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BRALORNE ORE RESERVES  
and  
Notes on Areas for Exploration  
in the BRALORNE MINE

Report Prepared for  
E & B Explorations Inc.  
of  
Vancouver, B.C.

March 31, 1982

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SUMMARY →

An ore reserve calculation of the Bralorne Mine was completed in March 1981 by W. Irvine and John DeLeen. This reserve was calculated on the ore blocks located between the surface and the 2600 level (the deepest level serviced by the Crown and Empire hoists). The calculations agreed within 10 percent of those completed in 1974 by the Bralorne staff. With the reopening of the mine in 1981, it was possible not only to <sup>check</sup> sample <sup>the</sup> but ~~also to check~~ areas of mineralization ~~not~~ included in the 1981 ore reserves. The resampling of selected blocks and the evaluation of the old Bralorne data has <sup>confirmed</sup> ~~and~~ increased the tonnage as <sup>noted</sup> ~~rated~~ below. A calculation of the ore reserves located below the 2600 level and the readily available ore reserves was also completed.

CONCLUSION →

The results of the calculations completed in 1981 and 1982 are as follows:

Above 2600 level + 0.14 Au/T

1981

Indicated Ore	656,635 T-0.24 oz. Au/T
Inferred Ore	27,980 T-0.25 oz. Au/T
TOTAL	<u>684,615 T-0.25 oz. Au/T</u>

1982

Indicated Ore	797,185 T-0.24 oz. Au/T
Inferred Ore	117,930 T-0.29 oz. Au/T
TOTAL	<u>915,115 T-0.25 oz. Au/T</u>

Inferred Ore below the 2600 level-~~349,755~~ 175,000 Tons-0.30 oz. Au/T

Above the 2600 level 0.10 to 0.13 oz. Au/T

1981

Indicated Ore	66,300 T-0.12 oz. Au/T
Inferred Ore	11,350 T-0.13 oz. Au/T
TOTAL	<u>77,650 T-0.12 oz. Au/T</u>

1982

Indicated Ore	73,280 T-0.11 oz. Au/T
Inferred Ore	26,670 T-0.12 oz. Au/T
TOTAL	<u>99,950 T-0.11 oz. Au/T</u>

"Readily Available" ore blocks above 2600 level + 0.14 oz. Au/T

1981 450,155 T-0.26 oz. Au/T

1982 525,860 T-0.25 oz. Au/T

## Review of Bralorne Ore Reserves

### INTRODUCTION

*heavy type*  
→

The ore reserves at Bralorne Mine were calculated in 1981 by W. Irvine and J. DeLeen. The calculations were based on the level assay plans as all but four assays sections of the old workings were missing. The ore reserve folders had been removed from the vault at Bralorne and despite numerous enquiries they have not been recovered to date. This data was missing in 1974, when N. Croome completed his review. However, Croome was able to examine the underground workings and determine if the blocks had been mined. Consequently, in the 1981 calculation only the unmined blocks, noted by Croome, were used for the calculation. The calculations of Croome and Irvine and DeLeen when converted to the same base agreed within 10 percent and are considered to be correct.

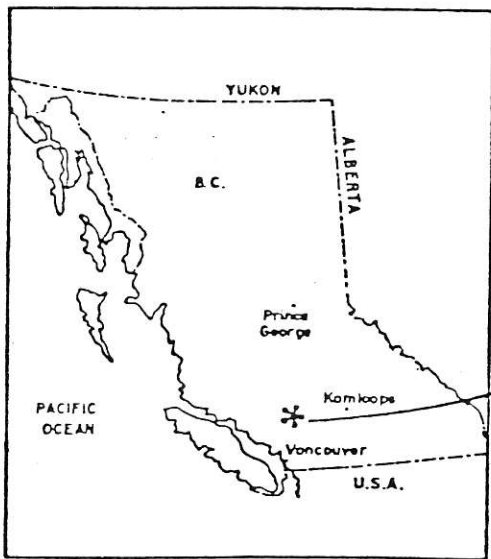
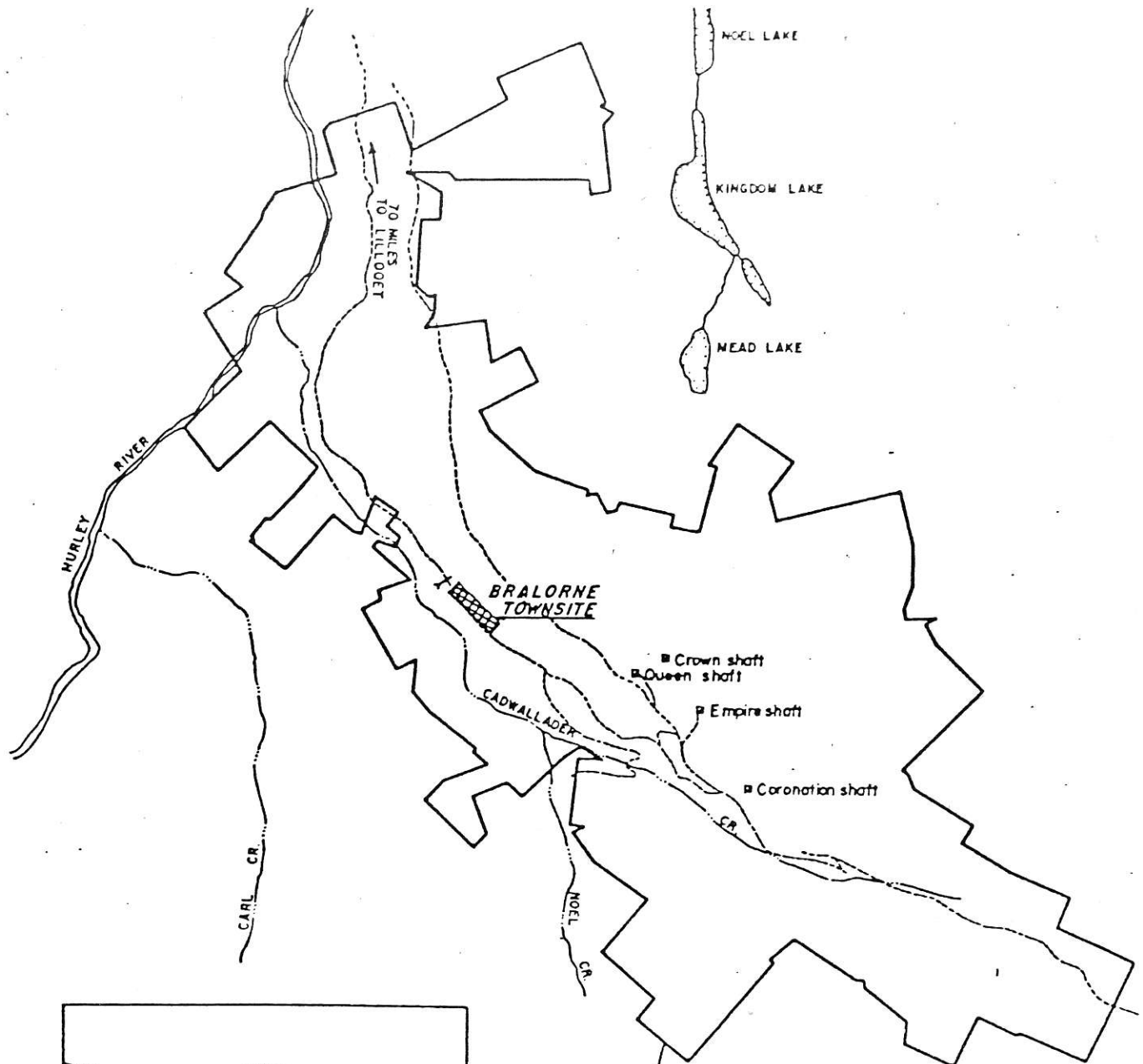
Since the Bralorne Mine has been reopened additional information has become available by the searching of the old records and by examination and sampling of the underground workings. This report, therefore, summarizes the known ore reserves at the Bralorne Mine to March 31, 1982.

### LOCATION

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The Bralorne Mine (figure 1) is located in the Bridge River area of British Columbia. It is approximately 160 kilometers due north of Vancouver at Longitude 123°00' and Latitude 50°10'. The site is 100 km west of Lillooet, B.C.

The access (Figure 2) to the Bralorne townsite is by vehicle on the Trans-Canada Highway to Lytton, thence to Lillooet and continuing on a gravel highway to Gold Bridge and

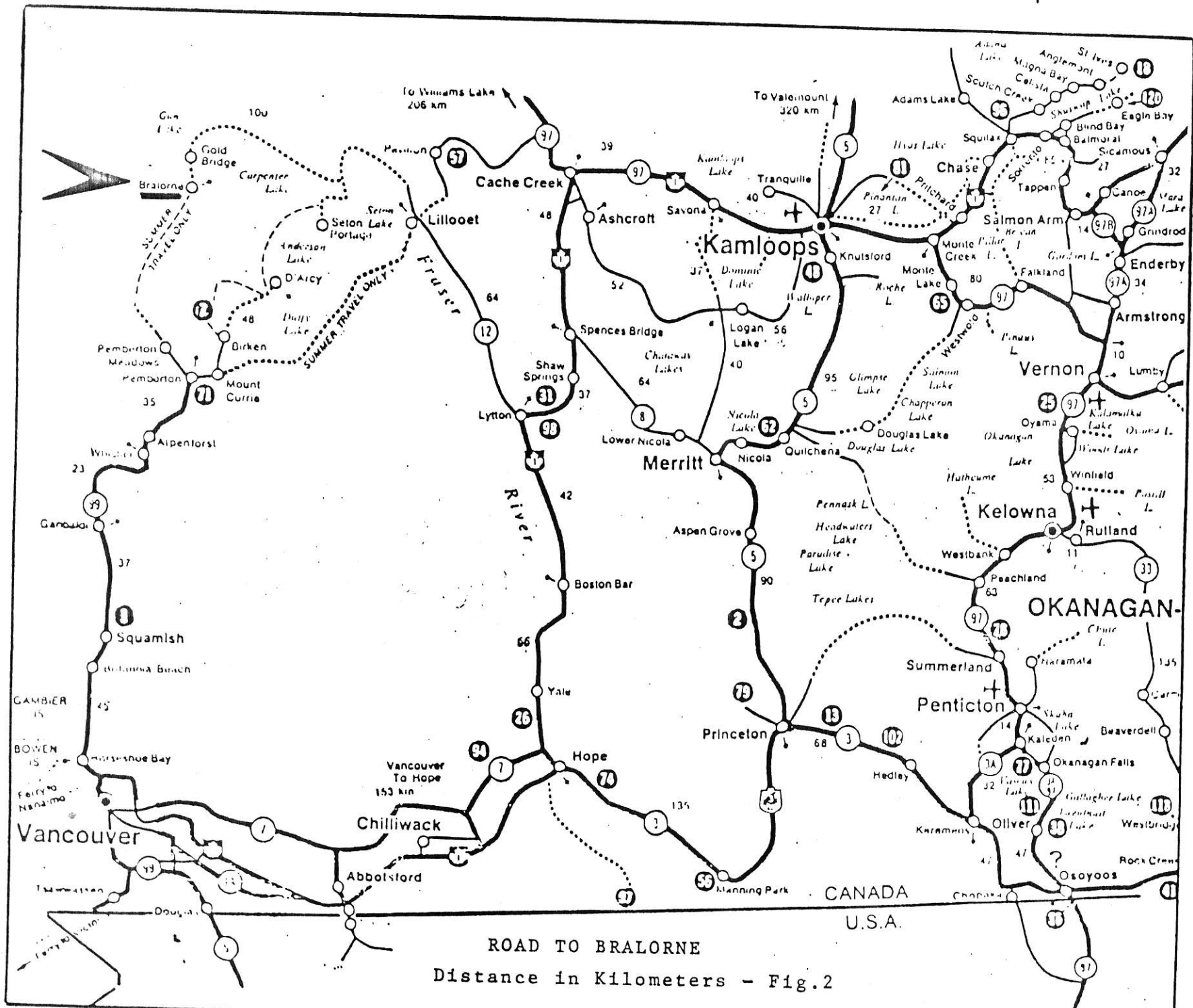


**BRALORNE PROPERTY**

E B B EXPLORATIONS INC.  
**BRALORNE PROJECT**  
 LILLOOET MINING DIVISION

1500 0 1500 3000 4500  
 MILES

FIGURE NO. 1



ROAD TO BRALORNE  
 Distance in Kilometers - Fig. 2

the minesite, a total distance of about 460 kilometers. The Bralorne Mine can also be reached by travelling Highway 99 to Pemberton and thence by logging road along the Hurley River to Gold Bridge and Bralorne.

#### GENERAL DESCRIPTION OF DEPOSIT

The Bralorne deposit includes the veins of the former King, Bralorne, and Pioneer Mines (see Figure 3). The holdings of Bralorne Project cover the majority of the producing veins in the area known as the "Bridge River Camp." A detailed report on the geology of the Bralorne area and mine was completed in 1964 by Dr. D.D. Campbell (Reference 7). Permission to include his report was obtained and it is included in Appendix 3.

The rocks in the Cadwallader Creek area are made up of a series of cherty sediments and volcanics (Ferguson Series of Permian age), which are overlain by the Pioneer Greenstones and the Hurley and Noel Formations of Triassic age. The assemblage of sediments and volcanics has been folded and intruded by a series of peridotite (now serpentine) gabbro, diorite, quartz-diorite, quartz and feldspar porphyries, soda granite and albitite.

Mr. F. Joubin (Reference 4), the former Pioneer-Bralorne geologist, reports "that the gold-bearing veins occur principally in the greenstones, to a lesser extent in the sediments in all of the intrusive rocks except the serpentine and the gabbro. The veins show a spatial relationship to the sodic intrusive rocks."

The veins have in general an east-west and north-south strike. The east-west veins dip to the north at angles of 60 to 80 degrees and the north-south veins dip to the west at angles of 45 to 60 degrees (see Figure 4).

The veins of the Bralorne property are located under the names of former mines as follows:

<u>FORMER MINE NAME</u>	<u>VEIN</u>	<u>REFERENCE FIGURES</u>
<u>King Mine (Fig. 3)</u>	808	6
	Shaft	6
	King	6
	Alhambra <del>Alhamlern</del>	6
<u>Bralorne Mine (Fig. 3)</u>	32	10
	51	6, 7
	51FW	6
	51B	6
	51B FW	6
	52	7
	53	6, 7
	53FW	6
	54	8
	55AHW	6
	55	6, 7
	59	6
	73	7
	75	7
	75HW	7
	77	7
	77B	7, 9, 10
	79	7, 9, 10
	85	7, 9
	93	7
107	7	
113	7	
Coronation	6	
<u>Pioneer Mine (Fig. 3)</u>	27	6, 7, 8
	Main	6, 7, 8
	Hanging Wall Veins	6
	Countless	5, 6
	Taylor	5, 6
Lean Lein Vein (Fig.8)	89	7, 8
	92	7, 8



5 LEVEL

6

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SEA LEVEL

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EMPIRE SHAFT PROJECTED

SURFACE

CROWN SHAFT PROJECTED

EMPIRE SHAFT

CROWN SHAFT

QUEEN SHAFT

'E' FAULT

FAULT

EMPIRE

SERPENTINE

101 Vein

71 Vein

93 Vein

85 Vein

78 Vein

79 Vein

77 Vein

51 Vein

53 Vein

55 Vein

55 Vein

52 Vein

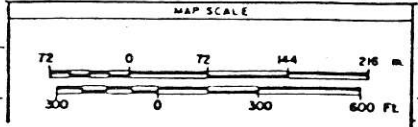
53 Vein

53 Vein

53 Vein

53 Vein

53 Vein



BRALORNE PROJECT

**SKETCH OF VEINS**

LOOKING SOUTH

MAP INDEX NUMBER	SCALE	DRAWING NUMBER
		4

The veins consist of quartz and contain minor amounts of sulphides, tellurides and usually fine gold. The majority of veins have widths varying from 0.75 to 1.5 m (2.5 to 5.0 feet) and the length of the veins varies from a few meters to thousands of meters horizontally and vertically. The ore-shoots are vertical and have a horizontal length from 50 to 100 meters (164 to 328 feet) and a vertical length which varies from 50 to 800 meters (164 to 2,625 feet).

Stoping of the ore was carried out by the former operators of the Bralorne Mine on the veins from the surface to the 4577 level, a slope distance of about 2.4 km (1.5 miles). There appears to be little change in the gold content of the veins in this distance. When the mine closed in 1971, the ~~gold~~ ore from the lower levels contained 0.57 ounces of gold per ton. It is estimated that 87,000 tons, of <sup>ore containing</sup> ~~about~~ 0.90 ounces of gold per ton, ~~material~~ remains below the 4577 Level on the 77 Vein. The total production from the Bralorne Mine

(including the King and Pioneer Mines) to March 1971 was 5,437,671 tons of 0.53 ounces per ton that produced 2,561,855 ounces of gold. The recovery from 1961 on was approximately 95 percent (see table 1).

DESCRIPTION OF VEINS

*as in the plus*  
*figures 5 to 10 in the section of this section.*

The ore reserves represented in this study are located on the margins, above or below old stopes. The ore blocks have grades which were not economic before the mine closed in 1971. The cutoff grade in 1971 was 0.3 ounces of gold per ton. Calculations for the individual reserves on each vein have been included in Appendix 1. The sections displaying the ore blocks have been included on figures 11 to 26 in Appendix 1.

The veins included in this report are as follows: ~~the veins~~ *in the calculations*

1. 51 Vein (figures 6, and 7) This vein, also known as the Empire vein, has been developed and mined from the surface to the 2600 level (see figures 11, 12 and 13). Only exploration has been carried out on the 2400, 2500 and 2600 levels (figure 13). The ore blocks are located on all levels from the 200 to the 2600 level. The vein has been mined over a horizontal distance of about 4000 feet and a vertical distance of 3900 feet. *This vein produced approximately 20 percent of the O/G for the Bullion mine.*
2. 51 FW (Footwall) (figure 6) This vein is located approximately 100 feet to the south of the 51 vein. The 51 FW vein appears to be parallel to the 51 vein. The 51 FW vein has a vertical junction with the 51 vein on the 400, 800 and 1000 levels approximately 400 feet southeast of the Empire shaft. To date, only development work and diamond drilling has been completed on this vein. The drill intercepts have been narrow but of a high grade. Additional work is to be completed on the 51 FW vein. No section was completed on this vein.
3. 51 B Vein (figure 6) This vein is located approximately 150 feet to the south of the 51 FW vein. Mining of this

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vein was continuous from the <sup>1000</sup>1500 to <sup>1500</sup>1000 level in the area located to the west of the Empire shaft (figures 14 and 15). Only minor amount of development drifting has been completed on the 400, 800 and 1000 levels. The drilling on this structure has proven it to be continuous and mineralized well beyond its exposed limits. Exploration is warranted on the 51B vein (~~see figures 14 and 15~~).<sup>see</sup>

4. 51 B FW (Footwall Vein) (figure 6) This vein is located 200 feet south of the 51B vein on 400 and 800 levels. Only a small tonnage has been mined (see figure 15). Drilling has proved the structure to exist from near surface to 1000 level. Additional work is to be completed on the 51B FW vein.

5. 52 Vein This is a deep vein and is located approximately 2000 feet southwest of the Crown shaft on the 2600 level (see figure 7). ~~It has been partially~~ <sup>A small tonnage of ore has been</sup> mined and developed between the 1800 and the 2600 levels. (Small exploration drifts has been completed on 1000 and 1400 level also.) In general, the vein is narrow but has sufficient grade to be mined at a 4 foot width. Only three small stopes have been mined to date (see figure 16). *This is an*

*important vein as it has only a minor amount of production. The drilling to date has indicated intercepts <sup>at 1500 feet</sup> above the 1800 level - indicating the extension of the 52 vein west*

6. 53 Vein (figures 6 and 7) The vein was mined vertically a distance of about 1200 feet and horizontally a distance of about 1600 feet. No exploration has been carried out below the main ore zone (see figures 13 and 17). A small ore block is outlined on the 2500 level. The top of the vein is exposed in trenches near the Bradian portal. The southwest side of the 53 vein is cut off by the band of serpentine. The depth extensions of the vein have not been investigated. *Approximately 5 percent of the ore has been mined from this vein*

7. 53 FW (Footwall Vein) (figure 6) This vein is not well developed. Consequently, only 2 small blocks of ore total 1280 tons containing 0.31 ounces per ton have been outlined on the 1200 level. *A cross section of this vein has not been completed.*

8. 55 Vein This vein appears to be the offset western portion of the 51 vein located on the western side of the Empire fault. It has a length in excess of 1000 feet and has been mined from the surface to the 1600 level (see figure 18). It has the largest number of "readily available" ore blocks and is expected to produce the first ore when the mine is reopened. *This vein has produced approximately 5 percent of ore for the Bradian mine*

9. 55 A HW (Hanging Wall) (figure 6) This vein has been partly explored on the 600, 1000, 1100 and 1200 levels. The four blocks outlined on these levels contain 10,250 tons of 0.25 ounces per ton gold ore. There is no section of this vein. Some exploration is warranted on this vein.
10. 59 Vein (figure 6) This is a cross vein which has a horizontal length of about 700 feet at its widest part. It has been mined from the surface to the 1000 level. The upper western portion of the vein has been displaced by the Empire fault. Exploration is to be carried out to determine the location of the offset segment of the vein (see figure 19). *This vein has produced a minor amount of the balance ore*
11. 73 Vein This vein has been developed from the 1200 level to 1700 level (see figure 14). It is a part of a complicated structure as can be seen on figure 14. The 73 vein joins the 51 B on the eastern side and the 75 HW vein at depth. Studies are being completed to determine if all of the segments of the 73, 51 B and 75 HW veins have been investigated and mined. On the 1400 level the 73 vein is located approximately 600 feet southeast of the Crown shaft. *This vein produced a minor amount of ore*
12. 75 Vein (figure 7) This vein has been mined over a vertical distance of 1500 feet and a horizontal distance of 1400 feet (see figure 20). Approximately 22 ore blocks remain to be mined. On the 1400 level the 75 vein is located 650 feet southeast of the Crown shaft. *This vein has produced a minor amount of ore*
13. 75 HW Vein (figure 7) This vein is developed below the 1800 level. It is a part of the complex cross structure system of the 51B, 73 and 75 HW veins. ~~The investigation by mapping, and drilling on the 75 HW vein is warranted.~~ The 75 HW vein appears on figure 14. It appears to continue above the 1800 level in the hangwall of the 75 <sup>vein</sup> ~~vein~~. Investigations <sup>by mapping and drilling</sup> are to be completed to determine the continuity of the 75 HW vein above the 1800 level.

TABLE I

PRODUCTION FROM BRALORNE MINE 1932 to 1971  
(Including Pioneer Ore after Merger in 1959)

<u>Year</u>	<u>Milled Tons</u>	<u>Head (Gold-Oz. per ton)</u>	<u>Oz. Bullion Recovered</u>
1932	32,657	.76	22,484
1933	54,283	.51	25,935
1934	98,664	.48	45,996
1935	145,113	.34	47,066
1936	167,264	.41	65,227
1937	170,686	.52	65,713
1938	180,526	.60	84,230
1939	184,922	.59	85,394
1940	191,412	.55	81,674
1941	191,970	.55	80,794
1942	171,095	.55	75,939
1943	118,462	.63	62,654
1944	109,751	.66	60,250
1945	105,283	.57	48,312
1946	64,534	.53	26,516
1947	133,047	.47	46,953
1948	148,119	.52	59,137
1949	178,995	.48	65,323
1950	185,074	.44	60,797
1951	168,194	.49	63,340
1952	175,005	.44	59,101
1953	185,168	.40	70,276
1954	181,494	.37	65,221
1955	166,831	.41	65,516
1956	131,662	.50	63,602
1957	141,192	.66	87,316
1958	145,558	.71	99,475
1959	142,122	.76	103,261
1960	153,482	.78	114,115
1961	154,040	.72	105,510
1962	149,998	.69	99,121
1963	152,601	.59	87,016
1964	153,080	.50	73,331
1965	115,731	.47	54,458
1966	105,813	.43	43,429
1967	97,332	.52	48,661
1968	100,660	.54	52,686
1969	94,396	.51	46,429
1970	76,545	.54	40,312
1971 Jan. to March, incl.	17,110	.57	9,275
	<hr/>	<hr/>	<hr/>
	5,437,671	.53	2,561,855
	<hr/>	<hr/>	<hr/>



14. 77-77B Vein (figures 7, 9 and 21 to 24 inclusive) This is actually 2 veins, the 77 and the 77 B. The 77 vein has been mined from about the 2500 level to the 1400 level. It is believed to be the Coronation vein at the surface. The 77B vein is a splitoff structure from the 1600 level to the 4500 level. The average of the assays on the 45 level was 1.1 oz. per ton across an average width of 6.4 feet for a length of 550 feet. Two drill holes (see figure 24) numbers 163 and 164 were drilled 100 and 200 feet respectively below the 4500 level. These holes contained 0.11 ounces of gold over a width of 6.2 feet and 0.12 ounces of gold over a width of 7.0 feet in holes 163 and 164 respectively. Consequently the inferred ore block located below the 4500 level is estimated to a depth of 100 feet to contain 18,600 tons of 0.70 oz. gold per ton. Exploration is warranted on both the 77 and 77B veins as they are continuous and usually contain gold values in excess of 0.3 ounces per ton across a mining width of 4 feet. The extension of the 77 and 77B veins are to be investigated by drilling and drifting. *These veins have produced ~~total~~ approximately 40 percent of the gold of the Boston Mine*
15. 79 Vein (figures 7, 9 and 10) This vein has been mined from the 1900 level to the 3500 level. Ore blocks remain on this vein from the 2000 to the 3800 levels (see figure 25). The uninvestigated portions of the 79 vein structure warrant exploration by raising between the levels. On the 2600 level the 79 vein is located approximately 100 feet northwest of the Crown shaft. There is a split *on the* <sup>2000</sup> ~~on~~ level and a drift has been driven on what appears to be the 79 FW vein. This drift should be extended to the Empire fault.
16. 85 Vein (figures 7 and 9) This vein has been sampled on the 2000, 2200 and 2600 levels. It has a north-south strike and a westerly dip. No mining has been carried out on this vein to date. Nine ore blocks for a total of 14,860 tons of 0.2 ounces of gold per ton have been developed on this vein. This vein has a strike and dip similar to the 27 vein in the Pioneer Mine. Exploration *by*



on the vein to the  
drifting north and <sup>the</sup> south on the 2000, 2200 and 2600  
~~on the vein to the~~ ~~the~~  
levels will have to be completed.

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17. 93 Vein (figure 7) This is a small vein located between the 2500 and 2900 levels. The workings on the 93 vein on the 2600 level are located approximately 1000 feet to the west of the Crown shaft. The 93 section, figure 26,

indicates a reserve of 30,145 tons of 0.58 ounces of gold per ton of ore. This tonnage has not been included as it is believed that this ore would have been mined. The possible extensions of the 93 vein will be investigated when the workings below the 2600 level have been rehabilitated.

18. 113 Vein (figure 7) This vein was found by drifting on the 2600 level in the drive to the 52 vein. The 113 vein is located approximately 200 feet to the south of the 52 vein. It has only been explored horizontally a distance of about 150 feet. The 113 vein appears to have the same east-west strike and northerly dip as the 52 vein. The 113 vein is located the farthest south in the footwall of the zone containing the Bralorne veins.

19. Coronation Vein (figure 6) This vein is believed to be the upper portion of the 77 vein. <sup>It is also believed to be the western extension of the countless vein</sup> It was partly mined through the old Bradian shaft. Additional work is warranted on the Coronation vein structures as there is a block of 2400 tons of 0.35 ounces per ton gold ore located below the 10 level.