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British Columbia Department of Mines.

Victoria

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Geo. S. Pearson, Minister.

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REPORT ON THE PROPERTIES OF

THE BONANZA CACHE GOLD MINES LIMITED

Cayoosh Creek,  
Lillooet Mining Division.

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By:

B.T. O'Grady,  
Resident Mining Engineer.

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THE BONANZA CACHE GOLD MINES LIMITED

DEPARTMENT OF MINES

Office of the Minister.

Victoria, B.C.,  
August 2nd, 1935.

In explanation of the issuance of a Special Report on the properties of the Bonanza Cache Gold Mines, Limited, it may be said that the Department of Mines has been in receipt of many enquiries during the past few months from widely scattered parts of the Dominion of Canada.

Those writing seek to obtain the latest information regarding the Development of the British Columbia mining properties named. This interest clearly is the result of an intense publicity campaign having as its object the sale of shares of the company.

The report deals with local geological conditions, the history of the company's mining properties, and with the results of development done up to the time the author made his inspection.

*Geo. S. Pearson*

MINISTER OF MINES.

REPORT ON THE PROPERTIES OF  
THE BONANZA CACHE GOLD MINES LIMITED

Cayoosh Creek

Lillooet Mining Division

By: B.T. O'Grady.

The holdings of the Bonanza Cache Gold Mines, Limited, comprise the following ten Crown-granted claims:- Ruby, Mineral Point, Golden Stripe, Golden Eagle; the Bonanza group, Lots 123 to 128 inclusive; and the following thirteen claims and fractions held by location:- Bonanza Nos. 1, 2, 3 and 4, Gold Slide Nos. 1, 2, 3, 4 and 5, the Bonanza Fraction, Bonanza No. 1 Fraction, Cache Fraction, and Wedge Fraction. Also held by location are the following seventeen claims and fractions comprising the Morning Glory Group:- Morning Glory, Morning Glory Nos. 1 to 7 inclusive, Rainy Day, Rainy Day No. 1, Lapaloma, B.C. No. 3, B.C. No. 4, B.C. Fraction, Wood Fraction, Cotton Fraction, and Dot Fraction, and, also held by location, the Magic and Marygold known as the Marygold group. All told, therefore, there are forty-two claims held by this Company. The Bonanza Cache property, which is the only one being actively worked at the time of writing, adjoins Cayoosh creek to the south twelve miles by motor road from Lillooet, a station on the Pacific Great Eastern railway, or 9.5 miles from Craig Lodge at the eastern end of Seton Lake (see Biological Survey of Canada Map 196-A, "Vancouver Sheet." The Golden Cache lies to the northwewt of the Bonanza Cache with which it is connected by steep trail, extending from 1,500 to

2,850 feet elevation, on the northern side of Cayoosh creek. The Morning Glory group lies on both sides of Phair (Cottonwood) creek, some prospecting having been done at a point about 1.75 miles by trail from Cayoosh creek. The Marygold group is east of Seton lake in the angle between Cayoosh and Enterprise creeks. The claims comprising the Bonanza Cache, Golden Cache, and Morning Glory groups are shown on a plan prepared by Noel Humphrys B.C. Land Surveyor of Vancouver. This also shows the local topography in contours at 100-foot intervals. Within the area visited Cayoosh creek follows a narrow gorge with steep sides and in the vicinity of the Bonanza Cache the northern wall of the valley is nearly perpendicular. Elevations range from 750 feet at Seton lake to 1,500 feet at the Bonanza Cache camp adjoining the creek, and the mountains on both sides rise to between 6,000 and 7,000 feet above sea level. At this time of year (end of June) Cayoosh creek is reported to have a flow of about 1,000 cubic feet per second. Its gradient is very steep below the camp where the creek falls 112 feet in a distance of 1 mile. Except on the more precipitous rock bluffs, trees cover the mountain slopes. These include yellow pine, jack pine, balsam, and spruce. Cottonwood grows in the valley bottom of Phair (Cottonwood) creek with cedar, spruce and fir on the steep slopes. The trees are up to 18 and 24 inches in diameter. The flats at intervals along Cayoosh creek provide suitable places for camp-sites. The section

of road between Craig Lodge and the Bonanza Cache is narrow with many steep gradients but the road bed is in good condition and mine supplies are hauled by truck without difficulty.

Geological Survey of Canada publications covering the surrounding area include the following:- Summary Report 1933, part A, "Lillooet Map-area"; Memoir 130, "Geology and Mineral Deposits of the Bridge River Map-area"; and Memoir 118, "Mineral Deposits between Lillooet and Prince George". The first-mentioned approaches Cayoosh creek most nearly and the accompanying "Geological Sketch of Lillooet area", Fig. 5, adjoining page 70-A shows the formation in the vicinity of the Bonanza Cache to be composed chiefly of sediments. It is evident that the limited area thus mapped can be appreciably extended. These rocks are understood to have been correlated with the Bridge River series, mainly sediments. Argillites predominate in the vicinity of the properties under discussion, their composition ranging from carbonaceous argillaceous phyllite to calcareous argillite or argillaceous limestone. On the Bonanza Cache these rocks are dark to shiny black and much sheared so that the bedding planes are difficult to determine. On the Golden Cache rocks of similar character are a light grey. Dark argillaceous rocks are present on the Morning Glory group on Phair (Cottonwood) creek, a tributary of Cayoosh creek. The lower adit on the Golden Cache is driven in

massive greenish limy rock. Outcroppings of diorite, fine-grained in part, were noted on the Bonanza Cache and of fine-grained diorite (possibly quartz diorite) on the Morning Glory. These, occurring as dykes from a few inches up to 15 feet wide, or more, apparently follow the bedding planes of the argillites in most cases but may cut across the formation at some points. Altered hornblende diorite is exposed on the eastern side of Phair creek above the Morning Glory claim but structural relationships are not known. Mineralization, consisting mainly of quartz with small amounts of iron sulphides, chiefly pyrite, is referred to the period following dyke intrusion. In the Bridge River area the mineralization is attributed to the Bendor quartz diorite. Outcrops of similar rock are reported to have been noted in the Cayoosh creek area. The nearest definitely known area of quartz diorite related to the Bendor batholith is on Lost creek to the west of Cayoosh creek as shown in the Geological Sketch, Fig. 5, previously referred to.

In the area examined the character of the deposits can be summarized as consisting of elongated lenses and stringers of quartz conforming in strike and dip with the argillites. No definite fissuring or vein structure was noted. The general trend of the formation is to the north-west, with local variations, where strikes are northerly. Dips are from horizontal to 25 degrees to the north-west or south-east in accordance with the folding.

References to the past history of the Bonanza Cache and Golden Cache properties are contained in the Report of the Minister of Mines for the years 1888, 1889, 1891, 1895 and 1897. The following extract is from the report of W.A. Carlyle, Provincial Mineralogist, pages 553 to 555, Report of the Minister of Mines for 1897:-

"The Golden Cache Mines Co., Vancouver, capital stock \$500,000 in \$1 shares. Superintendent George T. Rives, Lillooet, owns the following claims:-- "Golden Eagle", "Ruby", "North Star", "Golden Stripe", "Moonlight" and "Intermediate" fractions, located on the steep mountain sides north of Cayoosh creek, twelve miles from Lillooet, and the "Jumbo" on the south side.

TOPOGRAPHY: The country traversed by Cayoosh creek is exceedingly rugged, the mountains being very precipitous and lofty, many of the cliffy sides being vertical, while the creek runs through a deep and narrow gorge. When this lead was discovered by a half-breed hunter, this country was almost too difficult for access even by a very bad trail. Now a fair waggon road with very steep grades both ways, has been built from Seton lake 10 miles up along the steep mountain sides, often crossed by rock slides, to the site of the stamp-mill on Cayoosh creek, where the three-rail gravity tramway leads up to the foot of the ore-chutes below the perpendicular face of rock,

in which is this body of quartz.

THE MINE: At the time of visit all entries to this mine were blocked up with ore awaiting the completion of the mill, hence the underground workings could not be seen. However near the summit (see illustration) of a nearly vertical bluff, and in the face of this bluff at a height of about 1,700 feet above Cayoosh creek, running diagonally across with a pitch to the north of about 20 degrees, was seen the ledge traceable for about 450 feet, or a lens-shaped body of quartz about 20 feet thick at the centre, and narrowing down to a narrow stringer at either end. It was claimed that the vein could be seen again along the trend of this vein, as on the "Alpha Bell" on one extension, and the "Golden Stripe" on the other, but this was not traced out.

This lead dips into the mountain at an angle of about 12 degrees from the horizontal, but when in a distance of about 100 feet, where there is a winze 28 feet at the end of a tunnel the dip is said to suddenly become much steeper, but not enough work had apparently been done to disclose just what the conditions are at this point. The vein is apparently conformable with the enclosing black argillite-schist, and while the main mass consists of bands of milk-white, barren-looking quartz, there are broad and narrow bands of quartz interbanded with a little slate, the whole mass being twisted and crumpled.

GOLD: Very fine samples of free gold have been taken from this ledge, but in the main body nearly all of the central mass appears to be very barren, while most of the gold is said to be in two or three feet of quartz near the foot and hanging walls. Free gold is visible in many samples but generally along the narrow seams or lines between the bands of quartz where there is also black, carbonaceous matter from the slates. But gold is seen both in the solid quartz and in the slates of the walls.

The proper development of the mine has just begun, and it is yet impossible to say what values this large body of quartz may carry in gold, but so far the returns from several hundred tons treated in the stamp-mill have been disappointing, or very much lower than were anticipated by the owners, the returns for 755 tons first crushed being about \$4.45 per ton. The amount of sulphides in this ore is extremely small so that the amount of concentrates will be practically nil, unless in depth the quartz carries more sulphides. In working the first openings into this body, it was very difficult to get at it on the bare surface of the cliff, but Mr. Rives now has a strong platform built with a short 3-rail tramway to the head of the chutes that lead down to the main tramway.

MILL AND TRAMWAY: A three-rail gravity tramway leads from the mill up to the ore-chutes, or to a point 270 feet below the ledge. It is 2,200 feet long with a drop of 1,400 feet, and has a 3/4 inch steel cable, with a 2-ton car on each end. According to the first designs and contracts let, the lower end of the tramway was so low that no allowance was made for the dumping of the car at the mill, so that after a short mill-run had been made to satisfy one of the largest purchasers then at the mine (and just at the time of the writer's inspection), the mill was stopped until the lower end of the tramway could be raised to permit the car to dump automatically. The cost of this tram was about \$10,000.

The mill, built by the Wm. Hamilton Manufacturing Co. Ltd., Peterboro, Ont., at a cost of about \$10,000, consists of two batteries of five stamps, each 850 lbs. dropping 6 inches, 96 times per minute, with inner copper plates, back and front, and outer coppers 4 by 8 feet, and 40 mesh slotted screens; Reliance Blake crusher above an 180 ton bin; two Reliance feeders; two 4 x 12 Frue Vanners; one, 90 h.p. engine, and one small 5 h.p. vertical engine for vanners; 1 boiler, saw-mill and planer; steam pump at creek.

This mill, built on the bank of the creek, can easily be enlarged to 20 stamps; Cayoosh creek carries a good supply of water and a fine water-power can be got a quarter of a

mile below the mill, where electric power and air compressor plants may be installed, but until the true value of this ore-body is accurately determined by the present mill, further erection of plant, etc., will be very inadvisable. This property attained a very sudden and far-reaching notoriety, by reason of the fine specimens found, and it is sincerely hoped that this large body of quartz will yet be found to carry high enough values to permit remunerative returns."

The old mill, operated for a short period during the late "nineties", adjoins the camp of the present company on Cayoosh creek. The Morning Glory and Marygold claims are recent locations. The several properties are described separately as follows:

BONANZA  
CACHE

At point "A", elevation 2770 feet, exactly 300 feet from the south-east corner of Lot 124, on the boundary between Bonanza Lots 124 and 125, and on the apex of a sharp ridge, an approximately vertical shaft has been sunk about 60 feet (estimated, as lower portion inaccessible without a rope). Fifteen feet below the collar an adit, 16 feet long to the south, connects with the surface. The section of shaft above the adit develops a quartz showing, 12 to 21 inches wide, which strikes north-westerly with a dip of 85 degrees to the south-west, Minor amounts of pyrite occur in disseminations

through the quartz. In the adit the quartz, occurring as parallel bands and stringers in a zone 30 inches wide, spreads out flatly along the bedding planes of the enclosing argillites which at this point, due to local folding, strike north. On the southern side of the ridge, below the tunnel, quartz stringers dip at 20 to 25 degrees to the west. Sample No. 6665, which assayed: Gold, 0.04 oz. per ton, silver, trace per ton, represents the quartz lens 12 to 18 inches wide and 16 feet long in the adit.

Two thousand feet measured north  $26^{\circ}$  west from point "A", and on Bonanza Lot 123 claim, two adits, at 1,680 and 1,653 feet elevation, are connected by an inclined shaft 58 feet long on a 25 degree slope. These are designated for convenience as "B" workings. The shaft is sunk on the outcrop of a zone of quartz lenses and stringers. From the collar a drift adit extends 26 feet south then 16 feet south  $15^{\circ}$  east. Stoping has been done to a height of ten feet and a width up to ten feet along the 26-foot section of adit, also along the surface for a short distance northerly from the shaft collar. The dump here contains a considerable proportion of quartz mixed with dark argillite which forms the country-rock of the deposits. Occasional pyrite is present in the quartz some of which is iron-stained. Sample No. 6664, which assayed: gold, 0.14 oz. per ton; silver, 0.02 oz. per ton, represents selected quartz such as might be sorted out from the dump. The lower adit is driven south  $35^{\circ}$  east for 97 feet in from the portal, of which the first

25 feet is a caved timbered approach. Connection with the bottom of the shaft is made at 53 feet in from the portal. From point 97 feet the working continues south  $25^{\circ}$  east for 67.5 feet and the last course is south  $47^{\circ}$  east for 51 feet. At 64 feet back from the face a branch working extends south  $27^{\circ}$  west for 25 feet. The quartz occurrences are localized near the collar of the shaft, and there is but little quartz in evidence at the lower horizon. Nor was there any continuity of mineralization noted in the eastern extremities of the two adit drifts. The next working is at point "C" on the Surprise claim at 1,580 feet elevation, 445 feet distant from "B" workings along a bearing of south  $44^{\circ}$  west. Here a lenticular quartz occurrence, 10 feet long and up to 12 inches wide, has been explored by an adit 48.5 feet long driven south  $50^{\circ}$  east along a plane of local fracturing in the argillites which are crushed and contorted. As in the case of "A" and "B" workings the quartz showings at "C" have no specific definition but coincide with the stratification of the enclosing rocks, the planes of which are flat with a tendency to dip to the north-east. Sample No. 6663, which assayed: gold, trace; silver, trace, represents selected quartz, no definite sections being available to sample.

To test these quartz lenses and stringers at depth an exploratory adit-crosscut is being driven at point "D", elevation 1,480 feet, 290 feet distant from "C" adit along a

bearing of south  $22^{\circ}$  west. This crosscut, known as the Noel tunnel, was started in 1934 and had been driven 1,042 feet to June 30th, 1935. It is situated centrally in relation to "A" working, lying to the south, and "B" and "C" workings to the north. It passes through shiny black argillites, having been driven in a north  $80^{\circ}$  east direction cutting across the dip of the formation which is flat lying or gently folded. The rocks tend to strike north-westerly with dips up to 25 degrees to south-west and north-east. Numerous stringers and patches of quartz show in the northern or southern wall of the crosscut, apparently conforming to the attitude of the enclosing strata. The quartz occurrences, slightly mineralized with iron sulphides at some points, are indefinite and lack continuity. A lens between points 406 and 412 was explored by a drift run 12 feet south  $32^{\circ}$  east. This drift is now being continued according to reports. Sample No. 6672, taken by the writer, which assayed: gold, nil; silver, nil, represents selected quartz, containing scattered disseminations of iron sulphides, from stringers between points 960 and 1024 feet in from the portal of the crosscut. Sample No. 6662 which assayed gold, 0.10 oz. per ton; silver, 0.02 oz. per ton was selected from an indefinite patch of mineralization at 1,000 feet in from the portal.

Owing to the lack of definition or continuity of the lenses in the widely separated "A", "B", and "C" workings and the

three adits at the lower, or north-eastern end, enclosed  
folding of the flat-lying argillites in the Noel crosscut it is  
not evident to the writer what results might be looked for at the  
deep horizon. Other lenses might be encountered. Their possible  
interest would be indicated by the values found in the lenses ex-  
plored by the upper workings. The writer's samples represent  
selected material, the lack of continuity preventing samples being  
taken over specific lengths and widths indicating tonnage. At  
the portal of the Noel crosscut are combined engine-house and  
blacksmith shop and dry-house. The compressor equipment, driv-  
ing one machine and steel sharpener, includes a 75-horse-power  
Ruston-Lister diesel engine. The camp, about one mile upstream  
from the long tunnel site, provides accommodation for twenty men.  
A crew of 15 are employed at present

GOLDEN  
CACHE

The old workings of this group, hereinafter described,  
are in the centre of the Golden Eagle claim 2500 feet  
measured along a bearing of north  $74^{\circ} 18'$  west from the  
portal of the Noel tunnel of the Bonanza Cache group  
and on the northern or opposite side of Cayoosh creek. There are  
five short adits, within a length of 130 feet, which have been  
driven into the face of a perpendicular cliff to explore and mine  
flat-lying lenses of quartz which apparently dip and strike  
parallel to the enclosing light grey argillites. Mineralization  
in evidence consists of scattered pyrite. The adit portals ex-  
tend south-westerly along the cliff face from elevations of 2,850  
to 2,882 feet.

The three adits at the lower, or north-eastern end, enclosed within a length of 60 feet, give access to a stope of irregular outline. This stope, from which quartz was formerly trammed to the old 10-stamp mill, is about 105 feet long, up to 50 feet wide, and up to 20 feet thick. The longest dimension is along the strike which is approximately north-west. The width, measured along the dip to the north-east of between 14 and 25 degrees, is from 50 feet near the outcrop to 10 feet at the back or north-western end. Surrounding the edges of the stope, where small lenses and stringers of quartz remain, prospect workings, consisting of short levels, a raise, and a winze, failed to prove the continuity at depth or along the strike. Diamond drilling was done in 1934 as follows: Holes No. 1 and 2, 265 and 250 feet long respectively, were drilled to the north-east of the stope to explore the ground on the projected dip of the mined area. A third hole was put down 500 feet vertically to explore the ground along the strike to the south-east at the foot of the bluffs. Sample No. 6666, which assayed: gold, trace; silver, trace, represents selected quartz remnants from the big stope. The other two adits on the cliff face, in order from the southwestern extremity of the stope workings, are in 8 and 18 feet respectively. They explore flat-lying quartz stringers and lenses in the argillites. In the first or shorter adit sample No. 6667, which assayed: gold, trace; silver, trace, represents a sample across 4 feet on the north-east side of the portal, no

quartz conforming in attitude with the locally folded and overturned dark-coloured argillaceous rocks. Mineralization consists

appreciable amount of quartz being present on the south-west side. The quartz is slightly iron-stained and contained minor amounts of pyrite. At the portal of the other adit sample No. 6668 was taken across 2 feet of interbanded quartz stringers and country-rock, no mineralization being noted. This assayed: gold, trace; silver, trace. The ground along the strike of these lenticular quartz showings was tested without success by a branch working extending south-westerly from the stope below. At 2,650 feet elevation, on the edge of a rock slide at the base of the cliff, an old adit has been driven slightly west of north for a length of 180 feet in massive, greenish limy rock. Thin scales of calcite have been deposited on the walls of the working in places where water is dripping. This working explores the ground below the north-western extremity of the stoped area. It would have to be extended some distance easterly to test the projected downward continuation of the stoped area which dips flatly to the north-east.

MORNING  
GLORY

On this claim on Phair (Cottonwood) creek, 1.75 miles by trail from Cayoosh creek, some shallow prospecting work was done in 1934 on a quartz showing outcropping along the edge of the creek which at this point flows through a narrow rocky canyon. The elevation is 2,280 feet. The small amount of work done indicates stringers and elongated lenses of quartz conforming in attitude with the locally folded and contorted dark-coloured argillaceous rocks. Mineralization consists

of scattered disseminations of pyrrhotite and pyrite. Individual lenses, up to 5 feet in width occur in a zone up to 12 feet in width. Samples Nos. 6670, 6671 and 6669 taken by the writer, represent first, silicified country-rock containing thin films of pyrrhotite; secondly, selected quartz mineralized with disseminated pyrrhotite; and thirdly, selected quartz with pyrite. These assayed ; gold, nil; and silver, nil. In the hanging-wall section of the quartz showings there is a dyke of fine-grained diorite, possibly quartz diorite, 10 to 15 feet wide, also apparently conforming in strike and dip to the bedding planes of the argillites. The dyke, apparently dipping to the south can be seen rising diagonally along the western side of the valley.

The two claims comprising this group were not visited. These are recent locations, two assessments having been recorded in connection with open cuts made.

MARYGOLD  
GROUP

No work is being done there at present.