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Title The Bridge River Mining Area

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GEOLOGY & MINERAL DEPOSITS OF  
THE BRIDGE RIVER MINING AREA

CHAPTER I - INTRODUCTION

GENERAL STATEMENT

This bulletin presents data obtained principally from a detailed study of the underground geology of the camp made accessible since the work of <sup>Cairnes</sup> ~~Cairnes~~ (1937). The surface geology of selected areas was studied in detail and remaining areas, for many of <sup>company</sup> which maps were available, in a more general manner.

The writer first visited the camp in 1945, spending a week at that time, but much of the work on which the report is based was done during 1946, 1947 and 1948, with short visits in 1949 and 1951 to study recent workings. During the period 1945 to 1951, the writer, with one or more assistants, spent a total <sup>of ten</sup> ~~10~~ months in the field gathering data for the report. The larger part of this time was devoted to underground studies <sup>and only</sup> ~~on~~ a few weeks spent in surface mapping.

3/ The areal map <sup>(see</sup> Fig. 1) has been compiled from data obtained from the writer's survey <sup>5,</sup> and from ~~the~~ surface geology plans

*made available by*  
~~of several of the~~ mining companies. The underground plans of many of the properties have been adapted largely from company plans, but some are from ~~the~~ surveys by the writer.

Because of current interest at various times during the work, reports on some of the properties have already been published in Annual Reports of the Minister of Mines for B.C.

#### ACKNOWLEDGMENTS

The writer gratefully acknowledges <sup>the</sup> kindness and generosity of the various mining companies in providing full access to their surface maps, underground plans, and other information and in supplying draughting space when needed.

Special thanks are due to Dr. Howard T. James and his staff of Pioneer Gold Mines Ltd., to Mr. M.M. O'Brien and Mr. D.N. <sup>Matheson</sup> ~~Mathews~~ and their staff.

*of* Bralorne ~~Gold~~ Mines Ltd., to Mr. E.R. Shepherd of B.R.X. (1935) Consolidated Mines Ltd., Mr. J.S. Harrison of the Golden Ledge Syndicate, Mr. L.A. <sup>Prosser</sup> ~~Prosser~~, of Wayside (L.A.P. Mining Co. Ltd.); to Dr. F.C. <sup>Buckland</sup> ~~Burland~~ of Pacific (Eastern) Gold Mines Ltd.;



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to Mr. G.S. Eldridge of the Olympic Gold Mines Ltd.; and Mr. A.E. Jukes of Congress Gold Mines Ltd. The help of Mr. G.H. Beley, Gold Commissioner, Lillooet, in respect of many of the details of claim ownership and of Mr. William Haylmore, Sub-recorder at Haylmore and pioneer resident of the area, in respect of many interesting historical details, past and present relating <sup>to</sup> ~~at~~ the camp in general, are also very gratefully acknowledged. ✓

The writer also gladly acknowledges the help of his field assistants, John K. Diebel, Frank Fraser and R.B. Toomes<sup>b</sup>, <sup>b/</sup> in 1946; H. ~~Stewart~~ <sup>Stuart</sup> McColl and G.V. Gill in 1947; H. Stuart McColl and R. Baragar in 1948; Alan Witherspoon in 1949 and Mr. G.E. Apps in 1951.

<sup>al</sup>  
PREVIOUS GEOLOGIC WORK

The earliest official reports on mining activity and descriptions of properties in the Bridge River Camp include those published by the B.C. Dept. of Mines, (Robertson, 1910, pp. 130-148) <sup>and</sup> (Brewer 1914, pp. 246-273), and similar reports ~~have been~~ published in subsequent Annual Reports of the Department.

The first systematic areal mapping in the camp was

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done by the Geological Survey of Canada (Bateman 1912) and the work published as a map of the ~~Cadwallader~~<sup>Cadwallader</sup> Creek Mining area on a scale of 1 inch equals 2000 feet; this map showed the distribution of the mining properties and outlined the general area of the Bralorne Intrusion<sup>ns</sup>. More extensive mapping was done by Drysdale (1915, pp.75-85) and published as a map of the Bridge River area on a scale of 1 inch equals 3 miles. He outlined the formations of the area much as they are outlined at the present time. McCann(1922) published the first complete report of the area as Memoir 130 of the Geol. Survey of Canada and with a geological<sup>maps?</sup> of Bridge River area on a scale of 1 inch equals 2 miles. This map covered much<sup>of</sup> the same area as Drysdale's map, but the geology was somewhat more detailed, particularly in respect of the serpentine for which McCann introduced the term Shulaps Volcanics. <sup>Cockfield</sup> & Walker (1932) published a report and sketch map, on a scale of 2 miles equals one inch of the ~~Cadwallader~~<sup>Cadwallader</sup> Creek Gold Mining area on which the outlines of the areas of <sup>augite diorite</sup>, and the Crown grants as at that time, were shown. The ~~most~~<sup>most</sup> detailed work was done by



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Cairnes in 1934 and 1935 and his results and maps published in Memoir 213 of the Geol. Surv. Cairnes' map-sheets, *entitled* the Gun Lake area and the Cadwallader Creek area, are on a scale of 2000 feet equals ~~one~~ <sup>1</sup> inch and cover an area that extends down Cadwallader Creek from above P.C. mine down the Hurley River, ~~down~~ <sup>across</sup> the Bridge River and beyond Wayside to Gun Lake. Cairnes mapped the geology in as much detail as surface exposures and underground <sup>workings</sup> ~~markings~~ as at that time would permit, and <sup>B</sup> because of the detail of his work, <sup>Cairnes</sup> was able to introduce ~~several new~~ <sup>several new</sup> formational names. As a <sup>continuation</sup> ~~conclusion~~ of this work, Cairnes (1943) published a map, the ~~Ly~~ <sup>Ly</sup> laughton Lake area on a scale of 2 inches equals <sup>1</sup> ~~one~~ mile that extends northerly and easterly from the borders of the Gun Lake sheet and includes properties downstream from Gold Bridge; *This map was accompanied by short notes on the geology & properties of the area*  
The maps and reports by Cairnes and the earlier work of the Geol. Survey continue to be of assistance to prospectors and operating companies in the area and have been <sup>consulted</sup> ~~connected~~ frequently by the writer. To Dr. Cairnes' <sup>memoir</sup> the writer is indebted for much of the basic data and explanations of many of the geological features discussed in this bulletin.

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*and*  
LOCATION & ACCESS

The Bridge River Mining *area is* on the east side of the Coast Mountains and west of the Fraser River ~~is~~ about 100 air miles almost due north of Vancouver. It may be reached from Vancouver, by way of Shalalth by one of two routes. One is by steamer from Vancouver to ~~S~~<sup>S</sup>quamish and thence by the Pacific Great Eastern Railway to Shalalth *The other is* via motor road up the <sup>to</sup> Fraser Canyon ~~on the~~ Lillooet, thence by Gas-car on the Pacific Great Eastern ~~including~~ railway for 25 miles to Shalalth. From Shalalth a good motor-road leads over ~~mine~~ Mission mountain into the valley of the Upper Bridge River up the valley to Gold Bridge, thence up the valleys of the Hurley River and Cadwallader Creek. The distance from Shalalth to the Bralorne mine is 51 miles and 3 miles farther <sup>to</sup> ~~is~~ the Pioneer mine. Train and stage services are maintained between Vancouver and the mines, and occasional air service from Vancouver to Gun Lake, thence by *jitney* for about 15 miles to the mines. Within the area branch roads and trails lead to the several mines and prospects. The principal communities include the company towns of Pioneer and Bralorne, the communities of



Gold Bridge in which the office of the sub-mining Recorder is situated, and of <sup>Minto Mines</sup> ~~mined mines P.O.~~ about 4 miles down the Bridge River from Gold Bridge. Power is supplied <sup>to</sup> ~~and~~ the area by the B.C. Electric & Power Corporation; telephone, both radio phone and <sup>telephone service are</sup> land-line ~~is~~ supplied by the B.C. Telephone Co.

### Topography

<sup>bc</sup> The Bridge <sup>Mining</sup> River area is in the eastern part of the Coast mountains, a primary <sup>in B.C.</sup> physiographic subdivision of the Canadian Cordillera. The topography is rugged and mountainous, with elevations in the valleys ranging from <sup>feet</sup> 2100 above sea-level on the Bridge River to 4,150 feet on Codwallader Creek at P.E. and elevations of some of the mountain peaks exceeding 9,000 feet.

The principal topographic features of the area include a <sup>broad stretch</sup> short ~~study~~ of the ~~broad~~ Bridge River Valley below Gold Bridge, the canyon of the Hurley River from ~~the~~ near its junction with the Bridge River, upstream to and beyond its junction with the Codwallader Creek; and the narrow valley in which Codwallader flows, from P.E. <sup>The mine to</sup> ~~and~~ its junction with the Hurley. The gradients

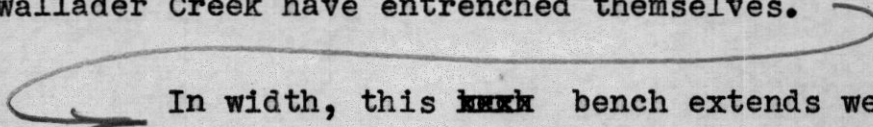
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*these*  
~~the~~  
of the streams in ~~thin~~ sections are as follows: Bridge River from *Minto Mines* Wayside to Gold Bridge, 10 feet per mile; the Hurley River, about 160 feet per mile, and Cadwallader Creek, *about* 320 feet per mile.

A striking topographic feature of the area is a broad ~~XXXX~~ <sup>2</sup>~~two~~ bench, about ~~2~~ miles wide, into which the Hurley River and Cadwallader Creek have entrenched themselves.

 In width, this ~~XXXX~~ bench extends westerly from the base of the very steep slopes of Fergusson mountain, westward across the entrenched valleys of Cadwallader Creek and the Hurley River.

In length it extends from Pioneer mine, where the valley of

Cadwallader first leaves the steep slopes of Fergusson Mountain,

*and* slopes ~~and slopes~~ northerly in a general downstream direction past

Bralorne to the Bridge River Valley, with two steep interruptions

of the gradual downstream slope, one at Fish Lake and the other at

Gold Bridge where the main Bridge River Valley is entered. *feature* A ~~feature~~

of the bench that is of considerable interest to the mining companies

is the rather continuous cover of deep *overburden* that ~~XXXXXX~~ *mantles* ~~covers~~

the surface of the bench and makes for *icult* ~~different~~ prospecting of

this rather important *section* ~~part~~ of the Bridge River Mining camp.



## CLIMATE

The climate in the area has been described by Chapman (1952, map facing p.2) as humid continental with cool, dry summers and cool, snowy winters.

The average monthly mean temperatures in degrees Fahrenheit at the Bralorne weather station for a <sup>sixteen</sup> 16-year period to 1951 as given by the Department of Agriculture (1951, p.5) are as follows:

January, 18~~th~~; February, 24~~th~~; March, 32; April, 41; May, 48; June, 54; July, 59; August, 58; September, 52; October, 51; November, 30; December, 22;

*delete the sentence*  
Over the <sup>sixteen</sup> same 16-year period, the highest temperature ever recorded was 100 and the lowest <sup>degrees Fahrenheit</sup> ~~33~~ <sup>33° Fahrenheit</sup> (Dept. of Agriculture, 1951, p.21).

At the same weather station, Bralorne, <sup>the</sup> average monthly precipitation in <sup>inches</sup> ~~miles~~ for a <sup>nineteen</sup> 19-year period in 1951 was as follows:

(Dept. of Agriculture, 1951, p.13): <sup>January</sup> ~~Jan~~ 2.67; February 2.15; March, 1.76; April, 1.27; May, 1.35; June, 1.52; July, 1.18; August, 1.18; September, 1.54; October, 3.13; November, 3.73;

December, 4.42; and the average annual precipitation over the same period was 25.90 inches.

### MINING HISTORY

The gold deposits of the Bridge River Camp <sup>well</sup> are among the earlier lode-gold discoveries of the province, for lode-gold was first discovered on the Hurley River in 1882 and in 1896 on Cadwallader Creek on the Forty Thieves group. The following account by the writer (Stevenson 1947 pp.26-27) describes the early mining activity in the camp. "Between 1897 and 1900 most of the better-

known properties....., Pioneer milling 375 tons daily and Bralorne 500 tons."

*NOTE*  
*from*  
*17 Lode Gold*  
*Deposits of*  
*S.W.B.C.*

During World War II Bralorne <sup>and</sup> Pioneer produced at reduced rates but within a couple of years afterwards had in general reached their pre-war scale of production. From the end of the war to 1947 interest was renewed in many of the smaller properties and during that period the properties on which work was in progress included the Bridge River Consolidated, Bristol, B.R. Jewel, B.R. (1935) Consolidated, Chalco, Conbra, Congress, Golden Ledge, Grull ~~Wahkane~~ Hillstake, Holland, Little Gem, Minto, Olympic, Pacific (Eastern),



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Pilot, Pinebrayle, Ranger-~~Truax~~, Veritas, and Wayside.

However, ~~since 1947~~, as a result of ~~marked~~ <sup>increase</sup> ~~increase~~  
<sup>since 1947</sup>  
in operating costs with correspondingly only slight increase in the  
price of gold, ~~also~~ and also ~~as a result~~ of the development of  
general interest in base-metal prospecting and mining, <sup>little</sup> ~~better~~ work  
has been done <sup>recently</sup> on the smaller properties, and with the exception of ~~B.R.X.~~  
~~B.R.X. and Wayside, they are at present idle.~~ A property not  
included in this list is the Gray Rock antimony property which,  
although discovered several years previously, has only recently been  
actively developed <sup>with the prospect</sup> and is at present being prepared for <sup>the production</sup> ~~producing~~  
<sup>of producing antimony ore at an early date.</sup>  
~~antimony ore.~~

#### PRODUCTION

The area includes two of the <sup>most productive</sup> ~~largest~~ gold mines in  
the Province, Bralorne and Pioneer, and <sup>has</sup> ~~had~~ produced to the end  
of 1945, 1,797,965 oz. of gold and 488,884 oz. of silver from  
3,443,359 tons of ore. Bralorne and Pioneer mines are together  
responsible for most of this production. Placer gold ~~production~~  
production has amounted to ..... ounces valued at \$.....

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