

003909

REPORT

ON THE

MOLLIE MAC GROUP

082KNW036

WHITE QUAIL GROUP

082KNW037

HIDDEN TREASURE GROUP

082KNW106

ON

Index 082KNW038

GAINER CREEK

NEAR

FERGUSON, B. C.

By

Charles C. Starr, M. E.
September 15, 1933.

INTRODUCTION: The following report covers the Mollie Mac, White Quail, and Hidden Treasure groups of claims which are adjoining groups lying along the same mineral zone and crossing Gainer Creek nearly at right angles. These groups were examined by me in 1928 and found to show interesting possibilities.

During the present examination six days were spent on the three groups, all workings were visited, and all the pertinent information gathered which is available under present conditions of meagre development. Since 1928 several of the claims have been surveyed but no development has been done except about 75 feet of tunnel on the White Quail claim.

LOCATION: The properties are situated about fourteen miles east of Ferguson, in the Trout Lake Mining Division, B. C., and extend across Gainer Creek. The Mollie Mac lies on the north-west side of the creek and extends over into the Bunker Hill basin; the White Quail is on the southeast side, with the Hidden Treasure further up the slope to the southeast in the Gold Creek basin.

PROPERTY: The Mollie Mac Group consists of four claims, the Mollie Mac No. 1, 41.38 acres, Mollie Mac No. 2, 45.51 acres, Milner Fr. 21.75 acres, and the Mollie Mac No. 3 which is unsurveyed and was relocated July 17, 1933, by Geo. M. Yuill.

The White Quail group consists of three claims, the White Quail, the President, and the President Fr. The first two are Crown Granted.

The Hidden Treasure group consists of four claims, the Hidden Treasure Fr., Royal R. Fr., 47.98 acres, Index, 45.49 acres, and Red Cliff 51.85 acres; these claims are all Crown Granted.

ACCESSIBILITY & TRANSPORTATION: The usual route for passengers and freight is via Arrowhead, where the Canadian Pacific Arrow Lake boat from Robson, on the Kettle Valley Ry., connects with the branch railway from the main line of the Canadian Pacific Railway at Revelstoke. Present service is semi-weekly.

At Arrowhead transfer is made to a barge which is taken to Beaton, ten miles, whence a fair road leads to Ferguson, sixteen miles. From Ferguson a narrow road follows up Gainer Creek six miles to "Tenmile" which is the end of the road. Thence a pack-trail leads up the north bank of the creek three or four miles to trails that diverge right and left to the White Quail camp and the Mollie Mac tunnel.

Formerly the C. P. R. accepted ore on barges at Trout Lake, four miles below Ferguson; from barges it was transferred by railway to barges on Kootenay Lake, and again by railway to the smelter at Trail. This service has been discontinued.

Freight charges, as quoted by a local man, would be approximately as follows:- Beaton to Tenmile \$35 per ton under

o.c.s.

present conditions, or about \$20 per ton with a road to the property; ore or concentrates out about \$10 per ton. It would seem that these prices could be bettered.

Ore in carload lots from Arrowhead to Trail:-
\$10 value, \$1.90; \$50 value, \$3.00; \$100 value, \$4.40. From Beaton to Arrowhead the charge would be approximately \$1.50 per ton.

From Tenmile to the property there would be no special difficulty in building an auto road to the White Quail camp, or to the elevation of the Mollie Mac tunnel. However the upper two miles of this road would be useless in winter since both slopes of Gainer Creek are swept by snowslides which are said to run at frequent intervals all winter. It is apparently impossible to so locate a road as to be reasonably safe from slides. For continuous winter operation or travel it would seem that an aerial tram would be a necessity.

CLIMATE: Summers are short and winters long and snowy. Snowfall at Ferguson is said to average four feet (eight feet last winter) and at the elevation of the mine there is probably double that depth. From three to four months of bare ground at an elevation of 5000 feet is about average. Travel in the mountains and mountain valleys is dangerous in the winter except when the snow is packed and frozen.

TIMBER: On the Mollie Mac there is a fair amount of timber, mostly balsam, cedar, and spruce, in the order named. On the White Quail there is fine timber of the same species; on the lower end of the Hidden Treasure mostly balsam, - the upper end is bare. It will be necessary to leave timber around the camps as protection from snowslides.

WATER: Small springs are plentiful on most hillsides, and water for small camps is obtainable at close intervals. Water for milling is obtainable from side creeks at short intervals, or from Gainer Creek.

Limited power can be obtained from Gold Gulch, at the North side of the White Quail, or probably 500 to 1000 H. P. from Gainer Creek and the South Fork of Lardeau River, near Tenmile.

TOPOGRAPHY: Gainer Creek is a "U" shaped glacial valley with steep mountains on either side and slopes up to 60° near the summits. The mineral belt crosses the valley at 4000 feet elevation, nearly at right angles. On the Mollie Mac side, after emerging from the talus, it extends straight up on slopes of 30° to 45° to the summit of a ridge (5600 feet elevation) and thence 1500 feet along the south side of Bunker Hill basin. The surface of Mollie Mac No. 1 and 2 claims is a succession of parallel ridges and draws, the ridges timbered, and the draws snowslide courses.

The White Quail group lies mostly on a broader, timbered ridge and is free from slides. The cabin and workings are at an elevation of 4700 feet; slopes are 25° to 35°. The mineral zone is on the point and east slope of the ridge.

On the Hidden Treasure Group the mineral zone extends diagonally along the Gold Creek slope and extends to an elevation of about 7000 feet. Many of the surrounding mountains extend to elevations of over 8000 feet and are quite precipitous.

EQUIPMENT: Mollie Mac, - none.

White Quail has a fair two room cabin suitable for six or eight men, and a very few hand tools.

Hidden Treasure, - none.

DEVELOPMENT: Development on the Mollie Mac group is limited and consists of the following:-

Tunnel (1) 100 feet. Open cuts 11, Trenching 335 ft.

On the White Quail Group:-

Tunnels (3) 155 ft., 50 ft., 15 ft., total 230 ft. Open cuts 7.

On the Hidden Treasure Group:-

Tunnels (2) 460 Ft., 150 Ft., total 610 Ft. Open cuts 5. Shaft 8ft

GEOLOGY: (District geology from Canadian Geological Survey, Memoir 161 - Lardeau Map Area, B. C.)

"The chief ore-deposits of the district occur in the Lardeau series of late Pre-Cambrian age, consisting of metamorphosed schist, phillite, slate, quartzite, and limestone. They form a broad syncline of NW-SE trend and are mostly surrounded, and presumably underlaid, by granitic intrusives."

The ore on the property in question occurs as replacements in limestone, and H. C. Gunning (memoir 161) makes the following statements regarding this type of deposit:-

"..... this type of deposit has received but little attention. none of the properties have been extensively developed and it is somewhat hazardous to venture a definite opinion on their importance. However (they) are formed in bands of gray to white crystalline limestone. They constitute the most interesting, and by no means least promising, potential mineral resources of the district. Solutions ascended along fissures or bedding planes and white quartz, ankerite, and some siderite replaced the limestone. the sulphides occur as narrow streaks along the bedding or as rather irregular bands and bunches and are pyrite, sphalerite, galena, and some chalcopyrite.

Structure has had an important bearing on the concentration of the sulphides. the sediments stand at steep angles and there is little folding evident at the surface consequently mineralization tends to be very widespread and is, in many cases, quite continuous along individual beds, but there are few large orebodies. on the Mollie Mac the largest concentration of ore observed by the writer consists of about five feet of

sulphides formed where the chlorite schists have been folded down into the limestone forming an inverted saddle capped by impervious schists. If similar and larger structures could be found larger concentrations of ore might be expected."

(NOTE: In describing the showing on the Mollie Mac, as referred to above, and also in the general description of the group, Mr. Gunning describes the showing at 4800 feet elevation and states: "It is reported that the best showing on the property lies still higher up the hill". Evidently he did not see the showings between elevations 5200 and 5600 feet).

Two, and probably three, bands of limestone within a width of about two hundred feet carry the ore on the Mollie Mac claims. Three bands of limestone, carrying ore in places, also show at intervals over the White Quail and Hidden Treasure groups and, although covered for more than two thousand feet across Gainer Creek, there is little doubt that the bands of mineralized limestone on the two sides of the creek are the same. The limestone bands vary from three or four to nearly a hundred feet in thickness, there being considerable variation in the same band from place to place. Chloritic and micaceous schists separate the limestone bands and form the walls of the zone as a whole. The strike is N 48° W and varies little from end to end of the property. Dips in general are 65° to 75° southwest, but occasionally vary very radically where there is local crumpling of the strata. There is some indication that the limestone has crumpled and flowed under pressure, as it is in places much more crumpled than the surrounding schists, and thins and thickens more noticeably.

MINERALIZATION: Considerable areas of mineralized rock are so altered that it is not possible, in the field, to be certain they were originally limestones. They now, at the surface, consist of chocolate colored limonite with shining specks of magnetite, some pyrite, and occasionally galena, with irregular quartz stringers most of which run across the mineralized bands, ending abruptly at the walls.

At a depth of two or three feet where gossan has been penetrated, limonite, magnetite, ankerite, pyrite, and galena, with occasional chalcopyrite, occur with quartz. Pyrite occurs generally in fine grains, but occasionally also in large cubes. In places magnetite is quite plentiful, in others almost lacking. Galena generally occurs finely disseminated, but occasionally in coarse cubes within the quartz stringers.

ORE OCCURENCE IN WORKINGS, & SAMPLES: Mollie Mac.

From the map, it appears that the south ore-belt in the lower bare-rock area (Elev 4800) is the only exposure of that belt on the Mollie Mac. Here it has been exposed by three small open cuts at and near the point where the hanging wall schist has been folded down into the limestones. The surface at these cuts is composed of the same chocolate colored gossan as occurs at the upper (north) showing. In the cuts limestone, generally silicified, appears irregularly replaced by galena, and pyrite, with

some magnetite. The sulphides are roughly banded parallel to the walls and often occur as bands one to three feet wide separated by entirely unmineralized limestone.

Samples	Ft.	Au.Oz.	Ag.Oz.	%Pb.	%Zn.	
1897	3.7	.01	3.6	16.15		Galena, pyrite & gossan & 1.7' waste in center.
1898	9.0	Tr	.85	2.1		Gossan outcrop; traces galena pyrite magnetite.
1899	2.2	.01	4.95	10.0	1.5	Galena pyrite & gossan.
1900	3.1	Tr	1.3	1.36	1.6	Gossan quartz galena pyrite & limestone.
1901	2.1	.01	3.2	32.1	3.3	Limestone with galena and pyrite.

On the former visit a chip sample was taken of the broken ore from these cuts and assayed - Gold .02 Oz., Silver 4.1 Oz., Lead 24.7%, Zinc 2.2%.

On the North Ore-zone all outcrops below 5150 elevation are covered with three feet and more of soil, and rock is only exposed in cuts and trenches. The cut at 4200 elevation is caved; there are a few pieces of fair ore laid to one side. The tunnel, 4300 elevation, is driven on limestone which shows only traces of sulphides; the crosscut is entirely in schist, and in places schist also shows along the northeast side of the tunnel. The strike is N 50° W and the dip 65° to 75° southward. The trench at 4300 elevation shows one small band of ironstained limestone; it is probable that there is a second one which is covered by caving.

At elevation 4415 a cut and trenching show three small bands of limestone. The rock at this cut is badly broken up and was not sampled, although there are bunches of good looking ore. At elevation 4490 trenching shows two narrow limestone bands, and an open cut exposes seventeen feet of ironstained limestone some of which shows metallic sulphides. Sample 1903 covers the east part of this limestone over 7 feet; it assays Gold Tr., Silver 1.6 Oz., Lead 1.3%, Zinc - On the west side of this cut the schist hangingwall dips 45° and against it are irregular streaks and bunches of galena of good grade; these average 4" wide but were not sampled on account of their irregularity.

At Elev. 4530 a small cut shows 3.5 feet of strongly silicified limestone and quartz carrying some pyrite and galena. Sample 1902 - 3.5 Ft. - Gold Tr. Silver 1.8 Oz., Lead 5.9%, Zinc 8.2%

At Elev. 4570 a small caved cut shows pieces of ore on the dump. From this point to the bare-rock, about 700 feet northwest, there are no rock exposures along the trend of the ore.

The bare-rock, upper showing, which is on the North ore-zone, is the best exposure on the property. Here, a length of approximately 500 feet along the strike, and a hundred feet or more wide, standing on a 40° to 45° slope, has been washed clean of overburden. This area exposes limestone, several narrow bands of schist, and possibly a highly altered greenstone dike; all between the bounding walls are much distorted.

Some of the limestone is not much altered but most of it is strongly ironstained and altered and mineralized to a mass of limonite, magnetite, a little pyrite, and galena.

Throughout the length of the bare area there are four to six bands of chocolate colored iron-limestone gossan varying from a few inches to fifteen feet in width. These bands are continuous from 50 to more than 500 feet, and make up more than half of the 75 foot width of mineralized section. In the more solid parts of the outcrop sericite mica, ankerite, and a little chalcopyrite appear in addition to the minerals previously mentioned. Quartz is plentiful in the form of stringers up to four inches thick, which cross the gossan bands at right angles, and end at the walls; between the cross-stringers there is a network of tiny quartz veinlets. Galena generally occurs very fine grained and mixed with the pyrite, etc. but occasionally also as coarse cubes within the quartz. Galena does not appear to be plentiful directly at the surface, but it is impossible to reach but a very small part of the outcrop without ropes. Most of what can now be seen lies in the harder material along the edge of the gossan bands.

At the lower end of the bare-rock (Elev. 5200) mineralization appears to be weakening, and the zone to be narrowing. At the upper end, 350 feet vertically above, it still appears strong. On the ridge above, which is flat-topped, there are no exposures, but on the north side of the ridge there is a small cliff which shows partially mineralized limestone with quartz stringers, etc. and some galena in the quartz. No workings were found on this slope which in general is covered with soil and brush. Sample 1893 was taken on the north side of the ridge and consists of solid galena six inches wide from a cross-stringer; it assays Gold .01 Oz., Silver 20.8 Oz., Lead 81.6%.

Three samples were taken from the lower end of the Upper Bare-rock area, as follows:-

Sample	Ft.	Au.Oz.	Ag.Oz.	%Pb.	%Zn.	
1894	3.0	Tr	1.8	12.4	1.8	Galena & pyrite on East ore streak.
1895	3.0	Tr	1.1	9.0	-	Limonite & galena & magnetite; surface only.
1896	-	Tr.	.18	.75	1.9	Gossan without visible sulphides.

ORE Etc. & SAMPLES: White Quail

What has been called the North Ore-zone is opened in one cut only, where quartz and galena show in a locally contorted blue limestone. Here, there is four feet of apparently good ore lying against the footwall of blue limestone, then five of weakly mineralized limestone, followed by three feet of apparently good ore to the schist hangingwall. The ore consists of galena of fine grain disseminated through silicified limestone, and is accompanied by a small amount of pyrite.

The outcrop of the ore is a chocolate colored gossan similar to that of the Mollie Mac. In the upper end of this cut, the mineralization is weaker. A chip sample from the ore of this cut assayed - Gold .02 Oz., Silver 3.10z., Lead 26.3%, Zinc 0.5%. A drift tunnel, with a crosscut, have been driven directly under this cut, and show no more than traces of mineralization. The dips are about normal in the limestones at both ends of the crosscut but flatten to 45° in the schist between.

Two cuts on the South Ore-zone show 6 to 8 feet of gossan, with galena in the center of the pieces broken out. The character of the ore is entirely similar to that in the north zone, but the replaced limestone is slightly different, and there is less quartz. A chip sample from the fresher broken ore assayed - Gold .01 Oz., Silver 2.1 Oz., Lead 21.2%, Zinc 0.3%. The average across the ore in place would not be more than half the above value.

The tunnel which was started to go under these cuts is somewhat too far north and too short to catch the ore on its dip; it is in slightly mineralized limestone with considerable ankerite, and some sericite and quartz, with coarse pyrite and galena. Locally, the dip is 45° southwest. The short tunnel easterly from the main workings shows sparsely distributed galena and pyrite in silicified limestone with schist footwall. Several hundred feet east of the main workings galena and quartz show in two cuts over an apparent width of two or three feet. They are apparently on lime beds not opened elsewhere.

ORE Etc. & SAMPLES: Hidden Treasure

On the Hidden Treasure claim there are two open cuts and a 460 foot crosscut tunnel, practically all in schist. Neither show any appreciable mineralization, and may be to the southwest of the ore-zone.

Near the northwest end of the Index claim is a 130 foot crosscut tunnel. At from 5 to 25 feet from the portal there is slightly mineralized limestone showing pyrite and a little galena, with a little quartz. The central part of the tunnel is in schist standing nearly vertical, and limestone, unmineralized, appears again at the second crosscut. Sample 1904 is chips from a 15 ton (more or less) pile of ore on the tunnel dump; it assays - Gold Tr., Silver 1.7 Oz., Lead 15.1%, Zinc 6.1%. The ore near the portal of the tunnel appears on the whole to be too low grade for profitable working.

Southeast from this tunnel some three hundred feet, two open cuts show limestone with much limonite, some magnetite, pyrite and quartz, all heavily stained with manganese; there are also a few specks of galena. Several hundred feet further southeast two more cuts expose similar material, and near the southeast end of the claim, at 6000 feet elevation, an eight foot shaft shows strong magnetite, limonite, and a little galena. This zone extends still further southwest across the Red Cliff claim.

Ore on the Hidden Treasure group contains apparently more ankerite and manganese than does the Mollie Mac, and does not show the same chocolate colored gossan.

CONCLUSION: The showings of ore on the Mollie Mac below the 5200 foot contour are small and scattered and do not offer any great encouragement for developing a large body of ore. However, since the cuts are small and widely scattered there is still ample space for large orebodies. Above the 5200 foot contour a large area of gossan with small visible amounts of galena is well exposed, and indicates a very attractive possibility of large orebodies underneath the gossan. In view of the large surface area exposed, and the generally accepted theory of ore deposition from solutions rising along bedding planes and fractures, it hardly seems possible that mineralization does not extend to considerable depth. In partial corroboration of this is the known fact that galena is exposed on the surface through a vertical height of 1200 feet. It yet remains to be determined how much galena lies under the iron capping; whether the unaltered sulphides are chiefly iron, or whether there is a good percentage of galena. The presence of galena with iron in the harder, less leached, parts of the gossan, in the quartz cross-stringers, and occasional particles in the semi-oxidised gossan, appear to indicate that galena may be found in commercial amounts under the gossan.

The surface showings on the White Quail are rather attractive, although bunched in one small area. However, the two tunnels - especially the longer one - show discouraging results since they should encounter ore on its dip from the open cuts, but do not, indicating that the ore in the cuts are merely isolated pockets. Little can be said of the remainder of the White Quail ground, except that the ore-beltsspass through it, since practically the whole of the property is covered with several feet of soil.

On the Hidden Treasure group there is a certain amount of change in the character of the ore, which shows generally very little galena, and offers no particular encouragement for any increase in galena in depth.

To Summarize the Hidden Treasure ground seems to have little value or promise; the White Quail has possibilities but is an entirely unknown quantity, and what little work there is shows none too favorable results.

The Mollie Mac No. 1 and the lower half of Mollie Mac No. 2 indicate a narrow zone of fairly continuous mineralization that alone would not justify much expenditure. From the middle of Mollie Mac No. 2 to the top of the ridge the showing is encouraging on both the north and south ore-zones, and especially so for the former.

RECOMMENDATIONS: On the North ore-zone in particular the most important point to determine is the presence of sufficient galena under the gossan. To determine this as quickly and cheaply as possible, I would advise trenching across the ore-zone (bare rock) at intervals to a depth of three or four feet, and at the same time drive a drift tunnel from near the lower end of the bare-rock area, and crosscut from this at intervals. It may be found that trenching cannot extend deep enough to get

through the oxidised zone, in which case tunneling alone will have to be depended on. Diamond drilling would perhaps be the most efficient way for preliminary development, but it is doubtful if sufficient water can be found within a reasonable distance and elevation.

If the bare-rock area should develop favorably it would justify further development further down on the property, and also on the White Quail group; if it should develop unfavorably (say after driving 500 feet of tunnel, or trenching with shorter tunnel) the property should be abandoned.

On account of rough country and transportation difficulties it would appear that hand mining would be more economical, at first, than power, and one summer's work, if pushed, would determine whether the property should be developed further or abandoned.

I recommend that, if obtainable, options be taken on the Mollie Mac for not to exceed \$50,000, with no payments before November 1st, 1934, and two years time, at least, to complete payments, and that under such an option, work be started as soon as snow conditions will permit in the spring.

If a similar price and slightly longer terms are obtainable on the White Quail property I recommend an option be taken, provided no important amount of work is demanded during the early part of the option.

Respectfully submitted,

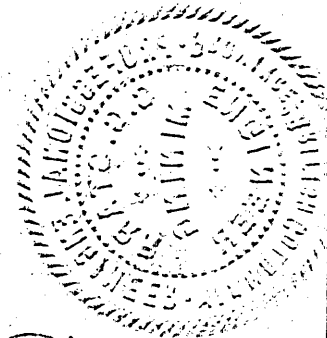
One Map accompanies Report.

Chas. C. Starr



100 Report

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John G. [Signature]

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