



Geological Survey

GIBSON GIRL CLAIMS

October 23, 1952

\mathbf{at}

Duncan Lake, Howser, B. C.

Labor

Brian Robertson - Field Work July 4 - August 10/52 @ \$250 per month & board	\$300. 00			
Donald A. Bourne - Field ^W ork July 6 - August 9/52 @ \$450.00 per month & board	560. 00			
Office Work - Aug. 31 - Sept. 11 Sept. 15 - 17	225.00			
Fred J. Hemsworth - Field ^W ork				
July 5 - 9th August 6 - 9th 9 days @ \$50.00	350.00			
Office Work - Sept. 16 - 17 2 days @ \$35.00	70.00			
Stenographer - 3 days @ \$8.00	24.00			
Workmens Compensation Board	27.00			

Total Labor

\$1556.00

SUPPLIES

Tool	s & Equ	ipment		
June	30 -	Gordon & Belyea	132.73	
July	4	Sterlings	10.25	
	7	Boyce	16.43	
	8	Kaslo Hardware	13.91	
	8	Kaslo Drug	2.50	
	9	Kaslo Drug	7.72	
	12	Lardo Motors	14.00	
Aug.	6	Armstrongs	3.75	•
		1 5% write-c	ff \$188.06	30.00

GROCERIE	<u>S</u>		
July 8 July 10 " 12 " 17 " 24 " 30 Aug. 2	Cverwaitea - Kaslo F. M. Greelaw - Howser	\$61.33 18.43 1.43 20.88 8.59 19.50 5.76	\$135.98
FREIGHT a	& EXPRESS		
June 28 July 2 " 4 Aug. 9 Aug. 9 Aug. 22	Express Freight Express Cartage Freight Cartage	3.45 4.25 3.20 5.00 8.04 2.25	26.19
Air Photo Photogra Maps Map	os & 0.72 phs - Developing 5 0.25	4.32 6.59 1.25 .26	12.42

Total Labor	1556.00
Total Supplies	204.59
TOTAL	<u>\$1760.59</u>

Receipts attached to statement previously submitted.

Certified Correct.

umsworth J. Hemsworth. F.

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DETAILS OF EXPENDITURES

Geological Survey

GIBSON GIRL CLAIMS

at

Duncan Lake, Howser, B. C.

LABOR

Brian Robert July 4 - Aug	son - Field Work ust 10/52 @ \$250 per month & board	\$300.00	
Donald Å. Bo July 6 - Aug	urne - Field Work ust 9/52 @ \$450.00 per month & board	510.00	
Office Work	- Aug. 31 - Sept. 11 Sept. 15 - 17	225.00	NA
Fred J. Hems	worth - Field ^W ork July 5 - 9th Aug. 6 - 9th 9 days @ \$50.00	450.00	
Office Work	- Sept. 16 - 17 2 days @ \$35.00	70.00	
Stenographer	- 3 days @ \$8.00	24.00	•
Workmens Com	pensation Board	27.00	$\frac{1}{2} f^{\dagger} \mathcal{E}^{\dagger}$
	Total Labor		\$1606.00
Travel Expen	ses:		
B. R F. H F. H D. F	obertson Memsworth - July Memsworth - August Mourne	63.05 45.97 56.97 <u>85.25</u>	251.24
SUPPLIES			
Tools & Equi June 30 July 4 7 8 8 8 9 12	pment Gordon & Belyea Sterlings Boyce Kaslo Hardware Kaslo Drug Kaslo Drug Lardo Motors	132.73 10.25 16.43 13.91 2.50 7.72 14.00	
Aug. 6	Armstrongs	3.75 <u>.77</u>	188.06

Groceries:

July	8	Overwaitea -	Kaslo	\$61.33		
July	10	F.M. Greelaw	- Howser	18.43		
n	12			1.43		
tr	17			20,88		
Ħ	24			8.59		
Ħ	30			19.50		
Aug.	2			5.76	135.98	
Frei	ght &	Express:				
June	28 -	- Express		3.45		
July	2 -	Freight		4.25		
ท้	4 -	- Express		3.20		
Aug.	<u> </u>	- Cartage		5.00		
Aug.	29	- Freight		8,04		
Aug.	22 -	- Cartage		2.25	26.19	
		Air Photos l	@ .72	4.32		
		Photographs	- Developing	6.59		
		Maps - 5 @ .:	25	1.25		
		Map	-	•26		
		Stationery &	Incidentals	25.00	37.42	

Total Supplies

\$638.89

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Total Labor	\$1606.00
Total Supplies	<u>638.89</u>
TOTAL EXPENDITURE	\$2244.89

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HENRY L. HILL R. E. LEGG F. J. HEMSWORTH G. H. GRIMWOOD 850 WEST HASTINGS STREET VANCOUVER 1, B.C. PHONE MARINE 0848

HILL, LEGG, HEMSWORTH & GRIMWOOD

CONSULTING MINING AND METALLURGICAL ENGINEERS ^a *S*Y

September 18, 1952

Mr. Karl J. Springer, President, Gibson Girl Mines Ltd., 844 West Hastings Street, VANCOUVER, B. C.

Dear Sir:-

We submit herewith the preliminary report and geological map of the Don, Ken and Art Groups of claims, Duncan Lake, Howser, B. C.

Yours very truly,

HILL, LEGG, HEMSWORTH & GRIMWOOD

1. Hensworth Per /

FJH/pd

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 $p{\mathcal G}{\operatorname{Geological}}$ Map of the Claims

Envelope

Frontispiece

Air Photograph

DUNCAN LAKE PENINSULA

Howser, B. C.



REPORT

on

GIBSON GIRL MINES LIMITED

Howser, B.C.

INTRODUCTION:

On instructions from Mr. Karl J. Springer, President, Gibson Girl Mines Limited, the Consulting Engineering firm of Hill, Legg, Hemsworth & Grimwood was engaged to make a geological survey and submit a report on the property of Gibson Girl Mines Limited, Howser, B.C. The geological map and this report are to constitute the assessment work for these claims for 1952. The geology was mapped by the writer, Donald Bourne, under the supervision of Fred J. Hemsworth, P.Eng. Assistance in the field was rendered by Brian Robertson. From July 7, 1952 to August 9, 1952 was spent on the property. The time was divided equally between prospecting and geological mapping.

Some of the information contained in this report, particularly portions dealing with regional geology was obtained from a study of Geological Survey Memoir 161.^x

LOCATION AND ACCESSIBILITY:

The claims are situated on the peninsula in Duncan Lake, 3 miles by boat from Nowser, B.C. at an elevation of 1835 feet. They adjoin the Bill Group of Lardeau Lead and Zinc Mines Limited

x Memoir 161 - Lardeau Map Area, British Columbia by J.F. Walker, N.F. Bancroft and H.C. Gunning. to the north, and the Grizzly crown-granted claim (L-14371) to the south. They are in the Ainsworth Mining Division. The Duncan Lake peninsula is about 5 miles long and slightly less than 1 mile wide, tapering to the southeast. At the present time the best access route to the peninsula is by boat from Howser which is connected to Lardeau at the head of Kootenay Lake by an excellent dirt road. This road continues past Howser to Gerrard at the south end of Trout Lake farther north. It is reported that the road between Gerrard and Trout Lake (along the east shore of Trout Lake) and the one between Kaslo and Lardeau (along the west shore of Kootenay Lake, will be completed next summer, thus enabling one to travel by automobile from Nelson through the Lardeau District to Revelstoke.

A rough dirt road (a branch of the one going up Glacier Creek to the J.G. Group of Lardeau Lead and Zinc Mines Limited and the Surprise Group) leads from Howser up the east shore of Duncan Lake but stops at the ranch across from the southern tip of the peninsula. On the peninsula, a good trail runs from the cabin on the "Grizzly" claim to Dr. L.D. Besecker's ranch further north (Figure 1). This trail then continues northward, swings around the Lower Arm of Duncan Lake and joins the dirt road mentioned above.

PROPERTY AND OWNERSHIP:

A total of 17 claims was staked in March 1951; these are held by location by Gibson Girl Mines Limited. Names and numbers of the claims are listed below:

NAME		NUMBER
Don No.	1	1419-0
Don No.	2	1420-0
Ken No.	1	1421-0
Ken No.	2	1422-0
Ken No.	3	1423-0
Ken No.	4	1424-0
Ken No.	5	1425-0
Ken No.	6	1426-0
Ken No.	7	1427-0
Ken No.	8	1428-0
Art No.	1	1429+0
Art No.	2	1430-0
Art No.	3	1431-0
Art No.	4	1432-0
Art No.	5	1433-0
Art No.	6	1434-0
Art No.	7	1435-0

However, due to an error in staking, several of the claims completely overlapped others and some partially overlap. Thus the Ken No. 4 is cut down in size to a small triangle; Ken No. 6 is completely covered by the prior staking of Art Ho. 1; and Don No. 1 almost completely covered by the Art No. 3 claim.

Our survey was made by Brunton compass and tape through thick bush and consequently the accuracy of the claim map cannot be guaranteed. For this reason we recommend that no claims be dropped until an official survey has been conducted. The relative location of the claims is shown on the map which is included in this report.

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TOPOGRAPHY:

The claims are situated in the Purcell Trench which is occupied in the southern part of the Lardeau area by Kootenay Lake, Duncan Lake and the Duncan River. It has an average width of 1 to 2 miles and an elevation of 1,765 to 1,900 feet above sea-level.

The relief on the peninsula is low and not excessively rugged; the main difference in elevation would be about 675 feet. The surrounding ridges (for example, Lavina Ridge to the southwest) are not high, averaging about 4500 feet above the lake level. Away from the Purcell Trench are many true mountains such as Mt. Simpson, (7000 ft.) Mt. Marion (9750 ft.), and Howser Ridge (Figure 2) with glaciers and snow-capped rocky summits.

The timber growth on the peninsula is heavy and consists of fir, tamarack and cedar. Except along the rocky western shore of the peninsula, the underbrush is thick and consists mostly of small balsam. Situated in the west central portion of the peninsula and clearly shown on the map and aerial photograph is a ranch belonging to Dr. Besecker of Ainsworth, B.C. The ranch and ranch buildings are in good condition. The northern part of the ranch includes a small pond. Dr. Besecker has blasted a ditch from this pond to Duncan Lake for the purpose intending, it is rumoured, of raising muskrats.

The annual precipitation at Ferguson (34 miles north of Howser) is 48 inches which includes a measured snowfall of 24 feet.

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This is probably more than falls at Howser. Weather conditions would not constitute a serious handicap to mining operations on the peninsula.



Figure 1.

View of Dr. Beseckers ranch. Looking north.

Figure 2.

Looking north from Howser up Duncan Lake to Howser Ridge.



REGIONAL GEOLOGY OF THE LARDEAU AREA:

A greater part of the Lardeau area is surrounded by granitic rocks with sedimentary rocks occupying a great trough between the main masses of granite and granite-gneiss on the southwest and the lesser masses on the northeast. The bulk of the sedimentary rocks are Precambrian in age and have been correlated with the Windermere rocks of the Windermere area. Overlaying the Windermere rocks unconformally and occupying small areas are sediments of Carboniferous age. They are the northerly extension of the Milford group of the Slocan Mining Camp.

Intrusive into the above-mentioned sedimentary rocks is a variety of greenstone dykes and sills. They are considered to be the intrusive phase of the volcanics of the Kaslo series. Outcrops of this series occupy a few small areas in the southwest side of the Lardeau area and overlie unconformably the Milford group and are Triassic in age.

Granite-gneiss is intrusive into the Windermere rocks in the northwestern part of the area. It in turn is intruded by granite rocks resembling those of the Nelson and Kuskanax batholiths. Intrusive into all the sedimentary rocks along the southwest side of the area are granitic rocks of the Kuskanax batholith. All of these igneous rocks are considered to be post Triassic in age.

Glacial deposits and recent alluvium are found in the larger valleys.

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' TABLE OF FORMATIONS ' x

Quaternary Recent Alluvium Glacial silts, gravels, Pleistocene and till Kuskanax batholith: granite Post-Triassic Nelson batholith: granite, Granite-gneiss, porphyritic granite Kaslo series: massive and Eesozoic and schistose, chloritic errup-(?) Tertiary Triassic tives and intrusives; sediments Unconformity Sesozoic and Milford group: conglomerate slate, argillite, lime-Palaeozoic Triassic and Upper Carboniferous stone Unconformity Lardeau series: schists, Late Precambrian Windermere phyllite, slate, quartzite, limestone Badshot formation: crystalline limestone Hamil series: quartzites, mica schists, mica phyllites, and limestone

LARDEAU SERIES:

The Lardeau series is the only rock series outcropping on the peninsula in Duncan Lake.

The Lardeau series is named after the Lardeau area. The rocks of this series lie in a great synclinal trough extending northwesterly from Kootenay Lake. It is a heterogeneous assemblage of metamorphosed sediments. The lowest member is a black, carbonaceous shate, phyllite, or schist depending on the degree of metanorphism. This is succeeded by grey to greenish phyllites and schists, calcarcous in part in the southern part of the area, developing into bands of limestone north and along the strike. Succeeding the schists in the southern part of the area is a prominent band of limestone which will be referred to as the Lavina limestone. This limestone band can be traced northward from Lavina ridge across Glacier Creek, the peninsula in Duncan Lake, and along the west side of Lake Creek valley. Succeeding the Lavina limestone are mica schists and massive quartzites which have been termed the Lavina quartzites. Succeeding the Lavina quartzite is a succession of mica, quartz, and chlorite phyllites and schists with minor bands of quartzite and several large bands of limestone. The limestone bands appear to lie out northward. G-DLOGY OF THE CLADES:

Most of the geology was mapped in from traverses on a scale of 1" - 200'; supplementary evidence was obtained from aerial photographs. Prospecting of the limestone bands and to a lesser extent of the schist horizons was carried out concurrently with the geological mapping. In order to gain a broader and more comprehensive picture of the geology of the claims, the geology and mineralization of the "Grizzly" crown-granted claim and of the southern part of the Bill Group of Lardeau Lead and Zinc Mines Limited was mapped. Furthermore the shoreline of the southern half of the peninsula was also mapped. Four principal rock types were recognized: chlorite schist

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(garnetiferous in part), mica schist (in part carbonaceous), limestone, and quartzite, all part of the Lardeau series of early Precambrian age. The main object of the geological mapping was, of course, to trace out the limestone belts. Although the schist horizons were thoroughly traversed, it is admitted that closer detailed mapping, coupled with thin-section work, would probably result in a further and more accurate subdivision of the schists. However, for this work such detail was not considered warranted.

CHLORITE SCHIST:

The chlorite schist is found on the eastern side of the peninsula where it outcrops in low rounded ridges trending parallel with the bedding. It is thinly-bedded, green in colour, strikes between north 10° west and north 25° west and dips vertically. It appears certain that the schistosity is parallel to the bedding. In places, the bedding has been thrown into minor crenulations or wrinkles but no large folds were observed. It is composed of chlorite, possibly hornblende, and quartz and is sparingly mineralized in places with magnetite. One horizon in particular is distinctly garnetiferous, the garnets occurring as anhedral to euhedral crystals from 1/16 inch to 1/8 inch in diameter. In places, the schistosity may be observed to bend around the garnet crystals. Several specimens of the chlorite schist were tested with dilute hydrochloric acid but no reaction for carbonate was obtained. Many discontinuous and irregular quartz stringers and lenses are present. They vary up to 1 foot in width

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but are generally much narrower. They occur parallel with the bedding and are regarded as unimportant.

MICA SCHIST:

West of the above chlorite schist horizon are several bands of well-bedded mica-schist. Itforms prominent ridges and bluffs especially at the south end of the peninsula (Figure 3). Generally speaking it weathers to a light brown. Structually, it occurs much as the chlorite schist striking between due north and north 25° west, dipping vertically, with the schistosity parallel to the bedding. Minor drag-folds and crenulations were observed. It is composed of mica, quartz, and carbonate. In places, narrow bands of limestone and mica schist are interbedded making it difficult to draw a sharp contact between the two rock types. Locally, single flakes or "clots" of biotite are well-developed. The presence of carbonate material in the mica schist was confirmed by tests with dilute hydrochloric acid. Irregular and discontinuous quartz stringers and lenses parallel with the bedding are common.

LIMESTONE:

Four bands of limestone were mapped and prospected on the peninsula. The eastermost band (Lavina limestone) is a favorable host rock for lead-zinc replacement deposits. The limestone band is about 200 feet wide and strikes through the centre of the claims but does not outcrop on the property. The absence of outcrops is unfortunate since the mineralized zones on the "Grizzly" mineral

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Figure 3.

Large bluff of mica schist at south end of peninsula.

Figure 4.

Bluff of limestone along western shore of peninsula.



claim to the south and the Bill Group of Lardeau Lead and Zinc Mines Limited to the north occur in this horizon. The limestone is generally bluish-grey to white in colour with an occassional brown tinge; the westhered surface is grey or brown in colour. It is wellbedded, strikes northwesterly, dips vertically and forms steep bluffs on the western shore of the peninsula (Figure 4 & 5). Generally speaking, it contains narrow partings of mice schist. As mentioned before, it is often difficult to draw in the contact between the limestone and mice schist within a few feet as there is some interbedding of these two rock types near the contacts. This does suggest, however, that the contacts between the mice schist and limestone are unfaulted.

The Lavina limestone band does not outcrop on the Gibson Girl Mines Limited claims but is concealed by overburden and very thick underbrush. The possibility of stripping with a bulldozer should not be overlooked.



Figure 5.

Bluff of limestone along western shore of peninsula

QUARTZITE:

Along the southwestern shore of the peninsula is a great deal of platy quartzite (Figure 6). Apparently, this grades northward into mica schist and as a result may be more of an alteration phase of the latter. It is hard, light brown in colour and forms prominent ridges. The platy structure is well-developed along the lake edge and may be seen by examining Figure 6 closely.

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Figure 6.

Bluff of quartzite along western shore of peninsula

REGIONAL STRUCTURE:

"The major structual feature of Lardeau map-area is the great synclinal trough of sedimentary rocks surrounded to a great extent by granitic rocks. Deep folds and high dips are everywhere characteristic of the district". Memoir 161, Geological Survey of Canada, 1929, page 16.

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LOCAL STRUCTURE:

The structure on Duncan Lake peninsula is remarkably uniform. All strikes recorded fell between due north and north 25° west. Dips are everywhere steep, the majority being 90 degrees. Drag-folds do occur but these are seldom more than a few inches across and are regarded as minor structual features. The consistent strikes and dips preclude any unconformable relations among the four rock types. Any folds which might occur are deep and probably isoclinal.

No faults were observed. Some of the narrow northwesterly draws may be the topographical expressions of strike faults but if so they would be difficult to detect. Since contacts join up very well, no cross-faulting has occurred.

The main structural features of the claims can be seen by examining the aerial photograph which is included in this report. One can clearly see the long open ridges separated by narrow and deep draws. The absence of east-west valleys across the strike of the sediments is noteworthy.

Schistosity is very common, expecially in the mica, and

chlorite schists, and is undoubtedly parallel to the bedding. The limestone is generally well-jointed, giving it a platy structure. ECONOMIC GEOLOGY:

During the 5 weeks spent on the property, the mineralized showings on the "Grizzly" claim and the Bill Group of Lardeau Lead and Zinc Mines Limited were visited amd mapped. Their location is shown on the base map. Mr. Hemsworth and the writer also visited the main showing of Lardeau Lead and Zinc Mines Limited on Glacier Creek where we were able to see the underground workings and diamond drill core through the kindness of Mr. A. Lee, resident engineer for the company. It appears probable that the main showing of Lardeau Lead and Zinc Mines Limited is on the same limestone belt as those of the "Grizzly" claim and the Bill Group. Further north still, Granby Consolidated Mining Smelting and Power Co. Ltd. has staked a group of claims (Roscoe Group) on which are a number of showings which are reported to be "worth diamond drilling". These showings likewise appear to be on the same limestone horizon. The property of Gibson Girl Mines Limited is, therefore, strategically located.

Since the favourable limestone belt does not outcrop on the property of Gibson Girl Mines Limited no showings were found. However, a brief description of the ore occurrences in the immediate area should serve as a guide in future exploration. The ore minerals are galena and sphalerite with pyrite and occur as bands up to several inches wide in white to blue-grey limestone. The mineralized zone

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may be up to 7 feet wide and is typical replacement ore. Sphalerite is much more prevalent than galena and is a light resinous brown in colour. Silver values are low. Figure 7 is a photograph of one of the showings on the Bill Group of Lardeau Lead and Zinc Mines Limited.



Figure 7.

Sphalerite-Galena-Pyrite replacement ore in limestone on Bill Group, Lardeau Lead and Zinc Mines Limited.

The mineralization on the "Grizzly" claim and the Bill Group appears to be related to steeply-dipping cross-fractures which cross the limestone about at right angles. These cross-fractures are generally weak looking structures up to 6 inches wide. The mineralization in the main showing of Lardeau Lead and Zinc Mines Limited appears to be related to sharp folds and other minor structural features in the limestone. It must be admitted that not enough time was spent on this latter property to examine fully the geology and mineralization.

"Replacement deposits in the Lardeau are formed in bands of grey to white crystalline limestone, particularly in several beds that lie within a belt, some 3 or 4 miles wide, to the west of the so-called lime dyke. Such deposits are known to exist at intervals, in different beds of limestone, from Incomappleux River to Gainer Creek and again in the same stratigraphic zone, on the shores of Duncan Lake ... Every bed of limestone west of the Badshot formation merits careful prospecting"...Memoir 161, Geological Survey of Canada, 1929, pages 24-28.

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SUMMARY AND RECOMMENDATIONS:

The claims are reasonably accessible. The opening of new roads into the Lardeau area will greatly facilitate transportation to the property.

The claims are situated astride a favorable band of limestone. This limestone has proved a host rock to replacement deposits of lead and zinc minerals on adjoining properties.

The favorable limestone bands has been eroded to form a trough and is covered by varying depths of overburden.

The overburden could be readily stripped with a bulldozer and this method is recommended for preliminary exploration.

If oxidation or other indications of mineralization are uncovered by stripping, the favorable sections should be further explored by diamond drilling.

Respectfully submitted,

HILL LEGG HENSWORTH & GRINNOOD

Per: And abourne.

Thed & Nemdworth.

FJH/er







GIBSON GIRL MINES LIMITED

HOWSER, B.C.

