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THE MINING PROPERTIES OF  
B.R.X. CONSOLIDATED MINES LTD.  
AND  
BRIDGE RIVER CONSOLIDATED GOLD MINES LTD.

This essay is submitted in partial  
fulfilment of the requirements of  
the course in Third Year, Applied  
Science,  
University of British Columbia

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Acadia Camp,  
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November 7, 1948.

The Faculty of Applied Science,  
University of British Columbia,  
Vancouver, British Columbia.

Dear Sirs:

In compliance with the requirements of third year, Applied Science, at the University of British Columbia, I am submitting this report on, "The Mining Properties of B.R.X. (1935) Consolidated Mines Ltd. and Bridge River Consolidated Gold Mines Ltd."

I became acquainted with the area discussed in this report while employed by the British Columbia Dept. of Mines during the summer of 1948.

It is with thanks that I acknowledge the assistance given me by Dr. J. S. Stevenson of the British Columbia Dept. of Mines in suggesting material for the report and in permitting me to make copies of his maps to be contained herein.

The most notable among the references I used was "Geology and Mineral Deposits of the Bridge River Mining Camp, British Columbia" by C. E. Cairns of the Geological Survey.

Yours truly,

*WRA Baragar*

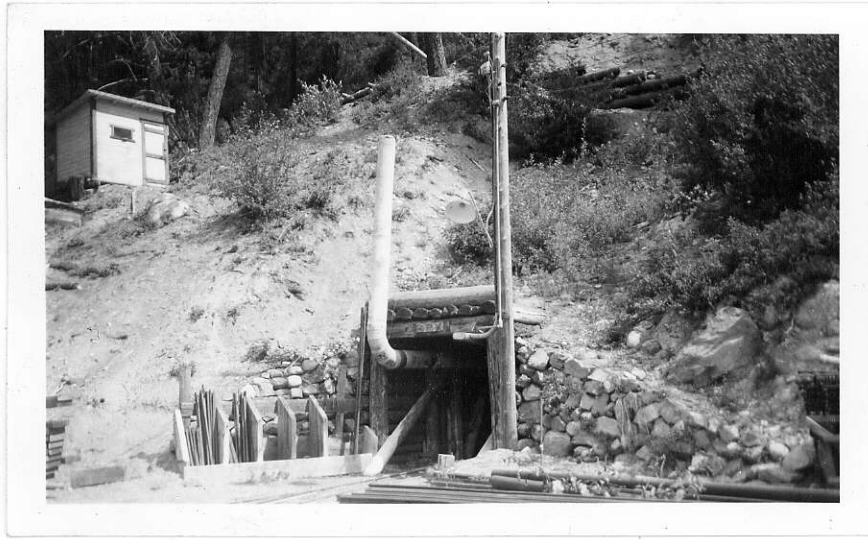
W. R. A. Baragar

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Showing the main portal of the California Workings



Showing the California Dump

THE MINING PROPERTIES OF  
B.R.X. CONSOLIDATED MINES LTD.  
AND  
BRIDGE RIVER CONSOLIDATED GOLD MINES LTD.

Introduction

This report deals with the mining properties of two unrelated companies, the B.R.X. (1935) Consolidated Mines Ltd., and the Bridge River Consolidated Gold Mines Ltd. Since the holdings of these companies adjoin one another, sharing the geology of a section of the valley, and since their histories are in part related, it is appropriate that they should be discussed in the same report.

The names of the above companies are commonly shortened to B.R.X. and B.R. Consolidated respectively, a practice which will be followed in this report.

Description and Location

The B.R.X. and B.R. Consolidated holdings are situated in the

Bridge River valley, approximately 110 miles straight north of Vancouver.



Hurley River Valley, seen at the South end of the properties.

#### B.R.X.

The B.R.X. property consists of 42 claims and fractions occupying a length of about three miles and a maximum width of approximately one mile. Its northwestern claims hinge on the Town of Goldbridge at the junction of the Hurley and Bridge Rivers and its length is directed south along the east side of the Hurley. The camp buildings are situated on the Ruby Lily claim (see map) about  $3\frac{1}{2}$  miles north of the Town of Bralorne on the main valley road.

Four groups of underground workings and a great many open cuts represent the extent of work done on the B.R.X. property. The underground developments are, in order of extent, the Arizona, California, Gloria Kitty, and Golden Gate. At the present time the California group is the only one in operation.

The Arizona adits are accessible from the valley highway, near Goldbridge, by means of a branch road which also serves the Golden Gate adit and B.R. Consolidated's Forty Thieves adits.

The main California adit lies just below the highway, a short distance south of the B.R.X. camp, and is connected to the highway by a short side road. The upper or No. 2 level is served by a cut-off from the old valley highway.

#### B. R. Consolidated

This company's holdings consist of 14 Crown-granted claims and fractions lying immediately west of the B.R.X. property and straddling the Hurley River.<sup>1</sup>

Principal workings of the B.R. Consolidated property consist of two sets of underground developments, namely the Why Not and Forty Thieves. The Why Not adit is situated on the Why Not mining claim, and is linked by branch road to the valley highway near the B.R.X. camp (not shown on the map). The Forty Thieves group is located on the Ural claim and is served by an extension of the Arizona adit road. Neither group is at present in operation.

#### History

##### B.R.X.

The first claims were staked by F. S. Kinder in 1914 and 1915, and were known as the Jewess-National group. Jewess was the original

<sup>1</sup> Annual Report, Minister of Mines B.C. 1946, p.106A



name of the California vein-shear zone and National was that of the Gloria Kitty viens. For the next two years the area was favoured by extensive surface prospecting and limited underground work on the above-mentioned veins. Following this period activity ceased until in 1931 the newly formed Bridge River Exploration Company Limited acquired the Jewess-national group as a portion of its 38-claim holdings and did extensive work on the north end of the property, as well as further work on the California claim. During 1932 the company held an option on the B.R. Consolidated property and extended the underground workings on both the Forty Thieves and Why Not veins.

The company was reorganized in 1933 and took the name of B.R.X. Gold Mines Limited. During the following two years further underground work was done on the California vein. No. 5 and No. 6 levels were completed but failed to reveal more than the occasional patch of ore.

In 1935 the company again underwent reorganization and emerged as the B.R.X. (1935) Consolidated Mines Ltd. As such, the company, financed by French investors, has remained to the present day.

Following reorganization, work was confined principally to the main Arizona adit, until in 1944, when the California workings were reopened to permit diamond drilling from the lower levels. As a result of the diamond drilling the shaft to No. 6 level was extended and No. 8 level established.

As yet none of the B.R.X. developments have become productive but work is still continuing on the California vein.

B.R. Consolidated

The four original claims of the group, the Ural, Forty Thieves,

Elephant, and Why Not were staked in 1896 and 1897 and are among the first claims in the valley. Early exploratory work was done on both the Why Not and Forty Thieves veins. Reports indicate that exceptionally good values in gold were obtained from assays taken during the early work. In addition to a great deal of surface work, early exploration consisted of short adits driven in from the river bluff to explore both veins at depth.

Work continued on the Why Not vein until 1914, then subsided until taken over in 1928 by the Bridge River Consolidated Company. Under their direction further work was done on the Why Not adit and a new level, No. 2 Adit, was driven in on the Forty Thieves vein.

In 1932 B.R.X. acquired an option on the group and extended the underground workings of both veins.

The Consolidated Mining and Smelting Company did the latest work on the Why Not vein when, in 1933 and 1934, they extended the drifts to their present faces. Considerable diamond drilling and surface work was done during this period but did not reveal favourable results and the project was abandoned.

The Forty Thieves vein again came into attention in 1945, after a twelve-year period of inactivity, when the Bridge River Consolidated Company, reorganized as the Bridge River Consolidated Gold Mines Ltd., resumed work. The next two years saw the road to the Arizona adits extended to the Forty Thieves workings, eleven diamond drill holes completed, and No. 3 adit cross-cut and drifts driven.

Work stopped in 1946 and has not been resumed since.

## The Geology of the Area

### Formations of the Bridge River Valley

#### Fergusson Series

The Fergusson series is divided into two parts, the Fergusson sediments and the Fergusson volcanics.

The former consists of thin interbedded layers of chert and argillite, as well as massive chert in lenses up to several feet thick. Crystalline limestone is typical of the series and occurs in lenses sometimes as much as 100 feet thick.

The volcanics consist of lava flows and <sup>pyroclastics</sup> (pyroclastics), usually highly metamorphic, which helps distinguish them from the younger Pioneer volcanics. Lenses of crystalline limestone are characteristic of the volcanic phase as well.

*what about Noel Cairnes's opinion*

C. E. Cairnes assumes the series to be Permian in age.<sup>2</sup>

#### Pioneer Formation

The Pioneer greenstones, as they are commonly called, consist, principally, of lavas and pyroclastics, but also contain an intrusive phase which appears to be dioritic and is often difficult to distinguish from the later Bralorne intrusives.

The formation is considered to be Triassic or Jurassic in age.<sup>3</sup>

#### Hurley Formation

The Hurley Formation is composed for the most part of sediments

<sup>2</sup> C.E. Cairnes, Geology and Mineral Deposits of Bridge River Mining Camp, British Columbia, Geological Survey of Canada, Memoir 213, p.13

<sup>3</sup> Cairnes, Mem. 213, p.18

but also contains some volcanics, principally lava flows. The sediments consist of limestone, argillite, conglomerate, agglomerate and tuffaceous sediments. Typical of the Hurley sediments is the limy character of the rock which serves to distinguish it from other sedimentary formations of the valley.

Cairnes collected a number of fossils from the Hurley formation which, imperfect as they were, were identified by Prof. J. B. Knight of Princeton University as "...probably Jurassic or Cretaceous." Cairnes considers the age as Jurassic.<sup>4</sup>

Bralorne Intrusives

*Residual Intrusives?  
Bender Rocks?*

The Bralorne intrusives are divided into two classes, the diorites and soda granite.

The diorites consist of augite diorite, quartz diorite and gabbro. They vary from a coarse-grained rock to a fine-grained phase that is very similar to Pioneer greenstone.

Soda granite is composed principally of soda plagioclase (which is almost pure albite), quartz, and small amounts of chlorite and sericite. It is found in masses within the dioritic bodies and is considered to be of the same origin, though perhaps younger than the diorite.

The Bralorne intrusives are thought to be Jurassic in age, but younger than the Hurley formation.<sup>5</sup>

*General Structure missing*

Geology of the B.R.X. and B.R. Consolidated Properties

The area concerned lies between two major fault zones which bring the Fergusson series in contact with the much younger Bralorne

4 Cairnes, Mem. 213, pp. 20,21

5 Cairnes, Mem. 213, Map Legend

intrusives on the west and Hurley formation on the east. The western fault is believed, through observations made by Cairnes, to dip westerly and the eastern fault to the east.<sup>6</sup>

Immediately to the east of the western fault and following approximately the course of the river lies a belt up to 600 feet wide of highly sheared serpentine. East of this again on the northern half of the property is a band, nearly a half a mile in width, of Bralorne intrusive. This is principally diorite, but includes some soda granite. Just south of the Forty Thieves adits the band becomes indistinguishable between Bralorne intrusives and Pioneer greenstone, and as such continues beyond the south end of the property. The easterly portion of the area is almost entirely Pioneer greenstone, with the exception of the most northeasterly claims which are in the Hurley formation. Just beyond these lies the eastern fault (not shown on the map).

Many shear zones occur within the area itself. Principal among them are the California and Arizona shears, both of which strike northwesterly with dips  $45^{\circ}$  to  $55^{\circ}$  respectively. Most of the smaller groups of workings are on minor fault fissures which may or may not be related to the California or Arizona shears.

### The California Workings

#### A Brief Description of the Mine

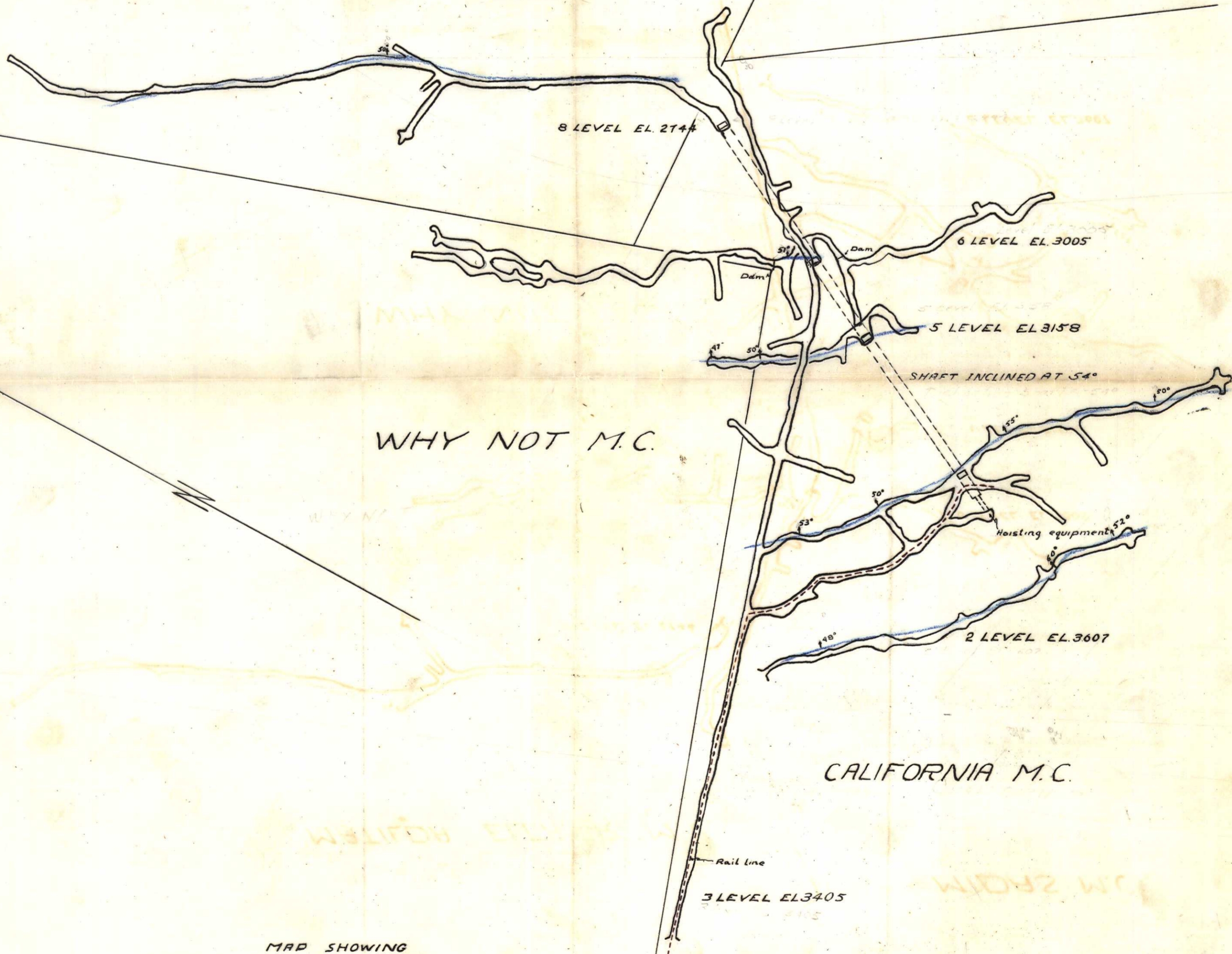
The California workings consist of two adits with a total of eight levels, six of which have been drifted upon.

<sup>6</sup> Cairnes, Mem. 213, p.96

CALIFORNIA MINEWORKS

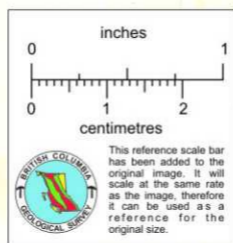
MATILDA ELEANOR M.C.

MIDAS M.C.



MAP SHOWING CALIFORNIA WORKINGS SCALE 1"=100'

California Shear



Map obtained through the courtesy of Dr. J.S. Stevenson B.C. Dept. of Mines

The upper adit known as No. 2 level is a 480-ft. drift which at present is used only as a storeroom. The main level, 202 feet below, consists of a long cross-cut from which over 1000 feet of drifting has been done in the past. At present the level serves as a haulage route for the muck-cars disposing of the muck brought up from the lower level. Electric hoisting equipment for the lift is installed in a room off the southern drift (see map).

A shaft inclined at  $54^{\circ}$  connects the main level with those below. From No. 5 level 270 feet below the main level, 300 feet of drifts have been run. No. 6 level consists of over 900 feet of drifts, most of which are filled with water as the result of dams installed in the drifts on each side of the shaft. No. 7 level is nothing more than a station just off the shaft. Present work is being done on No. 8 level where over 800 feet of drifting has been accomplished to date. There is a difference of 660 feet between this level and the main or No. 3 level.

At present the shaft is being extended and it is reported that another level will be established approximately 150 feet below No. 8 level.

#### The California Vein and Shear Zone

The California shear strikes generally northwest and dips northeast at between  $45^{\circ}$  and  $55^{\circ}$ . The shear-zone is quite variable in width from a few inches to many feet, but averages about four feet. The greater shear widths are observed where a split occurs, such as on No. 3 level at the head of the shaft. This split is not apparent in the lower levels and it is assumed that it converges in the intervening distance.

What is believed to be the California vein and shear zone is encountered along the east drift of the Why Not adit and seems to join

the Why Not vein. In the past high gold values were obtained from the junction of these two veins at the surface.

Quartz veins in the shear zone are not regular and continuous veins but rather lense-like in form. Widths of the lenses vary from a few inches up to four or five feet. Brecciated quartz is quite common and occasionally the veins display slickensided surfaces, all of which indicate post-mineralization movement along the existing shear plane.

Other mineralization along the shear zone consists of disseminated sulphides, some free gold, sphalerite and a few lenses of Jasper quartz on the lower level. It was reported that a considerable amount of massive chalcopyrite was encountered while drifting on No. 8 level.

Gold values as obtained from assays in the past have not been encouraging. Cairnes suggests two possible reasons for this.

The lack of more persistent higher grade ore is perhaps attributal to two factors:

- 1) the sheared character of the rocks along the vein zone, preventing thereby free and continuous passage of vein solutions and, in consequence, limiting the quantity of gold such solutions could supply; and
- 2) distance from the source, or off the main course, of the gold bearing solutions, as a result of which the solutions carried less gold a unit volume than in more favoured localities.<sup>7</sup>

Veins of the California shear are related to the Bralorne intrusives as are most of the important gold quartz veins in the valley.<sup>8</sup>

*why?*

7 C.E. Cairnes, Mem. 213, p.97

8 Cairnes, Mem. 213, p. 49



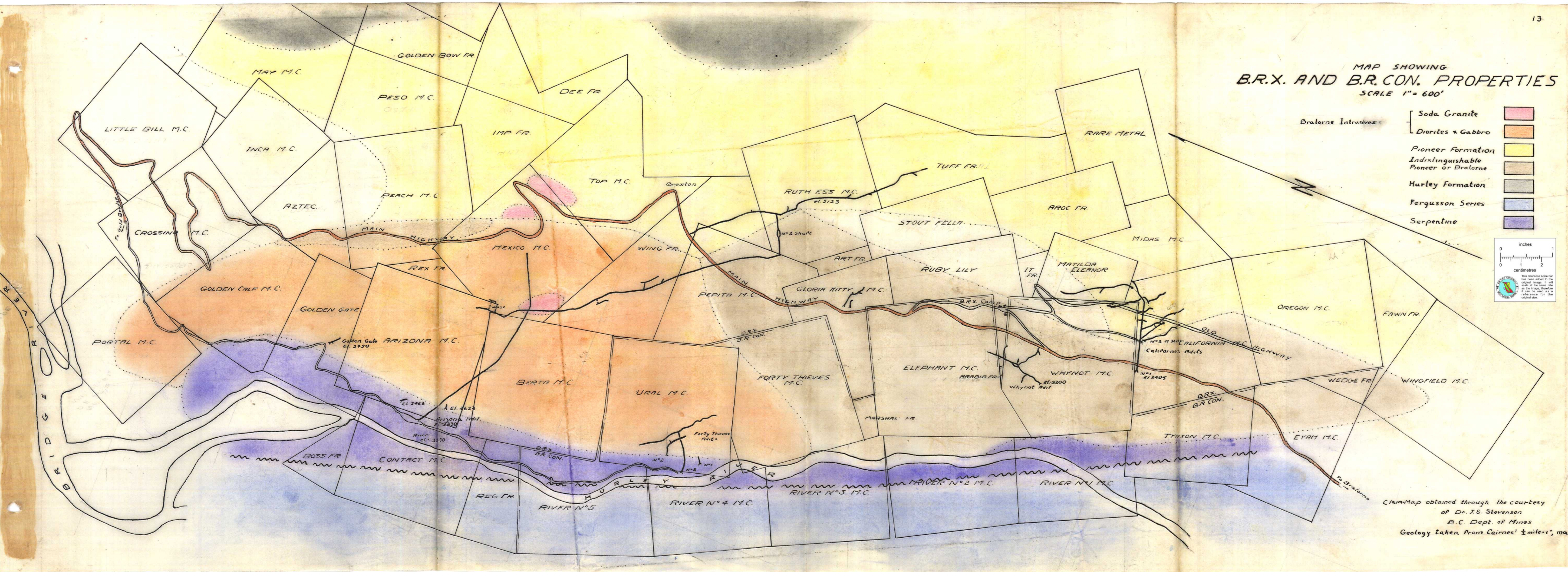
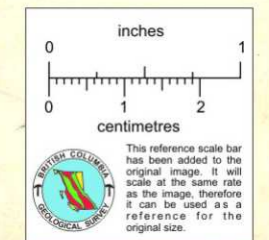
### Conclusions

The history of this area is one of alternating periods of activity and idleness, with many concerns and a great deal of capital involved. Six groups of underground workings, as well as a large number of open-cuts, indicate the extent of interest taken in these properties in the past. Since none of the developments have revealed commercial bodies of ore, and since only one is still in operation, it would appear that, in general, the results obtained were unfavourable. However, most of the exploration has been done comparatively close to the surface. Thus the possibility remains that the values may improve at a greater depth.

7 Evacuation of the proposed No. 9 level of the California workings may produce encouraging results. Should that be the case, it is likely that interest would again centre on the area. (*Sentence a transition*)

# MAP SHOWING B.R.X. AND B.R.CON. PROPERTIES SCALE 1" = 600'

- Bralorne Intrusives
- Soda Granite
  - Diorites & Gabbro
- Pioneer Formation  
Indistinguishable  
Pioneer or Bralorne
- Hurley Formation
- Fergusson Series
- Serpentine



Claim-Map obtained through the courtesy  
of Dr. J.S. Stevenson  
B.C. Dept. of Mines  
Geology taken from Cairnes' 1/2 mile = 1" map

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