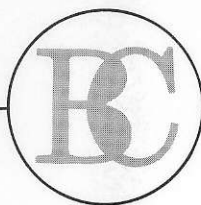


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REPORT on the
MINES ON MOUNT RAINEY,
STEWART AREA, BRITISH COLUMBIA
for: CASSIAR CONSOLIDATED MINES LTD.
by: W.R. Bacon, Ph.D., P.Eng.
W.D. Thompson, M.Sc.

Sept. 28/73



BACON & CROWHURST LTD.

1720-1055 West Hastings Street
Vancouver 1, B.C.

REPORT

on

THE MINES ON MOUNT RAINEY
STEWART AREA, BRITISH COLUMBIA

for

CASSIAR CONSOLIDATED MINES LIMITED (N.P.L.)

by

W.R. BACON, Ph.D, P.Eng.

W.D. TOMPSON, M.Sc.

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INTRODUCTION

Cassiar Consolidated Mines Limited (N.P.L.) is the registered owner of 91 Crown-granted mineral claims situated near Stewart in the Skeena Mining Division of the Province of British Columbia. Of this number, 53 are on Mount Rainey and are relevant to this report.

The more important of the claims are on the upper slopes of Mount Rainey, a formidable, glacier-capped mountain that rises 6469 feet from sea level at the head of Portland Canal, on its eastern side. These claims include the Silverado, Prosperity and Porter Idaho properties which were intermittently productive in the period 1925-31 - due largely to the intrepid miners from the Premier Gold Mining Co. Ltd.

Big Four Silver Mines Limited assumed control of the three principal properties in 1947 and, in turn, the present company, Cassiar Consolidated Mines Limited, assumed control in 1952. During that year, The Consolidated Mining and Smelting Company of Canada Limited investigated the property under the direction of Neely Moore (now Vice President, Cominco Ltd.) with Duncan Whitmore as geologist. During the 1960's the present company had the late Dr. A.C. Skerl do sampling and geological work on the properties and it is noteworthy that both Skerl and Cominco reports mention the probable presence of 100,000 tons of ore grading 20 oz. silver per ton - in the existing workings on the east side of Mount Rainey.

During the summer of 1973, Bacon & Crowhurst Ltd. were retained to review the data on the company properties and to recommend a course of action re further development, if such seemed justified. Hence, the present report which attempts to give equal emphasis to the merits of the properties and to the physical problems that would be involved in their development.

The Plates in this report have been reproduced from maps prepared by the Premier company during its period of tenure 40 and more years ago.

PROPERTY
(Figs. 1 and 2)

The company claims on Mount Rainey are as follows:

<u>Claim Name</u>	<u>Lot No.</u>
Red Reef No. 2	1406
Red Reef No. 3	1407
Tea Pot Dome	1857
Prosperity	1858
Prosperity Fr.	1859
Honest John	1860
Copper King	1864
Copper Queen	1865
Gargoyle Fr.	1866
Renown (option)	4507 X
Iron Hill	4508
Climax (option)	4509 X
Glennearn	4510
Fortune	4512
Ariel (option)	4513 X
Silver Bow No. 3 Fr.	4514
Glacier Fr.	4515
Silver Bow No. 2	4516 X
Silver Bell No. 4 Fr.	4517 X
Silver Bow No. 1	4518
Tram Fr. (option)	4519 X

<u>Claim Name</u>	<u>Lot No.</u>
Silverado No. 3	4520
Silverado No. 4	4521
Silverado Fr. (option)	4522 X
Silverado No. 4 Fr.	4523
Canyon	4524
Helvin No. 3 Fr.	4727
Slide	4728
Lucille	4729
Nettie L.	4730
Sunday	4731
Eureka	4732
Never Sweat	4733
Prickly Heat	4734
Gem of the Mountains	4735
Gem of the Mountains Fr.	4736
Prickly Heat Fr.	4737
Never Sweat Fr.	4738
Triumph	4739
Victoria	4740
Silver Key Fr.	5103
Silver Key No. 1	5104
P.G. No. 1 Fr.	5105
P.G. No. 2 Fr.	5106
Key Fr.	5113
Silver Key No. 3	5114
Silver Key No. 4	5115
Silver Key No. 5	5116
Silver Key No. 6	5117
Silver Key No. 7	5118
Cambria	5119
Guard	5120
Silver Key No. 2	5122

X NO LANCER HELD

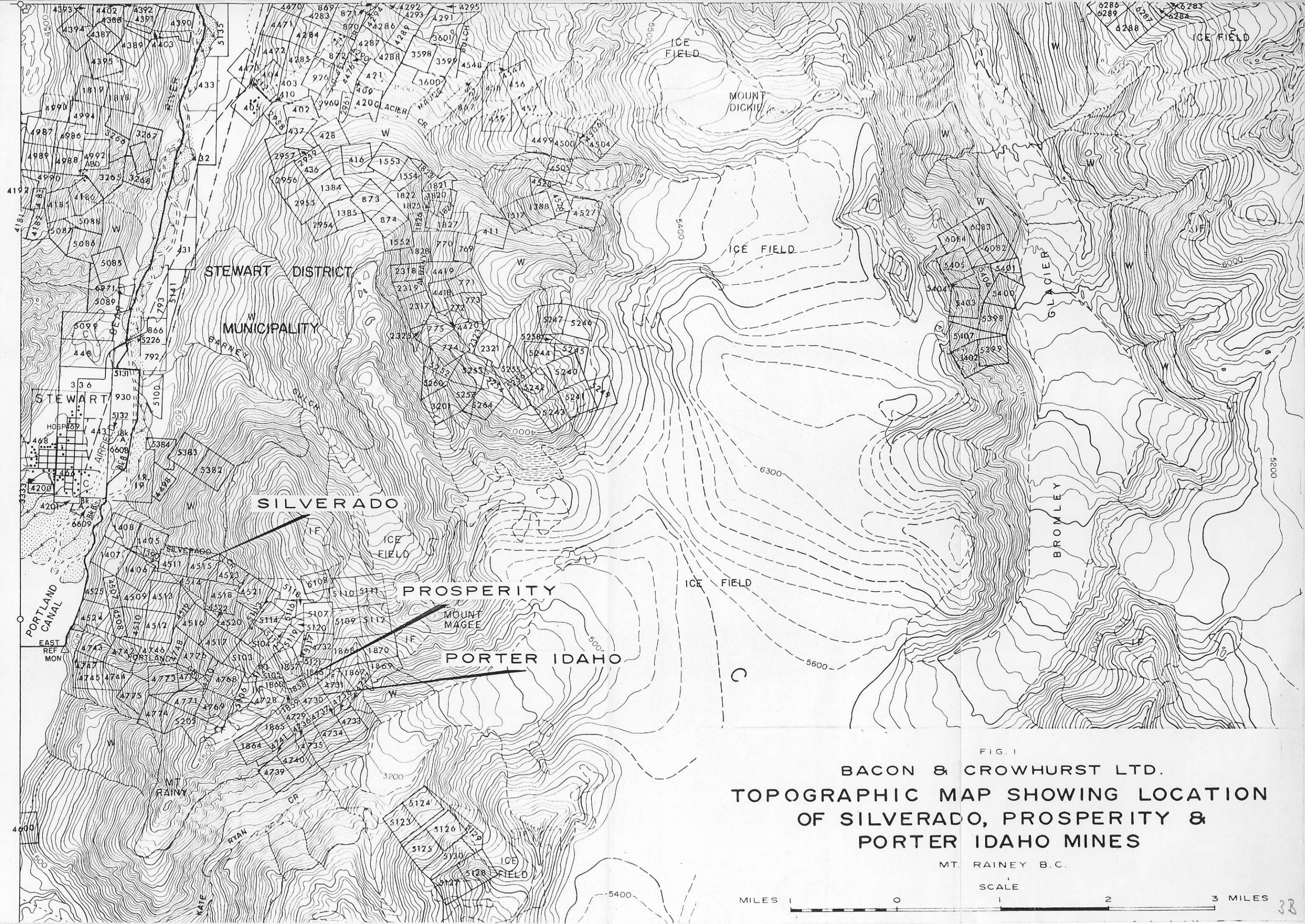


FIG. 1
BACON & CROWHURST LTD.
TOPOGRAPHIC MAP SHOWING LOCATION
OF SILVERADO, PROSPERITY &
PORTER IDAHO MINES

MT. RAINY B.C.



ACCESS

An unusual problem of access exists with respect to the three properties on Mount Rainey. So close to Stewart, they have always been considered inaccessible by road and this may be so for all practical purposes. A route up the Marmot River to the mouth of Kate Ryan Creek, thence up the west bank of Kate Ryan Creek to the Porter Idaho, is worthy of investigation, particularly when one considers the capability of modern road building equipment - but one must also consider the slopes, the grades involved, the heavy snowfall, and the very real snowslide problems. Such a road, if possible, would follow generally the route taken by the old aerial tramline, 5 miles long, built by Premier from the mouth of the Marmot River to the mine workings at 5000 feet elevation on the east side of Mount Rainey.

Although the Silverado property, on the west side of Mount Rainey, never amounted to much from an ore standpoint, the relatively extensive workings were considered by more than one engineer as a possible means of access to the more productive area on the east side of Mount Rainey. The reasoning is valid; a 7000 foot tunnel could be driven southeastward from the Silverado workings to the Prosperity and Porter Idaho ground but such an undertaking could only be justified by the discovery first of very substantial tonnages of new ore in the latter workings. Moreover, it is conjectural whether a road from Stewart up the west side of Mount Rainey to the Silverado workings would be a practical venture, i.e. the first leg of the hypothetical transportation system from Stewart to the Porter Idaho.

A tramline, rather than a road, on the west side of Mount Rainey would seem to make better sense.

All in all, there are obviously unusual access problems which just as obviously will demand very substantial tonnages of the grade (20 oz. silver per ton) envisaged by the aforementioned engineers.

As far as access to the surface showings for appraisal or assessment purposes, this is easily achieved by helicopter from Stewart.

PROPERTY HISTORY

Silverado

The original claim, Rainier Fr. (Lot 4511) was located in 1904. In 1920 the Silverado group of claims was located and, in 1921, the Silverado Mining Company was formed. By the end of 1927, a series of flat-lying quartz veins had been investigated by trenching and drifting without significant success. However, vein shears, striking northwesterly, were discovered just below the glacier, and encouraged Premier Gold Mining Co. Ltd. to undertake development of the property. This was done in 1928-29 and consisted of about 4000 feet of underground work. Premier discontinued work in 1930, a year of record low metal prices.

Recorded production from the Silverado amounts only to 106 tons of ore which yielded 22,009 ounces of silver.

Prosperity and Porter Idaho

The first discovery of silver mineralization on the east side of Mount Rainey was made by Clay Porter in 1921. He organized the Porter Idaho Mining Co. in 1925 and development of the mines started that year. The first shipment of ore was made in 1926.

New discoveries were made and Premier Gold Mining Company Ltd. took controlling interest in 1926. They proceeded with exploration and development of the mines and constructed a tramline from Porter Idaho mine to sea level at the mouth of the Marmot River. The mines were in full production by 1930, but closed in 1931.

Production records for the properties are as follows:

<u>Mine</u>	<u>Year</u>	<u>Ore Shipped</u>	<u>Au (ozs.)</u>	<u>Ag (ozs.)</u>	<u>Cu (lbs.)</u>	<u>Pb (lbs.)</u>	<u>Zn (lbs.)</u>
Prosperity	1926-39	26,628	568	1,765,598	52,444	2,277,658	6,070
Porter Idaho	1924-31	5,256	276	563,466	5,235	723,781	-
		31,884	844	2,328	576	3,000	
			0.027873	73g	1.8 lbs	94 lbs	

GEOLOGY

Approximately one third of the surface area between Silverado mine and Prosperity-Porter Idaho mines is covered with glaciers. Above 3500 feet elevation, outcrops are abundant but, below 3500 feet, dense bush and talus obscure bedrock.

Grove (1971) states that Mount Rainey is underlain by volcanic conglomerates, sandstones, and breccias with minor intercalated limestones, siltstones and tuffs. These epiclastic rocks belong to the Hazelton assemblage and are Lower to Middle Jurassic in age. They are cut by hornblende diorite (lanprophyre) dike swarms, and granite and syenite prophyry dikes.

Silverado and Prosperity-Porter Idaho mines are, according to Grove, on opposite limbs of a major overturned syncline, the axis of which strikes north-northeasterly across Mount Rainey. It is not known whether the veins in the Silverado mine occur in the same stratigraphic unit as those at Prosperity and Porter Idaho mines, because the Hazelton assemblage is undifferentiated.

Metallic mineralization in the mines includes native silver, ruby silver, galena, freibergite, pyrite, sphalerite, and chalcopyrite.

VEINS

Silverado

Four quartz-sulfide veins are exposed in the workings of the Silverado mine (Plate II). The veins strike N30°W and dip 60 to 65 degrees south.

The Number One vein was developed by a drift at elevation 3447 feet. All production from Silverado was from two ore shoots on this vein. The first ore shoot was 3.8 feet wide and 45 feet long. It assayed: Au 0.02 ounces per ton, Ag 18.9 ounces per ton, Pb 1 percent, and Zn 2 percent. The second ore shoot was 2.1 feet wide and 80 feet long and assayed 41 ounces Ag per ton (Skerl, 1961). The fact that less than 200 tons were mined from these ore shoots may indicate that only high-grade sections were taken.

Prosperity and Porter Idaho

The Prosperity and Porter Idaho veins (Plate III) are fissure veins which occur in shears and in fault breccias in the Hazelton

epiclastic rocks. They vary from a few inches to several feet in width and are parallel to sub-parallel. They strike northerly to north-northwesterly and dip steeply to the west.

Most of the production (84 percent) from mines on the east side of Mount Rainey came from the Prosperity vein. Four ore shoots occur in the Prosperity vein through a strike length of more than 1000 feet. They were mined between the Number 3 level at 5085 feet elevation and the surface, at elevations 5500 to 5750 feet. Throughout the stoped areas, the vein averaged 2.3 feet wide and assayed 89 ounces of silver per ton.

put in production, p. 6.
A vein parallel to the Prosperity vein and lying 600 feet east of it was called the "Blind" vein because it was thought not to outcrop. It was drifted on from the Number 3 level and a small ore shoot was stoped to surface.

The 'D' vein (Plate IV) lies 550 feet east of the Blind vein and is roughly parallel to it. It is developed by the 'D' tunnel which was driven from elevation 4691 feet. An ore shoot 410 feet long and up to 23 feet wide was encountered 700 feet from the portal. Some high-grade ore was stoped from rich lenses. Across an average width of 16.4 feet, this shoot averages 15.8 oz. silver per ton. Other assays shown on company maps appear to have come from sampling in raises or a sub-level above 'D' tunnel, perhaps 150 to 200 feet above. These samples were taken over a length of 195 feet. Here the vein averaged 2.6 feet wide with silver values of 28.1 ounces per ton.

Total inferred and indicated tonnage in this block of 'D' vein, i.e. above 'D' level, is estimated to be 109,000 tons with an average silver content of 20 ounces per ton.

The 'I' tunnel was driven at an elevation of 4222 feet, or 469 feet below 'D' tunnel. It was intended to reach the 'D' vein down dip from its occurrence on 'D' level, but work terminated before the intersection was made.

CONCLUSIONS AND RECOMMENDATIONS

The records show that some very good silver ore has been extracted from the workings on the east side of Mount Rainey and that the greatest widths of vein material occur in the 'D' vein on the 'D' level. In other words, at least as far as this vein is concerned, the tonnage possibilities appear to be improving with depth. Fortunately, this very real possibility can be checked in the 'I' tunnel, 469 feet below the 'D' tunnel.

Should the 'D' vein in 'I' tunnel prove to be identical to the 'D' vein in 'D' tunnel, a tonnage of more than 300,000 tons containing 5 million ounces of silver could be postulated in this interval of the 'D' vein, pending thorough exploration between the two levels. This is idle speculation but it does give some idea of the magnitude of this particular possibility and the 'I' tunnel is admirably located with regard to testing the depth potential of the ground to the west of the 'D' vein. This, of course, presupposes that the 'I' tunnel is still accessible and not in need of major rehabilitation.

Therefore, it is recommended that an exploration program be undertaken on the eastern side of Mount Rainey with its principal objective being further exploration of the 'D' vein below the 'D' level.

COST ESTIMATE

Tunnel rehabilitation, say	\$25,000
Diamond drilling, 5000' of AQ @ \$20 per foot	100,000
Drifting, cross-cutting, 1000' @ \$125 per foot	<u>125,000</u>
	<u>\$250,000</u>

The above figures include mobilization and demobilization. A program is envisaged in which supplies, equipment, etc., are brought to the mine site entirely by helicopter from Stewart.

Respectfully submitted,

BACON & CROWHURST LTD.



W.R. Bacon, Ph.D., P.Eng.



W.D. Thompson, M.Sc.

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CERTIFICATE

I, William R. Bacon, with business address at 1720 - 1055 W. Hastings Street, Vancouver, 1, B.C., DO HEREBY CERTIFY THAT:

1. I am a consulting geological engineer, registered with the Association of Professional Engineers of B.C. since 1950.
2. I am a graduate of the University of British Columbia with B.A.Sc. (1939) and M.A.Sc. (1942) degrees in Geological Engineering.
3. I am a graduate of the University of Toronto with a Ph.D (1952) degree in Economic Geology.
4. During the past 30 years I have been engaged in economic geology and the search for mineral deposits in North America, South America, Australia, Asia and Europe.
5. I am familiar with the properties on Mount Rainey from a cursory examination made 21 years ago but have not been underground nor have I examined the properties since.
6. I have no interest, direct or indirect, in the property or securities of Cassiar Consolidated Mines Limited, nor do I expect to acquire any such interest.



W.R. Bacon, Ph.D, P.Eng.

Vancouver, Canada.
September 28th, 1973.