



RESIDENT ENGINEER'S OFFICE

NELSON, B.C. November 27th, 1936

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DEPARTMENT OF MINES  
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Office of Prov. Mineralogist  
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John F. Walker, Esq., Ph.D.  
Provincial Mineralogist,  
Victoria, B. C.

2267

Dear Dr. Walker:

Herewith, in triplicate, is my report on the ground held by the Silver Basin Mining Syndicate, situated at two points near the head of Bugaboo Creek. A request for a report has been made by Mr. Nix, Chairman of the Board of Managers of the Syndicate.

This report will doubtless have to be modified somewhat and probably be condensed for use in the Annual Report.

Yours very truly,

*H. Sargent*

H. Sargent,  
Resident Mining Engineer.

HS/P  
Encls.

6037.  
*Have you any comments?*

PROPERTY FILE

## SILVER BASIN MINING SYNDICATE

Two groups of claims described below under "Summit Group" and "Basin Group", both situated near the head of Bugaboo Creek, are held in the name of the above Syndicate. The Silver Basin Mining Syndicate is not registered in British Columbia but according to information supplied by W. H. Rowan, it is registered in Alberta.

During the past two seasons the old wagon road up Bugaboo Creek has been reconditioned, and some sections have been relocated by the Silver Basin Mining Syndicate. The road though rough and somewhat narrow is passable for motor trucks. Camps have been built at "25 mile" and at the end of the road, approximately 26 miles westerly from Spillimachee on the Kootenay Central Railroad and the main motor highway in the Columbia Valley.

### SUMMIT GROUP

The No. 21 and Western Cross Mineral Claims, owned by F. Mercier, of Golden, which have been optioned by the Silver Basin Mining Syndicate, and the three adjoining locations, Walker, Chipperfield and Rix, held in the name of the Silver Basin Mining Syndicate, are situated at the head of Bugaboo Creek on the ridge which is the divide between Bugaboo Creek and Howzer Creek.

There is a pack-trail about  $6\frac{1}{2}$  miles in length from the end of the wagon road on Bugaboo Creek, at 4700 feet elevation, to the workings on the No. 21 claim at 7100 feet elevation. The general course of the trail is south-westerly. For the first mile and three-quarters it runs at an easy grade along a timbered slope. For the next mile and three-quarters it is east of the stream; the valley floor here is almost level for a width of up to one-half mile. The stream is crossed again about four miles from the end of the road, and from this point there is a climb of 2200 feet in two

and one-half miles. In the last half of this section the trail crosses slides of boulders and of softer material.

The claims are situated on the broad crest and on the eastern slope of a saddle in the divide between Howser Creek on the west and the head of Bugabo Creek on the east. To the south-east rugged peaks project through a cover of glacial debris or of ice. North-east are steep bluffs of black schist cut by a series of flat-lying quartz veins up to two or three feet thick, in the nearer part of the bluffs, while farther north there is a similar series of steep dipping veins which strike into the bluffs. Judging from the float and from the whiteness of the veins in the bluffs, they are generally scantily mineralized. Below the bluffs, over a vertical range of 400 feet hard massive granular rock, containing eyes of quartz is exposed. Specimens of similar rock from the Basin Group were classified in the petrographic laboratory of the Department of Mines as Granite Porphyry. The contact with the schist is obscured by talus. South of the bluffs, below the lowest part of the saddle, the steep eastern slope consists of fine dark debris from the rapid erosion of the dark schist. At various points along the rounded grassy saddle are outcrops of grey and black schist, the foliation striking somewhat west of north and dipping steeply to the east. The schists are in part limy and in part sericitic. Limestone varying in colour and texture from light grey, fine-grained, to almost black granular, has been exposed in some of the workings.

Three types of mineralization were observed:

- (1) The dark granular limestone—which effervesces in cold dilute hydrochloric acid, leaving a fine black insoluble residue—has been replaced irregularly by massive fine-grained mixed sulphides, called locally "black sulphides", consisting of galena, sphalerite, pyrite and chalcopyrite.
- (2) Quartz veins mineralized principally by well-crystallized galena, pyrite and chalcopyrite, occurring in fine grey limestone or limy schist.

(3) Veins and irregular quartz lenses in schist, mineralized by occasional bunches of pyrite and perhaps other sulphides.

The following are assays of typical material:

	Gold oz./ton	Silver oz./ton	Copper %	Lead %	Zinc %
Massive fine-grained mixed sulphide, from cut above tunnel	tr.	5.0	2.0	16.0	25.0
Quartz with well-crystallized galena, from surface cuts	tr.	26.0	....	....	....
Selected quartz with pyrite, from surface cuts	nil	nil	....	....	....
Selected quartz with pyrite, from saddle west of tunnels	nil	nil	....	....	....
Flint, selected quartz with pyrite, from below bluffs	nil	nil	....	....	....

The Crown-granted claims are of long standing, having been surveyed for Crown-grant in October 1899. After preliminary work by the owner they were under development by the Golden and Fort Steele Development Company from 1897 to 1899. Work since then seems to have been quite limited. The Crown-grant plan shows three tunnels on the eastern slope and several cuts and pits on the saddle. Two short tunnels just below the grassy slope on the lowest part of the saddle had been cleaned out and some cleaning-out of cuts had been done when the property was visited on July 24th. The third tunnel is mapped as well down in the slide. No sign of it was noted. All workings are on the No. 21, and the Western Cross Claims.

The two tunnels are at an elevation of approximately 7100 feet above sea-level. The more southerly one goes in twenty-five feet from the end of a 15-foot rock cut. The tunnel follows a quartz-filled shearing in bluish limy schist, striking about thirty degrees west of north. Ten feet from the portal the vein is 18 inches wide and is well-mineralized with galena and sphalerite but in the face it has pinched down to 1½ inches of quartz, showing little or no mineral. A crosscut runs ten feet to the north-east from the end of the

drift, but reveals no mineralization. Over the portal, about fifteen feet above the floor, is a cut, the face of which exposes dark grey granular limestone replaced irregularly by fine-grained black mixed sulphides, principally of lead and zinc. The lower margin of the limestone was partly obscured by debris which may also explain why the vein in the tunnel was not noted in the cut. The limestone appears to rest on an irregular surface of low dip to the west. Over a horizontal distance of seven feet there is a good deal of sulphide of which three feet at the western end of the cut consist of massive sulphide, exposed through about four feet vertically. This material is represented by the first sample listed above. To the east narrow fractures in the limestone are filled with quartz, mineralized principally by pyrite and chalcopyrite. The second tunnel is fifty feet to the north of the first; it goes in twenty-five feet due west as a crosscut in unmineralized limestone. Over the portal an unmineralized three-inch formation vein was noted. South of the first tunnel, slide matter obscures the rock. Limestone was observed for one hundred feet to the north; it is thick-bedded and has the apparent strike north thirty degrees west, and dips forty degrees to the east. Its margins were not observed.

Immediately above the tunnels is a gentle grassy slope rising to the crest of the saddle about seven hundred feet west. The crest rises gently for about 1300 feet north, where it commences to rise steeply to a rocky knoll. About 500 feet north of the tunnels is a northerly-trending trench three feet wide, four feet deep and about sixty feet long. It exposes fine-grained grey limestone, of low dip to the south, containing scattered cubes of pyrite. At the south end of the cut is a four-inch quartz vein, dipping twenty degrees to the east. The vein is essentially unmineralized.

One hundred and fifty feet north north-west is the Number one post of the Western Cross claim. Nearby is an east to west trench along the side of which are broken pieces of limestone showing two or three inches of quartz mineralized with well-crystallized galena, the quartz is frozen to the limestone. Seventy-five feet north beside a test pit is similar material, and five hundred feet south-westerly is a cut showing similar material, which is represented by the second sample listed above. Along the Western Cross location line which runs north from the Number one post, and also from three hundred to six hundred feet west of the post, are several cuts exposing white, scantily-mineralized quartz lenses in the schist. These lenses are irregular and may reach a width of three or four feet; they contain occasional bunches of sulphides principally pyrite. There are also numerous outcrops of similar quartz on the saddle as far as the steep rise to the north, some 800 feet from the Number one post. Selected material containing the most abundant mineralization from the lenses in the cuts and from the veins in the bluffs below the saddle to the north-east give "nil assays" in gold and silver.

## BASIN GROUP

Twelve claims staked in the past two seasons, location given as on Green Mountain, held in the name of the Silver Basin Mining Syndicate, were reported to be in good standing in July 1936. These claims are in a large basin reached by about three and one-half miles of trail from the end of the road up Bugaboo Creek.

The trail to the Basin Group branches from the trail to the Summit Group at approximately one-half mile from the end of the road on Bugaboo Creek. At the forks the elevation is approximately 4850 feet. From this point the rather rough trail climbs the steep timbered slope, gaining about 1500 feet elevation in one and one-half miles. Thence it follows a southerly course, at an easy grade, along sparsely-timbered uplands, to the basin.

The basin is a hanging valley facing the east. At the rather steep eastern break-over the grassy floor is almost one-half mile wide, the elevation at the center being about 6700 feet. The grassy floor extends west for about 2000 feet rising to an elevation of about 7000 feet. From this point west the floor is rocky and rises more steeply to the western rim at an elevation of about 7500 feet. Two small lakes are found in this upper part of the basin, fed by a glacier on the western rim. There is another at the south-western corner of the grassy main basin, the southern rim of which rises about 200 feet above the floor. To the north is a terrace about 200 feet above the main floor, and from this a fairly steep slope rises to the northern rim on which the peaks reach an elevation of about 8000 feet. A fourth lake is found near the western end of the terrace.

The rocks exposed consist of slates and schists, minor exposures

of thin-bedded limestone and conglomerate, and intrusive into the foregoing sills of granite porphyry. The slates vary from light bluish-gray to almost black. The schists include greenish to black-coloured varieties; rather soft sericitic schists; and siliceous schists from gray to brown in colour, not infrequently mottled with small brown spots and again containing eyes of glassy quartz. It would appear that some of the siliceous schists are transitional between the other schists and the granite porphyry, as they were noted in particular adjacent to the sills. The foliation in the slate and schists generally strikes from 10 degrees to 30 degrees west of north and dips to the east at varying angles. The conglomerate consists of white quartz pebbles and pebbles of quartzite in a cement of fine quartz grains and some iron oxide. There are numerous outcrops of hard crystalline porphyritic rock varying in colour and texture but usually marked by equidimensional quartz grains or phenocrysts which are commonly clear and glassy. There are also feldspar phenocrysts. Specimens of this rock were classified as "granite porphyry" in the petrographic laboratory of the Department of Mines. The colour is generally a light greenish-gray, the texture of the groundmass varies considerably but it is generally finely crystalline. A good deal of this rock is altered and may be more or less schistose, as noted above some of the siliceous schist grades into schistose porphyry. In the north-west corner of the basin is a large outcrop (which) seems to be phase of the granite porphyry but which may be a breccia. This rock consists of closely packed grains of quartz and feldspar, from the size of small peas to some grains one-half inch in length. The cement or groundmass forms a minor percentage of the whole. The colour is light brown, apparently due to iron oxide in the cement, this colour persists to a considerable distance from the surface. The granite porphyry has been more resistant to weathering



than the schists and slates which it intrudes and accordingly stands out prominently. Though the contacts are commonly obscured by talus or drift it seems probable that the intrusions are in the form of sills, rather thick masses, in relation to their length.

The south rim of the main basin rises steeply from the floor and gives a section through folded softer rocks with one forty-foot band of siliceous schist. It is evident that there has been faulting along the contact of the siliceous band with the softer schist. It is also apparent that a mass of granite porphyry at the western limit of the main basin has resisted the folding. This sill of granite porphyry appears to be about 250 feet thick; it extends north well into the basin and marks the change from the gentle grassy slope to the steeper rocky slope rising to the western rim. It is, however, less prominent on the northern side of the basin. West of it the softer rocks are in bands of moderate width, sills or stocks of porphyry including the coarse-grained phase form the principal exposures. To the west the softer rocks are dominant, though about 250 feet east is porphyry of undetermined width. Two short tunnels near the southern side of the basin are in this last body of porphyry while the cuts on the Six claim to the north, may be in it also. East of the ridge forming the southern rim of the basin is a good deal of siliceous schist, some of which may be derived from porphyry.

A great deal of quartz has been intruded into the various rocks. There are two ridges which appear to owe their existence to the plentiful intrusion of white quartz as lenses and criss-crossed veins in schist. This quartz is apparently quite unmineralized. One lens near the south-west corner of the main basin is from 20 feet to 25 feet thick and has about three times that length. In a few cases quartz in the schist, generally narrow veins

following the foliation, is heavily mineralized with pyrite, and arsenopyrite. In the granite porphyry are a number of prominent white quartz veins, while the toe of the large sill at the western margin of the main grassy basin is much jointed and the joints are filled with quartz. This quartz, too, is generally quite barren though in some veins it is mineralized with pyrite, arsenopyrite and some galena. In some places, also, quartz, usually occurring with schist, contains bunches of a brown rhombic carbonate, apparently manganeseiferous siderite, with which some pyrite is associated.

Erosion is obviously proceeding rapidly in most exposures and it may be noted that at some points glaciation is still active. Accordingly, as would be expected, surface alteration of minerals is commonly wanting, and, where present, is usually quite shallow.

Samples taken by the writer, the assays of which appear below, gave negligible values in gold and in some cases low values in silver. Samples of selected material, assays of which appear in a report made for the Syndicate, contain considerable percentage of lead; even in these samples the gold content is almost negligible, and the silver is low, averaging considerably less than one-half ounce of silver to one per cent lead. The writer examined the various workings and exposures carefully and saw very little galena excepting small bunches or kernels at one tunnel and the shaft.

Near the south-west corner of the main basin are two short tunnels at shallow depth. These, with a shaft 8 feet deep, some 600 feet north-westerly from the tunnels, and two open cuts on the Six claim, appear to be the workings described under Bugaboo Group in the 1898 Report of the Minister of Mines. In the report the shaft depth is given as 22 feet. Three claims comprising the Bugaboo Group were staked in 1897 and it would seem that the workings described were made in that year, subsequently the claims were

allowed to lapse. Half a mile to the east is a tunnel about 105 feet in length. There are also some cuts above the terrance, north of the main basin. These workings lie outside the original Bugaboo Group. When this latter work was done is unknown to the present writer but it must have been quite a few years ago. The ground held by the Silver Basin Mining Syndicate was staked during the past two seasons. Work done by the Syndicate up to the end of July 1936 appears to have been principally scouting, with very little stripping or similar work.

Near the south-western corner of the main basin about 150 yards north-east of a small lake is a tunnel which goes in 15 feet at north 50 degrees west from the end of a 30-foot rock-cut, following a vein in porphyry. The dip is 75 degrees to the south-west. At the portal the vein is honey-combed and rusty, and is mineralized with pyrite, arsenopyrite and some galena. A sample across 13 inches of vein assayed,—

Gold, trace;            Silver, 2.8 ounces per ton.

At the face of the tunnel the ground is disturbed and the vein is poor. Ninety feet due north of this tunnel is a cut about 40 feet long on a course of north 40 degrees west. At the outer end of the cut is a small pile of quartz well-mineralized with pyrite and arsenopyrite. Fifteen feet north-west of the end of the cut and 10 feet higher is the portal of a tunnel which goes in 25 feet at north 55 degrees west, following a fracture in porphyry, containing sheared wallrock and some quartz. This tunnel is about 25 feet higher than the first. The ground rising gently to the north, neither tunnel gains much depth.

On a course of north 55 degrees west from the second tunnel, one crosses a shallow depression in which some dark gray schist outcrops. The large mass of quartz mentioned above outcrops to the south-west about 300

feet along the course. At 600 feet and 120 feet higher than the second tunnel is the shaft which is about 4 feet by 5 feet in section and 8 feet deep. It was unwatered while the property was being examined. In the shaft is a quartz vein about 16 inches thick striking north 55 degrees west and dipping vertically. For 4 inches on the south-western side it is well mineralized with pyrite and arsenopyrite and contains a little galena in scattered kernels. A sample across the full width assayed,—

Gold, Nil;            Silver, Nil;            Arsenic, 1.65%.

The vein is not exposed to the south-east but to the north-west it is exposed on the surface for 55 feet where it runs into a wider barren white quartz vein. The shaft vein is moderately mineralized, its wall are free, the width varies from 12 inches to 20 inches. The mineralisation dies out on approaching the junction with the large vein. Ten feet from the junction the shaft vein is cut by a narrow offshoot from the large vein. This narrower vein, 10 inches to 8 inches thick, is of white unmineralized quartz, frozen to the walls. None of these veins appears to cut another. At the junctions the appearance is as of contemporaneous vein-filling. The large vein mentioned is from 2.5 feet to 3.5 feet wide; its strike is about due north and the dip is vertical. For 50 feet north of the junction with the shaft vein it is exposed on the surface, beyond which the surface is covered with slide-rock and wash. Seventy-five feet south of the junction the wide vein splits in two on approaching a shallow depression filled with slide-rock. The vein shows a little rust but no other sign of mineralization; a large chip sample from a section showing a little rust yielded "nil assays" in gold and silver. About 500 feet to the north across a shallow depression is a quartz vein from 6 inches to 2 feet in width, traceable for 80 feet and extending northerly from the end of the sill into schist. This vein strikes 30 degrees

west of north and dips 70 degrees to the south-west. Across the depression to the south of the shaft in the porphyry mass are numerous quartz-filled joints. In the talus below the bluff at the corner of the basin is some quartz mineralized with pyrite, arsenopyrite and some galena. Farther south on top of the ridge a vein from 2 feet to 2.5 feet wide, containing a 4-inch band of chlorite, is exposed.

On the Six claim about 600 feet at 12 degrees east of north from the shaft is a cut on the side of a rocky knoll. The cut runs 20 feet at 60 degrees west of north on a vein from 2 feet to 4 feet in width, between walls of porphyry. The dip is steep to the south-west. Due south 120 feet is a trench 17 feet long exposing some quartz along a shearing in the porphyry, the width being about 1 foot. Mineralization exposed in the cuts is lumpy. It consists of a dark brown rhombic carbonate--apparently manganeseiferous siderite, with it some pyrite occurs. Selected material assayed,--

Gold, trace; Silver, 0.8 ounces per ton; Manganese, 4%.

In the north-west corner of the upper basin in bluffs of the brown coarse-textured phase of the porphyry are two prominent quartz veins exposed over a vertical range of perhaps 150 feet. These are somewhat difficult of access. One was visited. It is about 2 feet wide, striking 60 degrees west of north and dipping 70 degrees to the south-west. The quartz is vuggy and shows some rust and manganese stain.

On the north terrace of the main basin are some isolated cuts, one of which exposes, what appears to be, a boulder of quartz, heavily mineralized with pyrite and arsenopyrite. A sample of this material assayed,--

Gold, trace; Silver, 0.8 ounces per ton.

Other cuts are on a 2-inch arsenopyrite vein in schist, and a wide lens of

unmineralized quartz.

Toward the south-eastern corner of the main basin some prospecting has shown up small quartz veins in the schist. One of these about one-half mile from the shaft, has a width of 5 inches for an exposed length of 8 feet. This material, heavily mineralized with pyrite and arsenopyrite, assayed,--

Gold, trace;      Silver, 2.4 ounces per ton.

Some 900 feet southerly from this out on the south-east corner of the ridge is the tunnel reported to be on the Clarence claim. On the ridge above the tunnel over a width of 30 feet the schist has been largely replaced by unmineralized quartz lenses, the exposure of quartz is about 250 feet long. The tunnel portal is at a faulted contact between porphyry on the east and spotted siliceous schist on the west. Above the portal is a 4-foot quartz lens, showing some rust and siderite. A sample across the full width assayed,--

Gold, nil;      Silver, nil.

The quartz pinches out 5 feet inside the portal. The tunnel goes in 25 feet at north 40 degrees west, thence 80 feet to the face at north 55 degrees west. Within the tunnel the rock is soft sericite schist. At 15 feet from the portal is a 7-foot crosscut to the south-west, in schist. At the bend some quartz shows on the north-east side. Beyond this the tunnel shows nothing but schist.