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Rio Grande  
932/4W  
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Summary Report On

Holdings of The

R I O - G R A N D E S Y N D I C A T E

( PART 1 )

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LOCATION:

Geographically as well as geologically the RIO GRANDE group of 9 adjoining claims is favourably and centrally situated on Hudson Bay Mt. in the Omineca Mining Division, immediately west of the fertile Bulkley River Valley and within 5½ miles of the Canadian National Rly. line at Lake Kathlyn Station. At this point the elevation above sea-level is 1654 feet. Assuming this grade as datum, the altitudes of the various claims range from 3000 feet to 4000 feet above same, as shown on the contour and key-maps attached.

The group covers 360 Acres of well mineralized land, with five distinct mineral deposits, and consists of the following claims, all of which have been properly surveyed by J. A. Rutherford, B.C.L.S.

Claim Name	Located	Date	Acres
Rio Grande	Located	June 24th, 1910	51.22 Acres
Spondulix	"	July 15th, 1910	44.39 "
Rico Aspen	"	July 7th, 1914	51.65 "
Little Joe	"	July 7th, 1914	31.63 "
Iron Dollar	"	July 28th, 1917	46.02 "
Last Hope	"	Aug. 18th, 1922	47.89 "
Jumbo	"	Jan. 27th, 1923	49.07 "
Big Hope Fr.	"	Jan. 27th, 1923	16.33 "
Fisher Fr.	"	Aug. 26th, 1932	22.22 "

On November 23rd, 1933 my applications for crown-grants together with the required certificates of improvements were filed with the Department of Mines at Victoria, B. C., as published in the B. C. Gazette of that date. Since then the Surveyor General's

approval of same has been duly received, which assures ind. titles to all claims. Crown-grants may therefore be issued at upon payment of final fees.

#### TRANSPORTATION, ETC:

During the open season the property can be conveniently reached from Vancouver within a couple of days travel over two separate routes, of which the first is by auto (or stage) for 800 miles, with stop-overs at Clinton and Prince George. The second route which is by water and rail, represents a similar distance and can be made at any time of the year, via Prince Rupert, over the Canadian National system to either the three closely connected stations at Evelyn, Lake Kathlyn and Smithers.

For comfort and scenic splendor the latter route can hardly be surpassed anywhere on this Continent.

Smithers is a well-known divisional point on the Canadian National Rly., from whence a network of auto-roads radiate. With a population of about 1000 habitants it serves the entire Bulkley Valley as a first-rate base. Two Provincial highways parallel the railway for several hundred miles in a general north-west and south-easterly direction, skirting the foot-hills of Hudson Bay Mt. and other ranges of the Omineca District.

Lake Kathlyn is a sub-station and watering place close to Smithers, Here a  $3\frac{1}{2}$  mile auto road connects with Silver Lake pack trail. At the junction a substantial bridge crosses a tributary of the Bulkley River, known as Tobaggon Creek. By following the syndlin-al trough of this creek in a westerly direction, over a good horse-trail for two miles, the tunnel and prominent croppings of the Rio Grande and Jumbo gold lode is reached at an elevation of 3000 feet above the railway grade (as shown on key-map). At a moderate expenditure this trail can be widened out and converted into a

tractor road, now under consideration by the B. C. Department of Public Works.

In addition to this route, a similar road and trail, slightly shorter but steeper, leads from Evelyn Station to the upper claims where showings of high-grade silver-lead and copper ores are exposed 4000 feet above the railway grade in Rico-Aspen basin. This detour connects with route No. 1 at the summit in such manner that it is possible to go up on either, inspect the showings, and return on the other all within a day's travel. By rail Evelyn is  $5\frac{1}{2}$  miles north of Lake Kathlyn, and 9 from Smithers.

Eventually, an aerial tramway and flotation plant can be installed close to the Toboggan Creek Crossing, also a  $1\frac{1}{2}$  mile side-track from the railway on a  $3\%$  grade, thereby connecting the proposed plant with the mainline, as indicated on the key-map.

Timber and water for all purposes is abundant in the immediate vicinity and all conditions for cheap mining exceptionally favorable.

#### CLIMATE:

Climatic conditions are equally favourable and metrological records, observed and compiled for a series of years, show that the rain and snow falls represent eleven and seventy-seven inches, respectively; also that the average annual temperature is 40 degrees with bright and long summer days. A few cold snaps are experienced during January and February but nothing in comparison with the severity of the climate east of the Rocky Mountains. Mining can, therefore be carried on all the year round without difficulties as soon as underground workings have been established.

#### LABOUR:

Favourable labour conditions are by no means lacking as

many early prospectors and pioneers during the years of acquiescence settled on homesteads in the fertile valley of the Bulkley River and still attend to their mining interests and assessment work.

Domestic life of a high order is indeed a feature of interest, not only in Smithers but also in the rural districts adjacent to the town where the cost of living is practically on par with Vancouver.

#### HISTORICAL:

The Rio Grande group is one of the earliest locations on Hudson Bay Mountain and has been known to contain various high-grade minerals in five individual lodes since 1909, but it is only within the last year that these facts have become of paramount importance, on account of the increase valuation of gold.

For several years the prolonged construction and eventual failure of the Grand Trunk Pacific Railway (now the Canadian National Rly.) coupled with the fiasco of the P.G.E.Rly. retarded mine developments and seriously militated against financial support, except at two silver-lead and one copper property.

Unfortunately this period was followed by another four years of warfare and five years of general depression during which time it was equally difficult for the original locators of the group, Joe Fisher and Joe Sheedy, to interest anyone in lode-gold mining in the "Cassiar" District, (now known as "The Omineca".)

In the Spring of 1917, while in Smithers, I made an examination of the Rio Grande and other groups on Hudson Bay Mountain. While the war was still in progress I took an option from the surviving owner, Joe Fisher, on the strength of the good surface exposures of rich ores on several of the claims.

This option I continued in good faith and with success for several years until the price of most metals fell off.

Meanwhile Joe Fisher also passed on, and his, as well as Joe Sheedy's estate automatically reverted to the local Government Agent, Mr. H. B. Campbell and Mr. L. S. McGill, both of Smithers, B. C. acting as administrators.

When the revival in gold mining took place a year ago, due to the advanced price of gold, I at once renewed my option on the property through these gentlemen on favourable terms with the object of surveying, crown-granting, and developing this promising group to the producing stage, having special reference to gold values.

#### FAVOURABLE GEOLOGIC OBSERVATIONS:

Hudson Bay Mountain is situated on the eastern flank of the great Coast Range batholity, from which it is an actual projection. The core of the mountain is consequently of igneous origin, representing various types of granotoid rocks, mainly grano-diorite, and related dykes that admittedly provided mineral-bearing solutions of gold-silver-copper-lead, and zinc to produce the ores that are now liberally exposed on the surface.

Resting on this core certain older Jura-Triassic and Cretaceous formations, representing sedimentary and volcanic accumulations exist. Strictly speaking, the latter formations were elevated and tilted by the intrusive diorites and may conveniently be classified as high and low temperature zones.

This fundamental structure of the range has been ably described and illustrated by Mr. Douglas Lay, Resident Engineer for the N.-E. Mineral District, (No. 2) in "Lode-Gold Deposit of B.C." (pages 42-55) and published by the B. C. Department of Mines in Bulletin No. 1 during 1932.

In this treatise he has demonstrated by citing actual underground development work performed in the range, that, where the high-temperature sedimentaries come in contact with the grano-diorites and igneous dykes, the precipitation of gold attains its highest stage.

From the above it will be appreciated that the primary object of development work for this season is to establish and prove the diorite contact on the Rio Grande and Jumbo gold lode immediately above Toboggan Creek trail as mentioned in the foregoing. (See under "Proposed Development Work".)

Although the late partners, Fisher and Sheedy, did not succeed in acquiring outside capital beyond my contributions on the option, they managed 20 years ago to drive a cross-cut tunnel on the Rio Grande claim, 35 feet below surface showings, in hopes of intersecting ore bodies that had not suffered decomposition by the leaching action of surface water and air.

This attempt was only partly successful. It certainly proved solid bands of arseno-pyrite distributed over in a zone 10 to 12 feet wide, but at the same time, interstrices of severley crushed matrix, altered to black bands in which minute crystals of sulphides and post-mineral residuals could only be detected on close inspection & assays.

To obtain an average sample over the full width of such material is a difficult task at any time, and while the solid bands assayed as high as 1.52 ozs in gold and 28.48 ozs in silver to the ton the average of the entire strata, at present quotation hardly exceeded \$8.00 or \$10.00 to the ton. In other words, at a depth of 35 feet excessive oxidization of sulphides still prevailed and presented a state of decomposition that militated against economic developments at that time.

Haphazard placer mining methods for the recovery of gold in the Omineca consequently reigned supreme and the embryo lode-gold mining industry was for the time side-tracked. Nor had the geology of the mountain been studied to any extent until R. G. McConnell of the Geology Survey Department in 1913 made a preliminary reconnaissance of the Skeena and Bulkley River valleys, known as Guide Book No. 10 (on file.) In this publication he emphasized the Hudson Bay Range as a mining field of future importance as soon as transportation of ores to the southern Smelters over the Grand Trunk Pacific was established.

The old tunnel (still in preservation,) has been kept up by myself by renewal of supporting timbers for the purpose of future explorations and checking of geologic data.

In reference to values obtained by assaying the heavy sulphides ores that almost escaped decay, I offer the following records of typical samples taken in the above tunnel by myself, (except the first one,) and tested by well-known Provincial Assayers:

SAMPLES OF RIO GRANDE ORE IN CROSS-CUT TUNNEL

Date	Ozs Gold Per Ton.	Ozs Silver Per Ton.	Tested by following Provincial Assayers.
Oct. 14, 1913	1.44	18.00	West Assay Works, Williams Bldg., Van.
Aug. 5, 1915	0.70	3.60	J.W.Austin, Office Prince Rupert, B.C.
Sept. 14, 1917	1.24	8.00	J.R.Williams, Art & Craft Bldg., Vancr.
May 17, 1923	1.52	28.48	" " " " " "
Oct. 3, 1923	1.10	13.00	Granby Cons. Mining Co. Anyox, B. C.
July 5, 1927	0.66	13.20	J.D.Boulton, Office, New Hazelton, B. C.
July 29, 1927	0.68	13.60	J.D.Soulton, Office, New Hazelton, B. C.
Oct. 5, 1933	0.74	8.00	J.R.Williams, Art & Craft, Bldg., Vancr.
Aug. 10, 1922	0.32	7.20	D.R.Willemar, Duthie Mine Assay Office (10 ft. channel sample) Smithers, B. C.

P.S.

Several of the above samples and pulps have been preserved for reference, also a representative collection of specimens from the various showings.

PARTICULARS OF MINERALIZATION, ETC:

An imposing sill of the grano-diorite core is exposed to better advantage at the peak of the mountain than any other section of the range. It measures 2 miles (east and west) and is  $\frac{1}{2}$  mile wide, as depicted on the geological map published by the Survey Department. This stock has been intruded as a spur from the main batholith of the Coast Range, which is situated approximately 25 miles westerly, and can be followed in that direction beyond the western boundary of the Rio Grande group by igneous areas showing at various points. On the accompanying contour map the grano-diorite is indicated by hatchet lines dipping south-easterly and south-westerly at angles of 45 degrees towards Toboggan Creek Syncline. It will be observed from the foregoing, that the presence of this southerly-dipping intrusive stock directly above the Rio Grande and Jumbo reef, is of special importance. Not only from points of geology, but also economy, as the distance for striking the all important contacts with a diamond drill at elevations 1000 feet lower will be materially shortened when compared with a vertical position.

At the upper claims of the Rio Grande group that are situated close to the summit, the grano-diorite forms the hanging wall on four well-exposed veins that assay high in silver, copper, lead and zinc but are low in gold.

At the Rio Grande and Jumbo lode, which is at least 1000 feet below these four veins, all contacts with the diorite will therefore occur on the foot-wall side.



Here we find that the situation with regard to values is reversed inasmuch as the gold is high and the silver content only fair, while the copper, lead and zinc minerals are missing. It seems as if the property, by the grano-diorite sill (or stock), had been divided into two ore zones, representing two different periods of mineralization, but as all veins dip in the same direction they can all be opened and operated from the Toboggan Creek side. Arseno-pyrite, pyrite and marcasite are the three predominating sulphides showing in the Rio Grande and Jumbo lode, of which arseno-pyrite invariably represents the highest grade in gold, with a fair content in silver. It is strictly a high temperature mineral of deep-seated nature and responsible for the major production of precious metal wherever lode-gold mining is carried on in British Columbia. Not only in the Cariboo, Bridge River and Similkameen Districts, but also in the Omineca, which in reality is a north-westerly extension of the former districts and have many points in common. The ore is dark and heavy, rather inconspicuous for the lack of dull luster, which is partly due to its association with arsenic, but mainly to extreme alterations in the zone of oxidization. This luster will no doubt be regained when the lower, (primary) zone is reached. A certain percentage of the precious metals have undoubtedly been carried away by surface waters, especially with regard to the silver content.

Free gold can be detected in selected samples, without the aid of a magnifying glass. Wherever the gold is visible it appears to be of soft nature and readily crumbles. Part of the gold is suspected to exist as a telluride. This assumption is by no means improbable, inasmuch as the noted Glazier Gulch Mine in No. 2 group is within 2 miles east of the Rio Grande Group, close to Toboggan Creek Crossing. On this property the first car-load of Gold-Bismuth ore

(Tetradymite) was shipped six months ago. The average gold was 3.098 ozs which at the present price represents \$108.00 in precious metals, beside \$90.00 in bismuth to the ton. For the latter by-product the smelter however overlooked sending remittance. Other carloads that are now in preparation may, therefore, be shipped elsewhere as both groups have recently been taken over by an influential Vancouver Developing Company. The same company is also holding options on several other groups that join the Rio Grande on the south boundary. On the eastern boundary the extensive Dan Carroll group is now being developed by the Skeena G. & S. Mines with headquarters in Vancouver. J. Matuss two gold claims, favourably mentioned by Mr. Lay on page 44 and 45 of "Lode-Gold Deposits" are immediately opposite the Rio Grande on the south bank of Toboggan Creek. I might mention other well-known mining properties in the vicinity; namely, the Duthie Mine, (of silver-lead-gold fame), with 4 miles, also the Columario Gold Mines at the headwaters of Kleanza Creek. At both of these mines the Geology is analogous with the Hudson Bay Range. The former has produced 3000 tons of very high-grade ore (galena) and concentrates, while the latter is now installing a flotation plant for treating a large body of gold ore developed during the past two years.

Block faulting, doming, fissuring and shearing are dominant factors in the structure of Hudson Bay Mt. Of these the Rio Grande lode is a striking example with prominent croppings over the two claims for approximately 3000 feet which in several places show widths over 20 feet on the surface. Where open-outs have been made, values in gold, (with some silver), are invariably found. Surface alterations and decomposition have everywhere been sufficiently severe to effect a decided stage of bleaching beyond the usual weathering process. These changes are mainly due to the hydrothermal influences in which propylitic

facies and sericitization (during the mineralization periods), have played an important role.

Pulverous arsenic is well distributed over the zone as a greyish white residue, masking the sulphides and limonite croppings.

The fissures, by means of which the mineral solutions have been circulated and precipitated, present two systems, striking nearly at right angles to each other, thereby forming an almost perfect rectangular pattern. One system has a north-easterly trend, as demonstrated by the Rio Grande and Rico-Aspen lodes, while the Spondulix zones and the big Hope veins represent the right angle system.

The distribution of ore deposits suggest a general focal centre from which the ore minerals were introduced, probably during two different periods.

All ore deposits dip towards S-E. and S-W. at angles between 40 and 50 degrees, except the Rio Grande and Jumbo Reef which is nearly vertical or has a slight northerly inclination. They occur in effusive andesite, which in places is associated with rhyolite. Mineralization is also indicated in the grano-diorite stocks. The ores have formed in zones of shearing and brecciation, largely by filling open fissures, but also by replacement of rock. At the Rio Grande the veins are banded and in places obscured by brecciation, in the latter zones the rock fragments are frequently rimmed with quartz enclosing minerals characteristic of fissure filling. Quartz however is not plentiful.

On the Jumbo Claim, North of the main reef, there are indications of a similar vein apparently intersecting same. It was not discovered until shortly before I relinquished my first option and therefore not prospected beyond an open-cut at one point close to the eastern boundary. At that time the interest in gold had not yet awakened.

During the contemplated prospecting campaign for 1934 this subsidiary vein will be investigated, also one or two other surface showings that heretofore for certain reasons have been neglected.

PROPOSED DEVELOPMENT WORK FOR 1934.

In view of the foregoing outline it is obvious that the various ore-bodies exposed on the 360 Acres of mineralized land warrants energetic development work.

As such, the big ledge on the Rio Grande and Jumbo claims deserve first consideration on account of the universal interest displayed in gold. One way of reaching the primary ore-zone and prove extensive bodies of precious metal in depth would be to start a new cross-cut tunnel on the Toboggan Creek side some distance below the old adit and continue driving as far as the highly important grano-diorite contact. In due time this plan will be one to pursue, but inasmuch as the precise distance is unknown it might require some time to reach the objective without the facilities of air-drills and compressor plant. I am, therefore, recommending to employ a diamond-drill whereby this important information can promptly be obtained this autumn, thereby saving valuable time.

Offers, by responsible parties, to put down three or four 15/16 inch drill-holes by contract at a reasonable rate per lineal foot have already been submitted. The gasoline-driven apparatus will have a capacity of 500 feet in any direction. Four bore-holes each approximately 250 feet deep and 800 feet apart over the two claims represent a footage of about 1000 feet and will require about 3 months to complete.

The drill-cores that represent true samples of the mineral-

ized strata will be of great value for reference. Consequently they should be well cared for and split horizontally on the premises so that one half section can be forwarded to the assay office.

This drilling scheme will coincide with the topography and diorite exposures now in plain view on the sloping hillside at elevations anywhere between 500 to 800 feet above the old adit level. It is more than likely that the igneous core of the mountain entered the sedimentary formations in the shape of a funnel with the narrow end slanting upwards.

Dykes of similar composition representing segregations of the cooling magma will no doubt be encountered in depth during the drill operations and may prove of considerable economic value as they belong in the geology of the Hudson Bay Range.

I might say that the topography and local conditions for diamond drilling are very favourable. The entire slope is well exposed to the sun; a feature that no doubt has added its quota to the unusual deep zone of oxidization and decay of minerals. There are no obstructions at the drill-site to prevent anyone from traversing the full width of same for 3000 feet, even after leaving off at the various trails and foot-paths, that extend in practically every direction.

The first drill-hole ought to be started in the vicinity of the old cross-cut tunnel and sufficiently below the same to escape the undesirable zone of oxidization. In Northern B.C. atmospheric influence rarely exceeds 100 feet in depth, but there are no fixed rules in that respect. Levels of underground water, together with rain and snow falls are the controlling features. At any rate it will be advisable to start 100 ft. below the portal and slant the holes slightly downwards, off

the horizontal.

Water, for drilling purposes is available at two tributaries of Toboggan Creek, but not plentiful, except at the portal of the old tunnel wherethere is a constant flow, gaining velocity towards the breast. Incidentally, this flow is not due to, surface precipitation, and, therefore, of special geologic significance inasmuch as it proves the existence of crevices and fissures that have originated in abyssal depths and produced circulation of mineral-bearing solutions and vapours derived from the cooling magma during the mineralization periods. While now cold, it must at one time, during the Mesozoic Age, have been of high temperature in order to crystalize into mineral compounds of the arsenopyrite type combined with precious metals (possible in colloidal state.) Modern flotation processes will recover values.

If the above program is carried out as outlined I have not the least doubt that the diamond-drill cores will reveal important bodies of gold and silver ores equal, or of even higher grade, than the assays referred to on Page 7. The largest ore bodies will probably be found at or close to the diorite contact.

With these prospects in view the Rio Grande lode is of particular interest.

( P A R T 2 )

ARGENTIFEROUS EXPOSURES ON UPPER CLAIMS.

All of these exposures are above timber line and while at the moment of less interest than the above mentioned Rio Grande lode, I consider that they rank a close second on account of their far greater silver content.

RICO-ASPEN VEIN

This vein is situated in a basin of the same name, at an elevation of 4000 feet above the Canadian National Rly. grade within a distance of five miles from Evelyn Station. Of this distance one-half represent a fair road and the other a good pack trail.

The surface showings consist of silver-lead and antimonial ores severely decomposed measuring 5 to 8 feet in width. The foot-wall is represented by a dark colored greenish andesite and a smooth hanging of grayish medium-grained granodiorite, dipping persistently at an angle of 45 deg. to the south-east.

The strike is N. 48 deg. E. (Astro.) On each wall there are well defined gauges next to the pay streaks. A prospect shaft measuring 15 feet in depth was put down by Fisher and Sheedy in 1917. The following results were obtained at the Assay Office of the Granby Smelter, Anyox, B.C. from channel assays taken within the shaft:

Sample No.	Ozs per Ag. ton	Ozs per Au. ton	Pb.	Cu. %
#3	nil	nil	0.8	3.06
4	24.9	trace	2.2	0.30
5	18.2	"	2.2	0.28
6	55.1	"	6.5	0.71
11	181.1	.01	12.6	1.91

Sample No. 4 represents a width of 14 inches from the top of a 4 inch band of clay gauge on the foot wall side of the vein.

Sample No. 3 represents 3 feet 10 inches above No. 4. Both 4 and 3 were taken on the north-east wall about a foot from the bottom of the shaft.

Sample No. 5 represents 12 inches above No. 3.

Sample No. 6 represents 12 inches above No. 3. Both 5 and 6 were taken on face of the incline, No. 5 being about one foot from the North-east wall and No. 6 four feet from No. 5.

Sample No. 11 represents 4 inches of the best looking ore in the hanging wall band.

These assays show that at least two feet of the Rico-Aspen vein averages between 36 ozs. to the ton in silver at the point where the shaft is sunk. The high copper in the central portion of the vein was unexpected, but may be due to the presence of some rich fribergite in which the absence of silver is probably due to leaching.

An open-cut about 40 feet to the north-east of the shaft shows 4 feet of oxidized vein matter. Oxides and carbonates are quite abundant without traces of the original primary minerals.

Ores of similar grade and size can be seen in the open-cut and dug-outs east and west of the shaft where it has not been covered with slide rock. On the strength of the promising showings I bonded the property and drove a cross-cut tunnel at a point 70 ft. immediately below the shaft for a distance of 110 feet. I thereby succeeded in intersecting the vein next to the diorite hanging wall and prove its continuation as well as inclination at



the same angle. drifting 20 feet westerl on the 8 foot vein I followed the ore-shoot (on the foot-wall side) measuring  $1\frac{1}{2}$  to 2 feet and averaging according to analysis made by Glover, Wells and Elmendorf, 615 Prefontaine Bldg., Seattle, Wash., as follows:

Gold	Silver	Lead	Copper	Zinc	Arsenic	Antimony
0.04 ozs	30.80 ozs	10.3%	0.6%	2.4%	0.6%	3.3%

P.S.

At that time silver was quoted at 90 cents per ounce and lead at 11 cents a pound, this brought the value per ton to \$50.00 which represents twice the present valuation.

An analysis of the hanging-wall streak in the shaft was assayed by James G. Powell of the Standard Mining Co., New Hazelton, B. C. and gave the following results.

Ozs Gold	Ozs Silver	% Lead
0.05	66.60	14.22

Another sample of the foot-wall streak tested by D.R. Willemar of the Duthie Mines Assay Office, Smithers, B. C. assayed as follows:

Ozs Gold	Ozs Silver	% Lead	% Copper
trace	72.05	15%	0.79

From the floor of this drift to the collar of the shaft the calculated distance on the 45 degree slope is just 100 feet. For this distance it is reasonable to assume that the ore-shoot is continuous, although an upraise still remains to be put up before<sup>a</sup> shipping - grade of galena ore can be stoped and handsorted to represent a value of approximately \$50.00 to the ton (at present quotation of silver-lead). It is hardly

necessary for me to explain that any estimate on tonnage remains "probable" until this raise is actually completed.

For a considerable distance over the Rico-Aspen and Little Joe claims the vein is covered by Slide rock and diorite boulders that have been released by erosion from the crest, showing in high relief on the north slope of the mountain 500 feet above. The diorite is indicated by hatchet symbols on contour map.

#### SPONDULIX VEIN No. 1.

This vein is exposed at elevations 4800 feet above the railroad grade, and is traceable for 200 feet horizontally. It strikes almost theoretically at right-angles to the Rico-Aspen Vein and dips at 45 to 55 degrees towards south-west. No exposures observed shows the whole width of the mineralized zone which forms a sharp contact with the diorite hanging wall. The best exposure occurs in an open-cut at an elevation of about 4500 feet where there is a foot of oxidized ore, containing silver bearing fribergite in a gangue of siderite, calcite and quartz. A sample across this band assayed:

<u>Silver Ozs</u>	<u>Copper %</u>	<u>Gold</u>
56.6	6.35	\$3.50

The total width of the decomposed vein matter at this point is 4 feet. Fribergite and tetrahedrite, identical with the high-grade silver-lead ores of the Slocan District, B. C. are the principal minerals responsible for the high silver values. Oxidized fragments of these varieties are scattered over the easterly slope from the peak downwards.

Without doing much work, except a little blasting, Fisher and Sheedy in 1913 were able to gather and sort 2 tons

of ore. This was sacked and hauled down in a toboggan to Lake Kathlyn Station on the Grand Trunk Pacific Rly. which at that time was under construction, but not completed. The shipment, however, was forwarded on a work-train to Prince Rupert and from there transferred to the Granby Copper Smelting Works at Anyox, B.C. From this company the two partners received a cheque and settlement sheet which I had an opportunity to inspect. The valuation was based on the following assay per ton.

<u>Silver</u>	<u>Copper</u>	<u>Gold.</u>
84.5	7.0%	\$2.50

SPONDULIX NO. 2.

One hundred feet below No. 1 there is another four feet strata or fissure vein showing, consisting of oxides and carbonates of a similar grade and character as No. 1, only more decomposed. There has been but little work done at this place, except that some of the ore shipped to Anyox was derived there.

A little lower down in an inaccessible crevice, located approximately 50 feet below the rim of Rico-Aspen basin a third but considerably wider vein is exposed for some little distance. It is possible that this is an offset or branch of No. 1 or No. 2. Until a rope ladder is provided and suspended from the upper rim for the purpose of securing a sample and making an examination, I am unable to furnish further particulars. However, from a distance it looks very promising.

All the showings on the Spondulix Claim parallel each other and strike south 43 deg. each (Astro.) with a south-easterly dip at angles between 45 to 55 deg. towards Toboggan Creek Valley.

Eventually all tunnels and shipments can be effected from the Rio Grande workings.

## BIG HOPE VEIN

This vein is situated in the same basin as the Rico Aspen Vein and is almost directly opposite same. It also parallels the Spondulix Veins at a horizontal distance of about 700 feet, in a north-westerly direction. It also dips at about the same angle of 45 deg. south-westerly.

It is one of the latest discoveries on the property and beyond tracing it for about 200 feet horizontally and 300 feet vertically, there has been no work performed to speak of except a few open-cuts on the surface for a distance of 400 feet.

The showing which is from 3 to 4 feet wide appears to be persistent and it is quite remarkable on account of the high-grade silver ore in a siderite and calcite gangue. Specimen, selected from here have furnished the following assays:

<u>No. 1</u>	<u>Silver</u>	<u>Copper</u>	<u>Zinc.</u>
	352.4 ozs	8.2%	42%
<u>No. 2</u>	<u>Silver</u>	<u>Copper</u>	<u>Zinc.</u>
	598.9 ozs	10.7%	45%

### GENERAL REMARKS

It is with a great deal of satisfaction that I am able to express a high opinion on the merits of the Rio Grande Group as the basis of a sound and worthy investment.

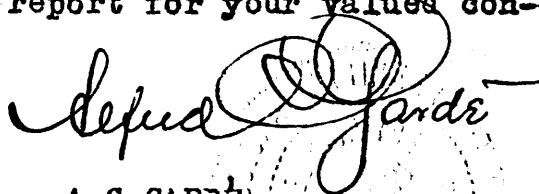
Mining for gold will be the primary objective, followed by silver production.

As a student of the silver question for the past 30 years I am loath to believe that this noble and most suitable metal for coinage purposes will remain as the Cinderella in the

realm of minerals for very long. The handwriting is apparently on the wall and I believe that the present efforts to elevate silver to a fixed ratio with gold will be accomplished through international efforts before the end of the year.

If this is effected, I venture to say that the intrinsic value of the Rio Grande Syndicate will be augmented 50 and possibly 100 per cent.

Trusting that I am not overly optimistic in predicting this, I respectfully submit this report for your valued consideration.

  
A.C. GARDE

Vancouver, B. C.  
May 30th, 1934.

Address to:

Messrs. Chalmers & Richardson,  
211-215 Stock Exchange Bldg.,  
Vancouver, B. C.

P.S. June 23rd 1934 .

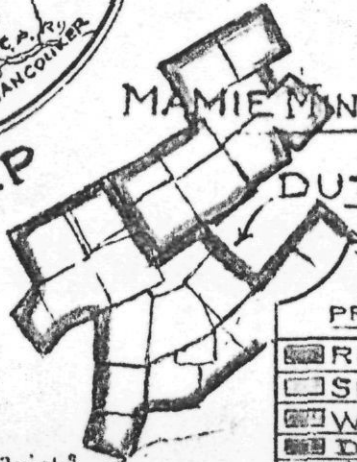
Since writing the above report, one adjoining mineral claims, known as the "Extra" on the west boundary and two fractional claims, called the "Extra Fr." and the "May Fr." have been located and added to the holdings of the Rio Grande Group and Syndicate. This will increase the area by at least 100 acres.

A.C.G.

All under  
OPTION to  
W.R. WILSON & SONS



KEY-MAP



MAMIE MINE

**Legend of PROPERTY HOLDERS**

	RIO GRANDE SYN.
	SKEENA G. & S. MINES LTD.
	W.R. WILSON & SONS
	DUTHIE MINES LTD.
	J. MATUSS

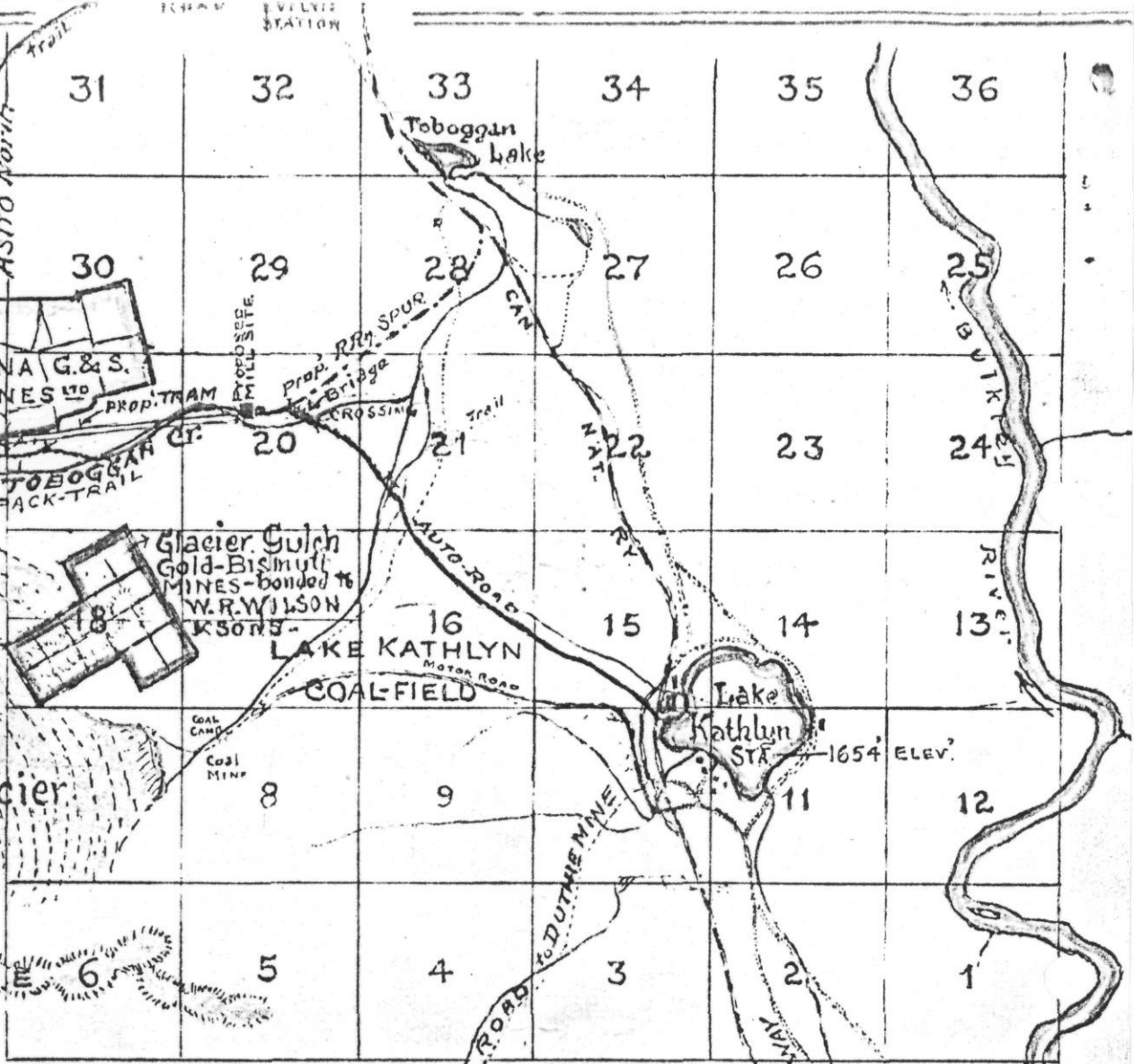
**KEY & LOCATION MAP of the RIO GRANDE SYNDICATE**

on HUDSON BAY MINE  
OMINECA M.G. DIV. B.C.  
re-Report

by **A.C. Gardé**  
Prof. Mg. Engineer

MAY 30<sup>th</sup> 1934

Scale: 1" = 1 Mile



SMITHERS  
Elev. 1641'