, Penelope and Independence showings are in the upper part of the dark Basal argillite or just inside the light quartzites of the Lowhee. The same situation occurs at the Quartz and Island Mt. mines, where probably 80% of the ore has been mined from the upper 200 feet of the Rainbow or the lower 50 feet of the Baker. The great thicknesses of light calcareous quartzites are invariably found to be barren.

(2) North of Grouse Creek on the surface of the Proserpine property, the Baker contact is obscured for 4000 feet by deep overburden and steep ground that cannot be stripped with a bulldozer. In the remaining 2000 feet, which is exposed, the Warspite and Tipperary showings are located.

(3) The Baker contact is sharp and could easily be followed in underground work.

(4) It is thought that control of ore deposition by north-south faulting, as a general characteristic of the district, is confirmed. In addition to the evidence in the producing mines, it is found that the number of veins on the surface, and their gold content, increases as the faults are approached. It was also discovered in course of prospecting that gold could frequently be panned from a fault, where it crossed dark rocks, and nowhere else.

(5) The north south faults occur at intervals of 600 to 1500 feet throughout the district.

(6) All surface showings proved to be weaker at the surface than at some depth. While this may be difficult to explain unless some downward migration of gold by weathering is admitted, it appears to be nonetheless a fact.

(7) Surface showings on Warspite and Grouse claims are as good as or better than the original showings at Quartz and Island Mt. mines.

Referring to the ground Held on Island Mountain:

(1) The ground is characterized by overturned folding and close drag folding. For this reason, the Baker contact will be found to be very irregular and will have to be located by a crosscut tunnel.

(2) No surface showings are known as the surface is thickly covered with drift.

(3) These claims are the closest to a producing mine, on what appears to be the direct continuation of the Island Mt. mine structure, that the Barkerville Mining Company holds. All elements of the Island Mt. mine structure seem to be present, including the fold structure and at least three north-south faults.

(4) Operating conditions are excellent as the property is only 3 miles from the town of Wells. Barkerville owns water rights sufficient for camp and mill.

Recommendations for Future Work.

From the above considerations, it appears that an underground program is justified at both ends of the belt. Knowledge of the structural geology has now progressed to a point where underground openings can be located to best advantage and it is no longer a question of driving a blind crosscut into the mountain. It is felt that further surface work would add little to our knowledge in this respect.

On Proserpine Mountain, a drift along the Baker contact from Grouse Creek to the Warspite would be 6,000 feet long and would cross at least six known north-south faults, giving a depth of 700 feet. On Antler Mountain, a drift on the Baker contact would give a depth of 650 feet in a length of 2000 feet, under the Grouse showings. These two operations could be carried out, with advantage, from the same camp on Grouse Creek. Adding 25% for crosscuts and lateral exploration, a total length of 10,000 feet would be required. The program would cost approximately $350,000.00.

On Island Mountain, a crosscut 3000 feet long, located between the two largest north-south faults, would cross the entire Rainbow member. About 4,000 additional feet of lateral work would be necessary, making a total of 7,000 feet of underground work. This program would cost about $250,000.00. It is contingent upon the acquisition of the Cariboo Amalgamated claims.

The relative merits of the two ends of the belt is a difficult matter to decide and must receive further consideration.

Respectfully submitted,

"C.E. Gordon Brown, Mine Mgr.,"
Barkerville Mining Company Limited (NPL)

Wells, B.C.
6 November, 1946.