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**DISCUSSION ON CASAMIRO  
RESOURCES CORPORATION  
- SHERWOOD MINE POTENTIAL -**

**OCTOBER 1, 1991**

**BY: T.P. RIORDON, P. ENG.**

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October 2, 1991

To: R. Thiessen, C.A.  
President, Casamiro Resources Corporation

From: T.P. Riordon, P. Eng.  
Consulting Engineer

Re: **Casamiro Resources Corporation-  
Sherwood Mine**

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The old Sherwood Mine now belonging to Casamiro Resources Corporation was expropriated by the British Columbia Government in September, 1988. The prime reason for this being that the property was entirely within the Strathcona Provincial Park boundary. A recent statement by the present government regarding their land use policy said "mineral exploration and development in parks is not allowed (with the exception of Westmin Operations in Strathcona Park). Compensation for mineral rights affected by this policy will be provided in a fair and equitable manner. No one will be deprived of rights they now have, without the benefit of due process under the law."

The writer has been retained to review available reports regarding the value of the property in question. In particular, since the

operating Westmin - Myra Falls Mine is also within the Strathcona Park boundary the writer has been asked to obtain all available information possible regarding original reserves and any other pertinent history which may have affected the operation.

#### 1.0 Previous Evaluation Reports

It is not the writers intent or mandate to reiterate information already documented in recent reports on the property by R.T. Heard, N.C. Carter, G.W. Heard '89/'91, or R. Glanville and Assoc. '91. Some comments, for emphasis sake however, may ultimately be worthwhile.

#### 1.1 Evaluation Report on the Sherwood Gold Mine Area by:

R.T. Heard, N.C. Carter, G.W. Heard. - Nov. '89.

From sampling and calculations done by this group and/or obtained from previous reports by Sargent and McDougall along with confirmation from a document produced by the British Columbia Ministry of Energy, Mines and Petroleum Resources, it seems that both agree on a possible reserve of  $\pm 50,000$  tons at a grade of 1.5 ounces per ton as being reasonable. Heard, Carter and Heard further expanded these reserves using their ideas on possible vein extensions, etc.

Based on sections of the Sherwood Mine it is quite clear to the writer that the original developers of this view were attempting to meet the 'professional standard' of opening three sides of an ore

block in order to establish a 'proven' ore reserve. This, according to Heard, Carter and Heard's section, was achieved between levels 3 to 7 where a raise connecting the levels formed the third and confirming side of several blocks of the vein. Assuming that acceptable sample spacing was done in the raises as well as the drifts with reasonable results, I can see no reason for not categorizing the ore zone or block, as proven or, at a minimum, ~~possible~~. *probable*

The writer finds no fault in the methodology used by Heard, Carter and Heard in predicting a possible geological reserve in the neighbourhood of some 500,000 tonnes. With respect to costs and recovery Heard, Carter and Heard have suggested a 'shrinkage' method of mining which I also believe would be the best, if not the only, method of approach. I do however think that the authors were ultra-conservative with their staffing requirements. They should be able to achieve better than two tonnes per man shift, particularly after the first stopping block is in a 'free-pull' situation. Re-thinking in this respect would enhance their calculated mine value somewhat. Their capital cost figures seem alright.

1.2 A valuation of the Sherwood Gold Mine - Property by R. Glanville & Associates - July '91.

On page one of his executive summary, Mr. Glanville states that the 'property is an advanced mining property since it has proven and

probable reserves'. This statement, though I think it is reasonably accurate, was not noted anywhere except by the Ministry of Mines. If the comment can be justified in court the property should immediately be accredited with the calculated value.

The review, Mr. Glanville set out, of several similar sized Gold Mines and their history of dramatic reserve increases is, in my opinion, very significant. I have personally been involved in the operation of small gold mines and find his comments to be most accurate. Another example is the Ptarmigan Mine in the Northwest Territories where reserves of a previously shut down mine were substantially increased with further exploration. Most gold mines have reserves which occur in pods or veins that are quite often elusive upon initial investigation. Generally gold mining companies will prove up enough reserves initially to pay for capital costs and a reasonable return on their investment. Once an adequately large and/or rich reserve was established to cover these costs a company will start mining with the expectation (hope) of finding further reserves as money becomes available for additional exploration work. Some discoveries in gold mining camps are just luck. The prime example of this being Erikson Gold where a major gold bearing vein was found while an adit was being driven to intersect a known vein at a lower level.

The fact that most mine reserves are increased well beyond those stated at the beginning of a mine's production is also shown by

Wright Engineering Limited in Mr. Glanville's Appendix III. Further to this, Mr. Glanville also shows (his Appendix IV) examples where possible and inferred reserves have, in fact, been given value.

With respect to Wright Engineering Limited's recommendation to spend \$2.3 million on further exploration and drilling of the Sherwood property, as with Mr. Glanville, also confuses me. Why would anyone recommend spending this kind of money if they feel the property was (\$10,000) worthless?

Mr. Glanville's D.C.F. calculations were well presented and easy to follow. I would suggest that after three to six years life some salvage value would be available unless the equipment used was old in the first place. Also, I'm not sure that the cost of rehabilitating existing mine openings was considered. His reduction of the N.P.V. of this property by 50% was quite conservative. Even though the Ontario Securities Commission recommends the use of 10% as a discount rate I would tend to agree with the use of a much lower number, as did Mr. Glanville, since in the case of gold, its price is theoretically tied to inflation and therefore should not change in 'real' terms.

The writer was most interested in Wright Engineering Ltd's. presentation to the Vancouver C.I.M.M. on October 29-31/87 (Glanville Appendix VIII). In concluding their report, W.E.L.

states that the only way to do a fair evaluation of a mine is to include 'possible' reserves. In addition they concur with Mr. Glanville that, for gold mines, a low discount rate should be used in a discount cash flow (D.C.F.) analysis.

1.3 Addendum to Evaluation Report on Sherwood Gold Mine Area by R.T. Heard and N.C. Carter - Sept ' 91.

This report does not add a lot of pertinent information to the case other than to note (pg 10 that the Ministry of Energy, Mines and Petroleum Resources reported the Sherwood Mine as having 4,500 tonnes of ore reserve at 51 g/tonne. This classification is not made unless reserves are proven or, at a minimum, probable.

2.0 Westmin - Myra Falls Operation

As Westmin's Myra Falls operation is within the Strathcona Park boundary and had been in operation since the early sixties, it was felt that some information regarding their thirty - year mining history would be of some value to the Casamiro - Sherwood mine case.

Westmin Resources was most helpful in allowing the writer an opportunity to discuss the history of mining at their Myra Falls operation with Mr. Bruce McKnight, Vice President, Corporate Affairs.

Prior to discussing the Myra Falls history, Mr. McKnight provided



the writer with a brief history (March 15, 1945) of the CanGold Mining and Exploration Company Ltd. (Appendix I) which owned the Sherwood Property during the 1940's. In this report the company defined and indicated an ore-body which contained 27,830 tons of ore averaging 0.5 ounces per ton which, assuming 95% recovery, would be worth approximately \$5 million in today's dollars. In summarizing this report, Mr. B.W.W. McDougall, consulting mine Engineer, states that 'based on the combined probable and possible ore reserve estimates, which I believe to be reasonable, the exploitation of this property.....should provide operating profits sufficient to ensure the return of capital required together with some margin.' Further to this he stated 'the occurrence of other ore shoots in the shear, and of other ore - bearing shears elsewhere on the property, are possibilities of equal and even greater importance.' He finally states that 'I am of the opinion that the exploitation of the Sherwood property is a promising mining venture.' Mr. McDougall subsequently re-iterated his enthusiasm over the Cangold (Sherwood) mine potential in a second report from the Western Miner and Oil Review, Dec. '61, (Appendix I).

Returning to the history of the Westmin operations at Myra Falls there are two short reports available; one by Mr. P.M. Reynolds, Apr. 27, 1982 (Appendix II) and the other by Mr. B.K. McKnight, September '81 (Appendix III).

2.1 History of Western Mines at Buttle Lake - P.M. Reynolds,  
April 27, 1982.

In this report Mr. Reynolds discusses his efforts to procure the mineral claims in the Buttle Lake Area in the late 50's. It seems that the total price he initially paid for the claims was \$125,000. In addition, they had staked 'in-fill' claims which established one large property.

With the results of prospecting the area and a report which stated that the property could be worth \$100 million they were able to convince Mr. Kiernan, the then Minister of Mines to get them the required permission to proceed with exploration. The drilling that followed showed that 'ore of a mining grade existed on the property'.

As with most new mining properties the financing of mill construction and mine development was a problem. A subsequent meeting with Mr. Harold Wright, president of Western Mines ended in a fairly lucrative deal for Mr. Reynolds and his associates when Western took over the property, in May '61. It should be noted that at this point there were no proven or probable reserves as per the '61 Western Mines Annual Report primarily because there was only information from surface exploration and several diamond drill holes at that time.

2.2 Myra Falls History, H.W. Mine - Stage I Report, B.K. McKnight  
- September '81.

This report (Appendix III) was done as part of a stage I report required for the development of Westmin's new HW mine. It noted that there was exploration activity in the areas of Lynx and Price in the early 1900 but this was curtailed between 1910 - 17 as there was a ban put on prospecting in the park. Further prospecting and staking was carried out in the area between 1918-20 but very little between then and the early 50's. During the 50's both Gramby and Newmont Mining drilled the Myra Creek area but turned it down.

In 1961 the Lynx, Paramount (Myra) and Price claims were optioned to Western Mines. Mining started in 1966, attaining a 1000 T.P.D. production level by 1967.

In the early days of milling tailings were deposited in a conventional surface pond but in April of 1967 they reverted to dumping tailings on the bottom of Buttle Lake. As levels of cyanide in tailings increased with high levels of lead production the pollution control board became more concerned despite the fact that reports from outside consultants in 1974 and 1980 indicated that tailings deposition was not making a significant contribution to the levels of dissolved metals in Buttle Lake.

In 1980 with the discovery of a major new ore deposit the government ordered Westmin to find alternatives to dumping in

Buttle Lake.

### 2.3 H.W. Zone

A brief discussion was held with Mr. Bruce McKnight regarding the initial discovery of the H.W. Zone, named after Harold Wright original president of Western Mines Ltd.

Along with three deep diamond drill intersections and structural compatibility , Engineers from Wright Engineering and Westmin advised that there was potentially 200,000 tons of ore between the 2500 and 3500 levels. This would be enough to pay for a shaft. As existing ore reserves were depleting quickly, Westmin decided to proceed with sinking the shaft on the information available. As of 1990's annual report the H.W. ore reserves were stated as 10.7 million tons.

### 2.4 Overall Reserve History

According to the Western Mines 1961 report to shareholders (Appendix IV), there were no proven, probable or possible reserves stated. In concluding the report, Mr. J.A.C. Ross, the company's managing director, stated that 'the character of the ore in the three main showings is unusually high grade thus negating the requirement of proving large tonnages to justify an economical producer. The possibility of establishing a small high grade mine is excellent and toward this end serious consideration will have to be given to an underground development program in the near future'.

In 1962 the report to shareholders (Appendix V) announced an indicated reserve of 1.487 million tons at Lynx and 100,000 tons at Paramount (Myra). By the end of 1990 the mine which was started on minimal (See Annual report, Appendix VI) reserves had processed over 12 million tons of ore and continued to maintain an 11 million ton reserve. Westmin has recently announced new drill intersections in their Gap zone and are proceeding with an access drift into that area. Mr. McKnight also emphasized to the writer that access and development of the Gap Zone will enhance the economics of potential ore to the west of the Gap Zone (See Appendix VII).

### 3.0 Conclusion

The old adage 'Mines are made not found' is ever so correct with most mines found. This is made even more clear when reviewing the history of Westmin's Myra Falls division. Like the present day Casamiro - Sherwood Mine, Western Mines took over Myra Falls options for a significant amount of money and shares based on surface evidence and relatively little drill information where two other major mining companies, Granby and Newmount had turned it down. It was only through the determination and risks taken by individual mining people within the company that the property ever developed into the major mining camp it has become today.

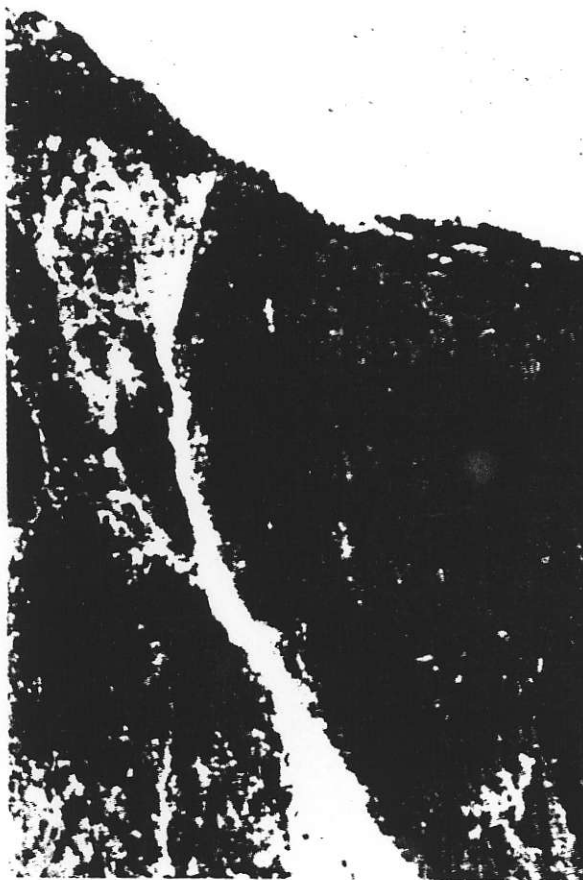
There is no reason, in the writer's opinion, and given the information available on the Sherwood Property to date, that the

potential for a similar operation would not exist if exploration and development of its known veins were allowed to proceed.

# CANGOLD

## MINING AND EXPLORATION COMPANY LTD.

(N. P. L.)



SLIDE IN WHICH SHERWOOD VEIN OUTCROPS

*Solicitors:*

REID, WALLBRIDGE, GIBSON & SUTTON  
208 Yorkshire Bldg., Vancouver, B.C.

*Head Office:*

711-712 CREDIT FONCIER BLDG.  
VANCOUVER, B.C.

*Auditors:*

RIDDELL, STEAD, GRAHAM & HUTCHINSON  
Vancouver, B.C.

*Properties:*

SHERWOOD MINE  
South Strathcona Park  
Vancouver Island

# CANGOLD MINING AND EXPLORATION COMPANY LTD.

(N.P.L.)

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## CAPITALIZATION:

Authorized Capital . . . . . 3,000,000 Shares  
Issued for Properties and Options . . . . . 500,000 Shares  
(Held in Escrow)  
Issued for Cash . . . . . 253,046 Shares  
Under Option @ 15 cents per Share net . . . . . 100,000 Shares

~~IN TREASURY 1,000,000 Shares~~

*OP TREASURY OFFERING AUTHORIZED....250,000 Shares  
a prospectus will be furnished for  
any applicant or subscriber.*

## OFFICERS AND DIRECTORS

Mark M. Connelly, M.L.A., Fraser Lake, B.C. .... *President*  
Robert B. Gayer, E.M., Vancouver, B.C. .... *Vice-President and Managing Director*  
Charles E. Bruder, Vancouver, B.C. .... *Secretary-Treasurer*  
Frank H. Putnam, M.L.A., Creston, B.C. .... *Director*  
E. L. Robson, Duncan, V.I., B.C. .... *Director*  
John R. Reed, Vancouver, B.C. .... *Director*  
J. T. Taylor, Vancouver, B.C. .... *Director*

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## TECHNICAL ADVISER

B. W. W. McDOUGALL, B.A., B.Sc., *Consulting Mining Engineer*  
416 Bank of Nova Scotia Building  
Vancouver, B.C.



## LOCATION

The property known as The Sherwood Mine comprises 23 claims and fractions, approximately 880 acres, situated in the Drinkwater Creek area about 36 miles northwest of Port Alberni. A good motor road connects Great Central at the eastern end of Great Central Lake with Port Alberni. The lake, about 20 miles long, supports important logging operations and barges and tugs are available to convey necessary machinery and equipment. A logging railway, extending some 5½ miles up Drinkwater Creek, has been dismantled and the rails removed. The matter of converting this railway grade into a good truck road will be a relatively inexpensive job. A good pack trail covers the 4½ miles between the end of the railway and the proposed mill site. This latter distance presents no serious obstacles to the construction of a truck road through to the property. In respect to topography, the Sherwood mine is readily accessible for development and exploitation.

## HISTORY AND DEVELOPMENT

The area in which the property is situated has been recognized as being gold-bearing for decades. With the rise in the price of gold the district assumed a new importance and following the developments of the Zeballos Camp where geological conditions are broadly similar some prospecting and claim staking took place. A number of promising discoveries were made, the most important being that of the Sherwood vein late in 1938.

During the early part of the war a rough camp was established in the valley and the vein was explored by three tunnels driven along the shear and a raise put up from the lower level. Surface features and shallow cuts indicate the shear extending at least 1,200 feet easterly from the portal of the No. 1 drift. This drift, approximately 2,400 feet above the floor of the valley, is driven along the shear a distance of 380 feet. Ore values are continuous from the portal inwards for a distance of 185 feet, ore widths vary from 1.3 to 4.3 feet with an average width of 2.44 feet carrying gold values of 1.09 ounces per ton. The No. 3 level, 200 feet below the No. 1 level, is driven along the shear a distance of 530 feet. Due to the slope of the mountain side the lode extends about 150 feet farther to the west on the No. 3 than on the No. 1 level. A continuous ore length of 260 feet is exposed, averaging 1.00 ounce per ton over an average width of 1.12 feet. On both levels a continuous shear structure is exposed along the full length of the drift and only approximately ¼ of the shear indicated on the surface has been explored.

This development work indicates an ore body estimated to contain 27,830 tons of ore, averaging 0.5 ounces per ton and having a gross value of \$535,727.50 at the present price of gold.

In addition to this shear zone other high grade outcrops are reported on the property. The company plans to carry out a full-scale exploration program during the summer of 1945. This will be directed at efforts to locate and uncover for accurate sampling and assaying the several high grade outcrops reported to exist along the western extension of the Sherwood Shear, and to carry out further development and exploration as is then warranted. In addition, the company's field and consulting staff intend to make a study of water power sites, locations for mill and tram lines, and to lay out the mine camp and town-site. This latter work will be done in order to facilitate the final detailed planning necessary in the construction of a mine plant and mill.

## FINANCING

The minimum subscription of 253,046 shares has been subscribed and \$30,000.00 placed in the treasury. A certificate entitling the company to commence business was issued to the company by the Registrar of Companies on the 7th day of March, 1945.

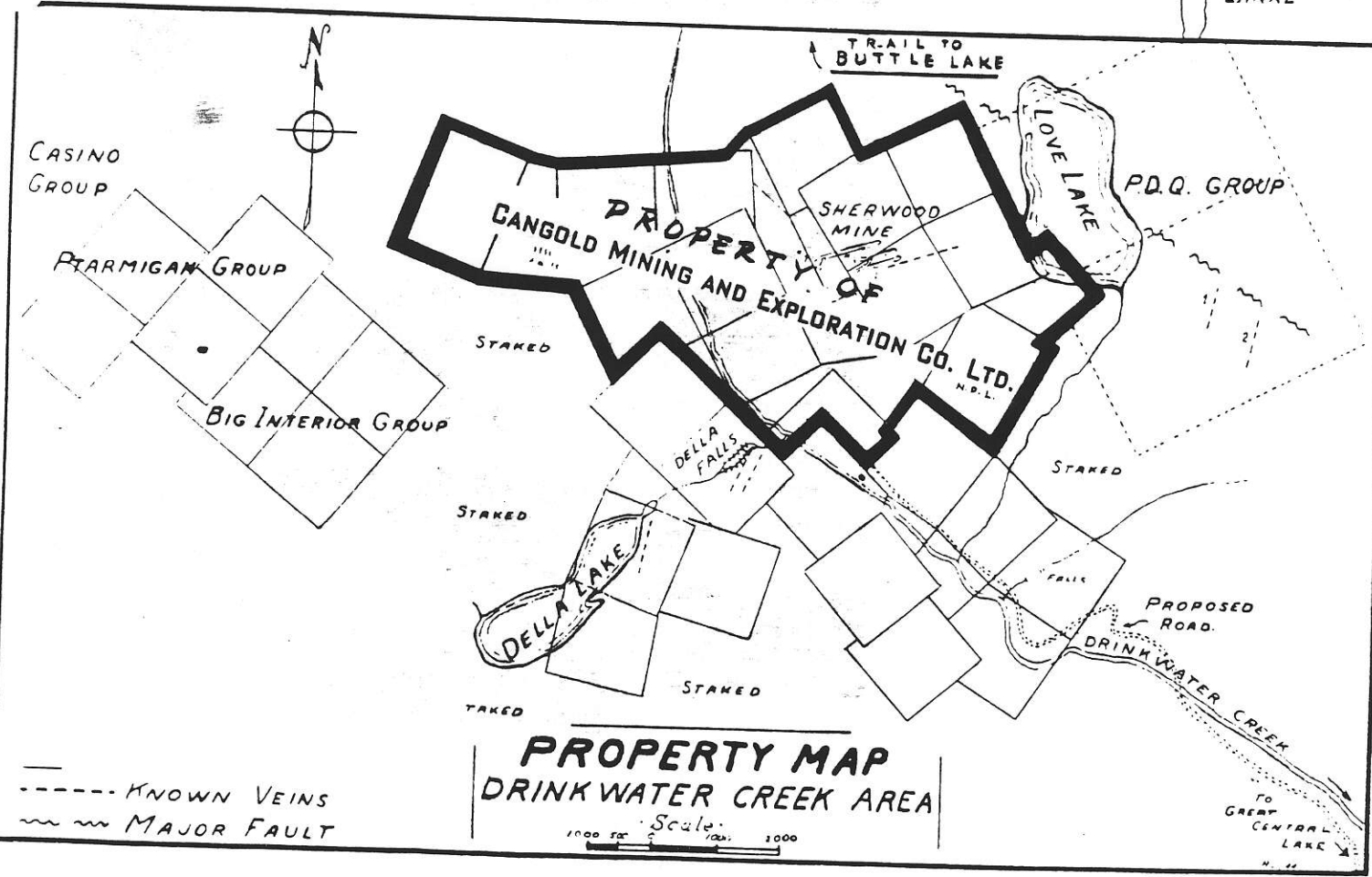
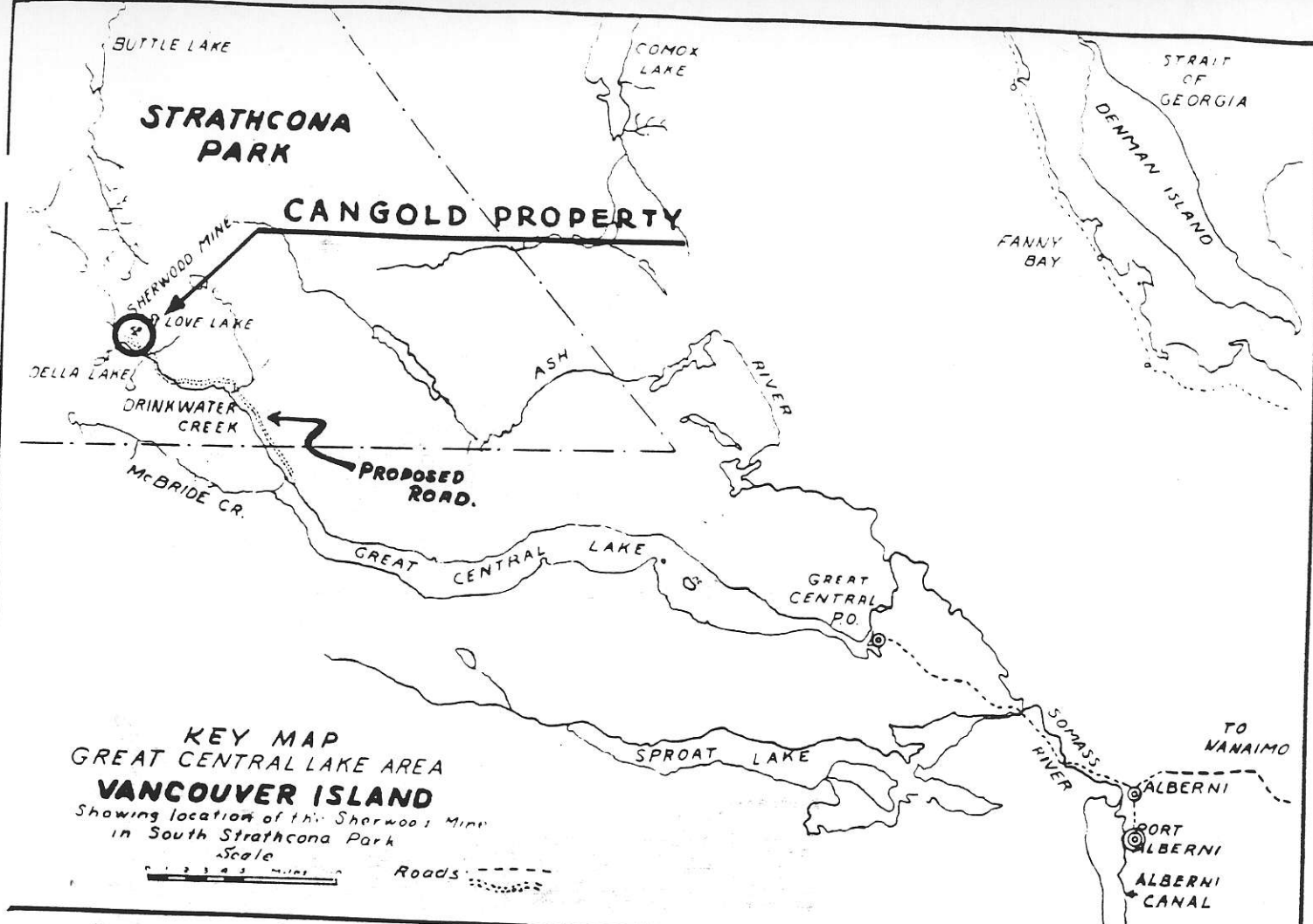
Although a mill is at present justified, wartime restrictions prevent its construction. The carrying out of further exploration and development, however, is fully warranted and is expected to substantially increase the known ore reserves.

## SUMMARY

An examination of the property "to determine the general mining merit of the property and the possibility of establishing a profitable gold mining operation on it" was made by Mr. B. W. W. McDougall, consulting mining engineer, in October of 1944, and on page 20 of his report he states that "based on the combined 'probable' and 'possible' ore reserve estimates, which I believe to be reasonable, the exploitation of this property, when operated under approximately pre-war conditions with respect to labour, equipment, and supply costs, should provide operating profits sufficient to insure the return of the capital required together with some margin," and on page 16 of his said report he further states "the occurrence of other ore shoots in the shear, and of other ore-bearing shears elsewhere on the property, are possibilities of equal and even greater importance." In the concluding remarks in his report on page 20, he states that "I am of the opinion that the exploitation of the Sherwood property is a promising mining venture."

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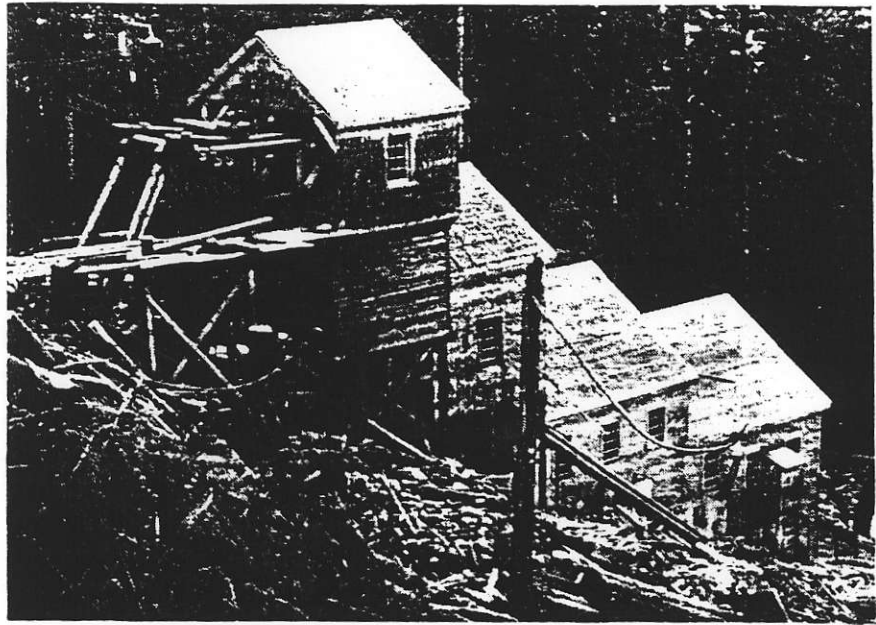
A Prospectus has been filed with the Registrar of Companies at Victoria and a copy thereof will be furnished upon request to any interested person.



# CANGOLD

MINING AND EXPLORATION COMPANY LTD.

(N.P.L.)



**Vancouver Island Gold Mill**

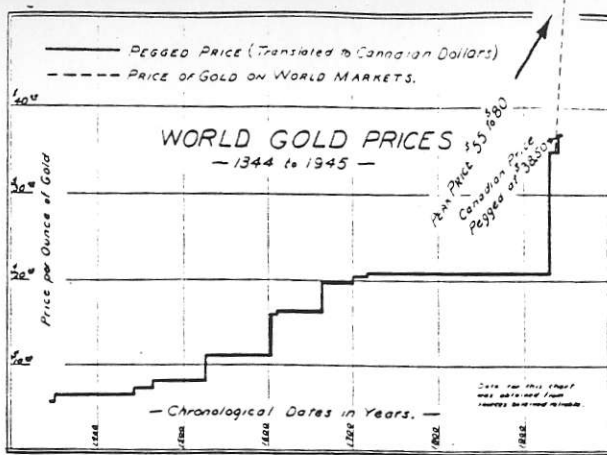
A view of a 50-ton Gold Mill on Vancouver Island. \$689,487.00 was recovered in this mill from January 1940 to July 1942, when wartime shortages of men and material caused it to close temporarily. Construction plans now being pushed call for the installation and operation of a similar plant on Cangold property by the 1st of September, 1946.

**\$10,000,000.00 FROM VANCOUVER ISLAND GOLD FIELDS IN  
LESS THAN TEN YEARS**

**Proven Producers Forecast Additional Successful Properties**

The Zeballos area, located some 70 miles northwest of the Cangold Property, has during the past few years, proven that rich and profitable mining districts exist on Vancouver Island. The Cangold property is located in a well-mineralized area broadly similar in geology to that of the Zeballos camp. Geologic features at present being studied in the Cangold area indicate that eventually properties equal to and even greater than those in the Zeballos area may be developed. A strong argument towards this is indicated by the fact that the veins in the Zeballos camp occur in the Grano-diorite rocks which are considered to be the source rocks of the mineral-bearing solutions which form the gold-bearing veins on Vancouver Island. These same Grano-diorites occur at a considerable depth (over 2000 feet) below the lowest development on the Cangold orebody.

This important fact and the discovery during the summer of several high-grade outcrops on the Cangold property, several of which were traceable for considerable distances, lead us to believe that this new area may prove to be one of the richest mining areas on Vancouver Island.



*Demand for gold throughout the centuries has maintained a steady rise in value in relation to the dollar. Present strong demands are forcing the free world gold markets higher and higher. Past experience shows that such action is always followed by an upward adjustment of the pegged price.*

## PRICES: PAST AND PRESENT

### Did you know that:

Gold was first mined over 5000 years ago and in the olden days was considered of great value. About the year 1351 A.D. a stabilized price was established which was equal in value to about \$6.37. During the succeeding years the price has been changed many times. The important fact of this evolution is that the price paid for gold on stabilized markets has never gone down. The trend during the past 5000 years has always been upwards. The fixed price of \$35.00 an ounce in the United States is the lowest price known to us in the world today. Gold on the open market in South America sells at about \$55.00 an ounce in U.S. money. In other parts of the world the price has varied up to \$80.00 an ounce.

### PRODUCTION

Production of gold in Canada in 1941 was valued at \$205,789,000 and in 1944 had dropped to \$112,532,000, the lowest point since 1933. It has been reported that from October, 1941, to the end of 1944, the United States' gold reserve declined \$2,200,000,000, or approximately 10 per cent.

### SENATOR McRAE

General A. D. McRae in a recent speech to the Senate said: "I look to the day, not so very far ahead, when, with an aggressive policy, we shall be producing \$500,000,000 worth of gold a year. Reduction of the stored gold has proceeded at such a rate that in March, 1945, the United States Government did not have enough gold to cover its currency issue at 40 per cent and therefore reduced the coverage to 25 per cent."

### GOLD ONLY STABLE COMMODITY

Senator McRae further stated: "Gold is the only commodity in the settlement of international balances." Gold does not perish or deteriorate and throughout the ages it has been found the easiest and only satisfactory way of settling foreign trade differences.

### CANADIAN FUTURE TIED TO GOLD

In summary, contrary to general opinion, it appears that there is in reality a scarcity of gold in the world today. The production of gold has not kept pace with the forever increasing demand for dollars or credit, without which one cannot do business. It should therefore, be seen that an increased production or an increased valuation of gold must in the future take place. We believe gold to be one of the most important resources in Canada today. In the re-establishment of foreign markets, particularly with the United States, it would seem almost imperative that we have gold to use in trade. If we are not to indulge in wishful thinking any longer, it is of vital interest to every Canadian that our Government be encouraged to help our gold mines in every possible way.



# CANGOLD MINE

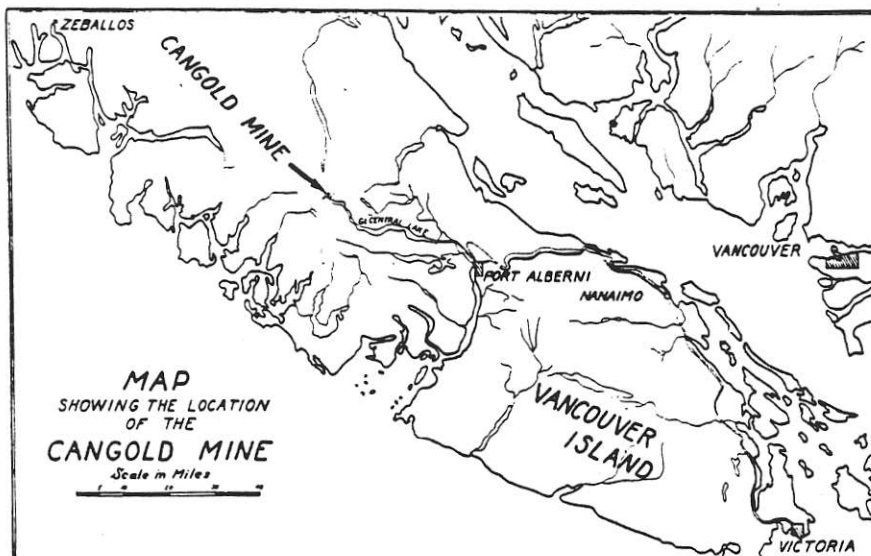
The Cangold mine is situated in the Drinkwater Valley, near the head of Great Central Lake, some 36 miles northwest of Port Alberni on Vancouver Island. The property, first discovered and staked by Walter Sherwood in 1938, has been developed by four tunnels and a raise driven on the vein. Development work on the vein to date has shown that substantially over \$500,000.00 worth of gold ore is indicated, while rich surface discoveries made during the summer of 1945, both above and below this ore-shoot, indicate that further orebodies may be developed with a minimum of exploration and development. Upon the recommendation of Mr. McDougall and Mr. Gayer, this work will be undertaken as soon as the mine is brought into production. Accordingly plans are being completed to build a 50-ton Gold Mill on this property with this unit scheduled for production by September 1, 1946. In the construction of this plant, allowances will be made to permit expansion to a larger tonnage as future exploration and development warrants.



This piece of "float", a 1945 Cangold discovery, shows a mineralized section, indicated near the prospector's pick, which has returned assays up to 4 ounces per ton in gold.

Decision to proceed to production was based on an original estimate of 27,830 tons of ore indicated in the main ore-shoot, having an estimated grade of  $\frac{1}{2}$  oz. of gold per ton, and called for the erection of a 50-ton mill. Recent bulk samplings of the Sherwood vein returned assays giving an uncut average of .95 oz. of gold per ton and indicate that a substantial increase in values may be anticipated when full-scale mining is started.

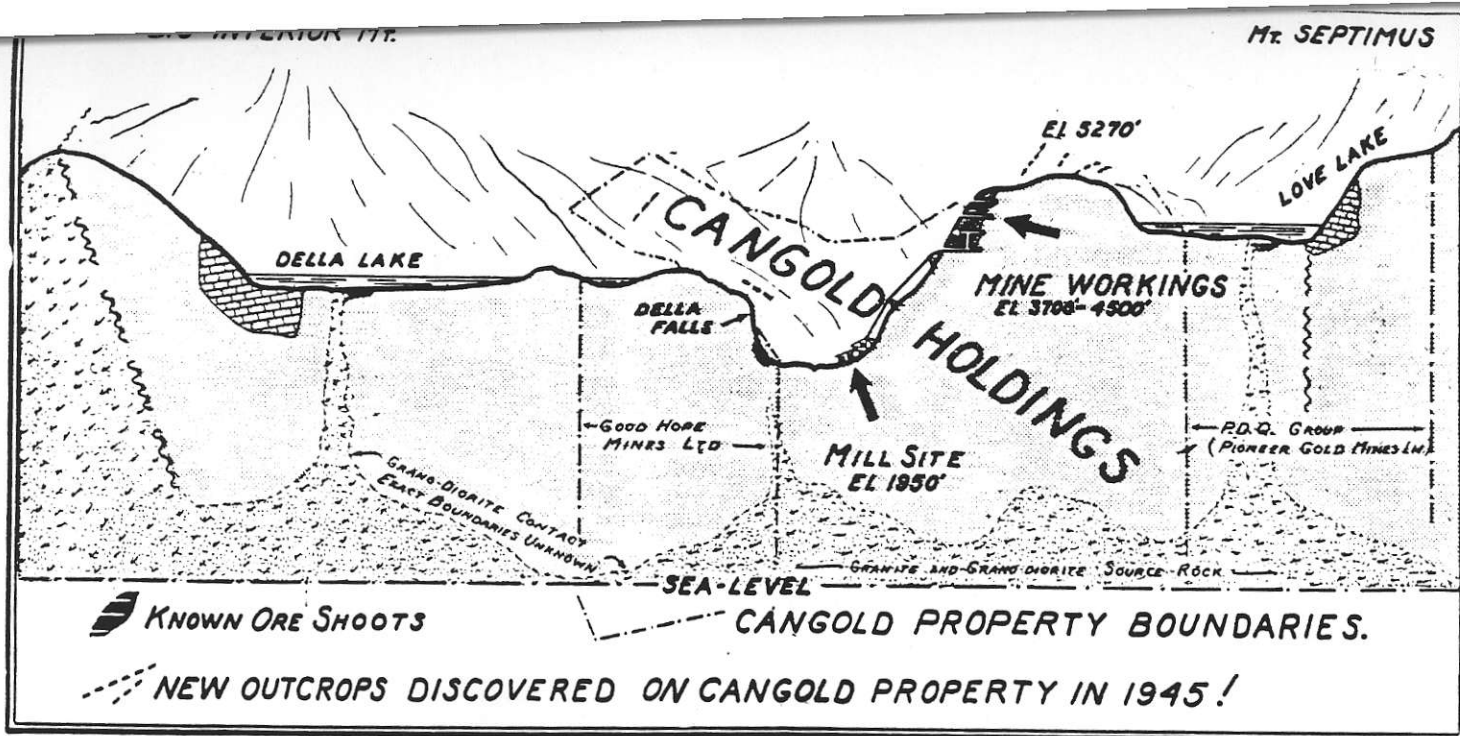
The operation will provide permanent employment for about 60 men, with up to 100 men at work during the construction period in the summer of 1946.



## Officers and Directors

The Company is headed by Mark M. Connelly, president; Robert B. Gayer, E.M., vice-president and managing-director, and C. E. Bruder, secretary and treasurer. Other directors are Mr. E. L. Robson, Hon. Frank H. Putnam, Mr. R. T. S. Phipps, Mr. J. T. Taylor and Mr. John R. Reed.

Mr. B. W. W. McDougall is Consulting Engineer and Geologist.



## GEOLOGIC CROSS-SECTION OF THE CANGOLD PROPERTY

This cross-section shows the relation of the present workings on the Cangold Mine to adjacent orebodies and the new discoveries on the Cangold property. The position of the new mill in relation to the main ore-shoot and adjacent properties is also shown.

## PRESENT AND FUTURE OUTLOOK

The Cangold Mine is particularly fortunate in that it has a partially developed orebody with sufficient development work done to warrant the immediate establishment of a mill and mining plant. This will permit cheap and thorough exploration of remainder of the shear zone as well as the many other orebody outcrops discovered on the property during the past summer's prospecting work. In referring to these discoveries and their bearing on the property as a whole, Mr. McDougall states: "It is of interest to note that gold-bearing sulphide mineralization on and in the immediate vicinity of Cangold occurs through a maximum altitude of about 3000 feet. In its relation to my original report the present one is intended to call attention to the exploration possibilities of portion of the property which has, as yet, had little prospecting attention and, *particularly to emphasize my belief that the N.E. extension of the Sherwood shear, beyond the limits of the present underground workings, has good ore-shoot possibilities.*"

# REED, SUTTIE & COMPANY

## STOCKS and BONDS

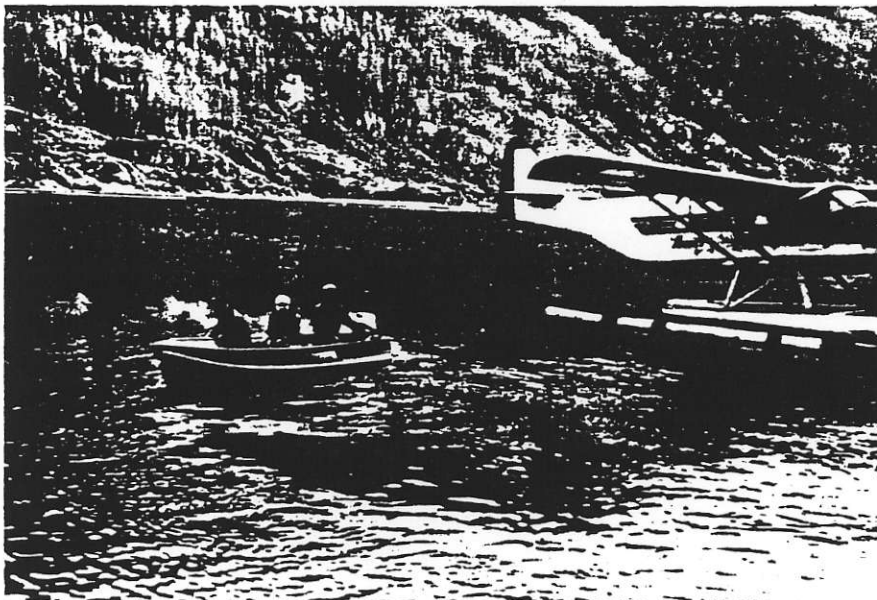
Phone MArine 1245

VANCOUVER, B.C.

839 West Hastings

The information contained herein is from sources considered reliable but is not guaranteed by us.

# High Grade at Buttle



**T**WO parallel ore zones and possibly a third have been outlined in drilling by Western Mines Ltd. in the Lynx zone of its multi-metal Buttle Lake prospect. The westerly vein, which showed good values on surface, was intersected in a shallow hole at a depth of 23 ft. where it showed a true width of 3.5 ft. assaying 0.16 oz. Au. and 7.7 oz. Ag. with 6.7% Cu., 7.4% Pb., and 27.6% Zn. A  $-20^\circ$  hole cut the same shoot at a depth of approximately 75 ft. where a true width of 18 ft. assayed 0.10 oz. Au. and 3.7 oz. Ag. with 1.4% Cu., 1.8% Pb., and 15.6% Zn., and a third hole from the same station, drilled at  $-45^\circ$  cut a true width of 11 ft. assaying 0.06 oz. Au. and 17.8 oz. Ag. with 1.4% Cu., 3.0% Pb., and 15.8% Zn. at an estimated vertical depth of 150 ft.

The zone to the east was cut by a shallow hole near surface where an intersection of 7.5 ft. assayed 0.05 oz. Au. and 3.6 oz. Ag. with 2.4% Cu., 0.8% Pb., and 9.6% Zn. and presumably by the extension of hole W8 (the hole that found the intermediate intersection in the westerly shoot) at a depth of 150 ft. below surface. Core suggests a grade comparable to the higher intersection. Hole W9 which made the deepest intersection in the west vein is being extended to explore the persistence of the east vein at an approximate depth of 300 ft. below surface. The third zone was indicated by an intersection in hole W9 between the two known zones. A 15-ft. length of core assayed .07 oz. Au. and 1.2 oz. Ag. with 1.7% Cu., 1.0% Pb., and 16.1% Zn.

On the Paramount group, adjoining and forming a part of the Western Mines holdings, previous work including 16 diamond-drill holes, 60 feet of crosscutting, and some trenching had indicated a zone containing 60,000 tons grading 0.13 oz. Au. and 7.70 oz. Ag. with 1.4% Cu., 1.6% Pb., and 14.0% Zn. in a block 200 ft. long by 200 ft. deep with an average width of 14 ft. Two new crosscut trenches 65 ft. apart have been cut by Western Mines and these suggest an orebody of considerably greater extent. The

The photo at top left is a peak in the Flower Ridge on the east side of Buttle Lake and the photo at top right is Myra Mountain on the west side of the lake. All other illustration depicts scenes at Buttle Lake, the Western Mines camp, and Myra Falls.

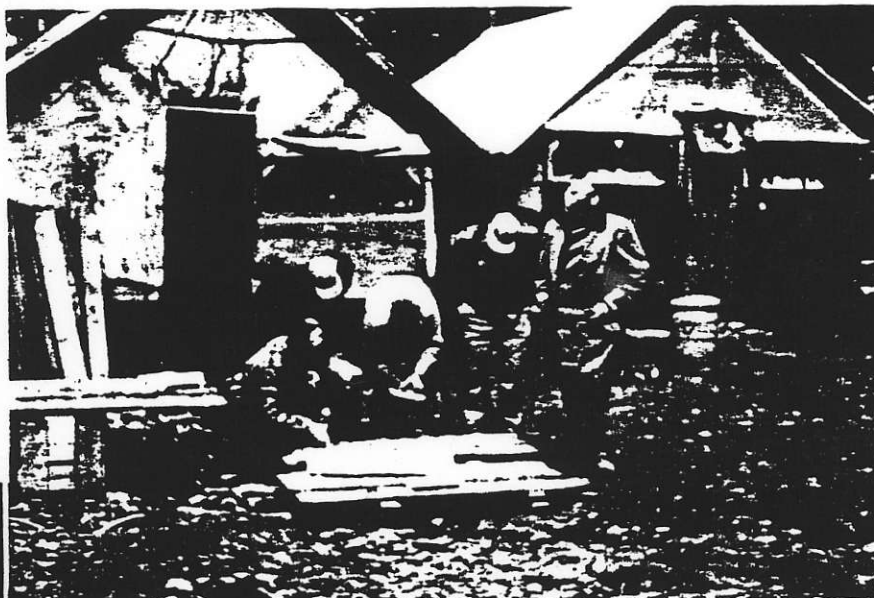
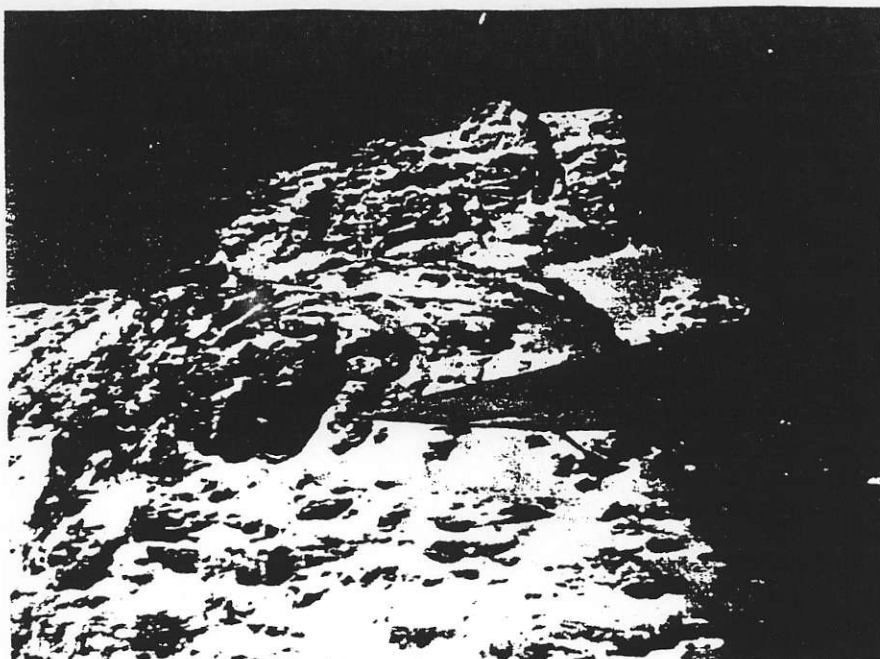


# Ore Found Lake Mine

first averaged 0.13 oz. Au. and 4.6 oz. Ag. with 1.08% Cu., 1.04% Pb., and 10.0% Zn. over a width of 35 ft. and the second, 0.11 oz. and 5.35 oz. Ag. with 2.80% Cu., 1.13% Pb., and 13.80% Zn. over 25 ft. Short diamond-drill holes have recently indicated the major ore structures may dip flatly into the hillside and drilling is being continued to determine the actual dip.

Mr. Ross concludes his report:

"The results of the modest programme completed this year have been encouraging and suggest definite possibility of developing substantial tonnage of good-grade ore, particularly in the Lynx zone. The character of the ore in the three main showings is of unusually high grade, thus negating the requirement of proving a large tonnage to justify an economical producer. The possibility of establishing a small high-grade mine is excellent and toward this end serious consideration will have to be given to an underground-development programme in the near future. The present drilling programme, which includes widely-spaced holes, will be completed before planning an underground programme, as larger ore zones may be found and thus indicate more advantageous locations for underground work".





MEMORANDUM TO: J. A. McLallen

FROM: P. M. Reynolds

Re: History of Western Mines at Buttle Lake.

Unfortunately I have not retained the old files leading up to Western Mines' involvement at Buttle Lake and as a result I can not give the exact dates on which each of the following events occurred:

1. In the late 1950's Mr. Art Hall, a geologist who had worked with us on the Boss Mountain property, recommended that our group should attempt to acquire certain Crown grants on Vancouver Island at Buttle Lake. He advised us that the main grants were held in the Estates of Bickle and Errington at the National Trust offices in Toronto.
2. Mr. Heustis and I were going to Toronto on other business and we took with us a letter of introduction from Mr. Fred Brown, Vancouver Director of National Trust, to the Manager in Toronto.

While in Toronto we entered into an agreement with National Trust with respect to the said Crown granted mineral claims for a total purchase price of \$75,000, \$7,500 in cash and the balance in instalments. I wrote my personal cheque for \$7,500 and brought back a brief letter of agreement.

3. Several years prior to the acquisition of the Bickle and Errington Crown grants by me on behalf of our group, Mr. Art Hall had worked on Vancouver Island with a Mr. Miller who was a prospector residing in Victoria. Mr. Heustis and I accompanied Mr. Hall to Victoria, where we met at Mr. Miller's home and entered into a purchase agreement with him with respect to Crown grants which he held adjacent to the Bickle and Errington claims. The purchase price was \$50,000, \$5,000 in cash and the balance in instalments. I wrote my personal cheque to Mr. Miller for \$5,000.

On returning to Vancouver, Mr. Hall and I met with Mr. Tom McQuillan, who held Crown grants adjacent to those acquired. We purchased Mr. McQuillan's Crown grants from him for a sum of \$25,000 by paying him \$2,500 in cash and agreeing to pay the balance in instalments. I wrote my personal cheque for \$2,500.

4. I now had an outlay of \$15,000 and I approached Messrs. J. A. and W. H. McLallen with the proposal that they each reimburse me the sum of \$5,000 and that we each contribute an equal amount for staking of additional claims and an exploration program. They agreed, and we formed a partnership consisting of Messrs. J. A. and W. H. McLallen Art Hall, Spud Heustis and myself, who would each share equally in any benefits derived from the venture.

5. On behalf of the partnership, we engaged two prospectors and under Mr. Hall's direction they did in-fill staking.
6. Since the property was located in a Provincial park, no exploration could be undertaken before acquiring various permits from the Provincial Government. Mr. Heustis and I met with Mr. Ken Kiernan, the then Minister of Mines, and took with us a report written by Mr. Art Hall wherein he strongly recommended that the area be prospected and stated firmly that in his opinion a mine could be developed. He went so far as to say in his report that the property could produce a gross value in excess of \$100 million in minerals and when he handed me the report he said "It will take a lot of money to prove me wrong".  
Mr. Kiernan was impressed with Mr. Hall's report and he telephoned to other Ministers and Department heads and as a result of his overtures we received the necessary permission to proceed with exploration.
7. Mr. Hall personally arranged for a diamond drill with a crew and stayed with the property while drilling proceeded. Messrs. J. A. and W. H. McLallen and I provided the money in equal portions.
8. The drilling showed that ore of a mining grade existed on the property. A substantial amount of money would now be required to do further exploration and it happened to be a time when interest in mining ventures was at a low ebb because of low metals prices. We presented the property and Mr. Hall's report to several major companies in Eastern Canada but did not arouse much interest.

At one of our strategy meetings Mr. Hall said that what we should do if we couldn't get major financing was erect a 50 or 100 ton mill and begin mining. He stated that we might not make much money on the venture but we certainly couldn't lose.

9. Shortly after Mr. Hall's advice to instal a small mill to start with, I was walking down Hastings Street near the B.C. Chamber of Mines office when I met Mr. Harold Wright. We chatted for a while and finally I asked him if he knew where we could beg, borrow, steal or trade for an interest in the property, a 50 or 100 ton mill. After asking me what I had in mind, he told me that he was involved with a small company called Western Mines which had a 100 ton mill at Greenwood, B.C. which was not in operation. A day or so later Mr. Jerry Wood, who was a Director of Western Mines, came to my office where Mr. Heustis and I met him and let him see the material which had been provided to us by Mr. Hall. Mr. Wood was very interested and a few days later suggested to us that it would be wrong to put a small mill on this property as it had vast potential.

Shortly thereafter we negotiated a deal with Western Mines whereby they would pay us \$20,000 in cash, give us 250,000 shares of Western Mines, and would take over the responsibility of paying the \$135,000 owing on the Crown grants purchased from the Bickle and Errington Estates, Miller and McQuillan.



## Inter-Office Memorandum

**Date:** April 21, 1988

**Copies to:**

**To:** Lance Tigert (sent by fax)

**From:** Bruce McKnight

**Subject:** MYRA FALLS HISTORY

This is a draft of the history section which I prepared for the H-W Stage I Socio-Economic - Environmental Assessment Report in 1981.

A handwritten signature in cursive script, appearing to be "B. McKnight".

BKM/pf

Attach.

HISTORY

Although there had been long and active coal mining in the Nanaimo-Comox area since the 1860's and copper mining and smelting on Southern Vancouver Island and on Texada Island during the early 1900's, actual commercial mining in the Buttle Lake - Quinsam River Campbell River District didn't start until the late 1940's.

Prospecting in Southwestern B.C. became very active in the 1860's and 1870's with the influx of miners spurred by the Cariboo gold rush. By the turn of the century, prospectors and miners had carried out considerable work on Southern Vancouver Island, Texada Island, Quadra Island, Menzies Bay and Quinsam Lake. The showings on Lynx and Myra Creeks, near the South end of Buttle Lake were first reported in the early 1900's but a ban on prospecting in the Strathcona Park reserve during the period 1910-1917 halted any further activity during this interval. In the meantime, prospecting and mining activity were carried on various Quadra Island copper and precious metals prospects, Quinsam Lake area iron deposits and on the Big G and Sumpter claim groups in the vicinity of Upper Campbell Lake. Small shipments of copper ore from Quadra Island and Big G were sent to the Tye smelter at Ladysmith or to the Britannia Mine for concentrating.

With the lifting of the Strathcona Park Reserve prospecting ban in 1917, activity at the south end of Buttle Lake recommenced and 40 claims were staked during 1918 and 1919. The Paramount Mining Company was active in the Myra Creek area during the period 1919 to 1929, carrying out prospecting, trail and cabin building, diamond drilling and trenching. During the same period, adjoining properties covering the Lynx and Price showings were staked by Messrs Cross and Du Bois, who carried out prospecting activities through the 1920's and formed the Price Creek Mining Co. in 1929. Meanwhile, active prospecting continued on Quadra Island and a little in the southeast corner of Strathcona Park, west of Comox Lake; a few tons of Quadra ore were shipped to the Anyox smelter in 1927. During the 1930's with the recession-induced low metal prices, prospecting activities in the Buttle Lake region became dormant and were reduced on Quadra Island as well. Quadra activity increased somewhat during WWII and a few tons of copper-gold-silver ore were shipped to a smelter.

Modern mining in the Buttle Lake - Quinsam - Campbell River area really commenced after WWII. In 1948, the Coast Iron Co. Ltd. acquired the Quinsam Lake magnetite deposit at Iron Hill and shipped a few tons of ore to a smelter at Wenatchee, Washington via barge from Duncan Bay. The Argonaut Co. Ltd. obtained an option on the property in 1949 and began exploration and development later that year. By 1951 they had built a concentrating plant, completed 23 miles of road, constructed a loading wharf at Tye Spit and commenced commercial mining, concentrating and shipping of iron concentrates. During the interval up to 1957, when operation ceased, they mined 4.027 million tons of ore, 2.66 million cubic

yards of waste and shipped 2.194 million tons of iron concentrates. At the peak of operations 125 persons were employed. At the same time, copper exploration was being carried out by Indian Mines in the Menzies Bay area; in 1955 and 1959 a few tons of ore were shipped to a smelter at Tacoma, Washington and to the Cowichan copper concentrator.

Exploration resumed in the Myra Creek area in the 1950's with diamond drilling by the Granby Company in 1952 and another optioning group in 1959-60. In 1961, the Lynx, Paramount (Myra) and Price Claims were optioned by Western Mines Ltd. and during the period up until 1964 detailed surface and underground exploration and development was undertaken by Cominco, a major shareholder of Western.

Upon completion of a favourable Feasibility Study in 1964 and the obtaining of financing and government permits in 1965, Western Mines made the decision to build a 750 tpd concentrator and start commercial mining. Later that year, Western began large scale barging of equipment up Buttle Lake from the end of the road and concurrently began construction of a highway along Buttle Lake to the minesite. At the same time Western started stripping waste rock in the open pit, building a hydro-electric facility on Tennant Creek and refurbishing the old Argonaut shipping terminal at Tyee Spit. By this time 134 men were employed and a 300 man camp had been assembled.

Intermittent production from mainly the Lynx open pit commenced in December 1966 and by April 1, 1967 full scale production was attained at an average rate in excess of 1000 tpd. After an initial testing period, when tailings were deposited into a conventional surface pond, in April 1967 tailings deposition on the bottom of Buttle Lake commenced; the terms of Western's deposition permit required periodic monitoring of the effluent and the lake water. Initially, Western produced copper, zinc and bulk lead-zinc concentrates up to September 1967, but then halted the bulk concentrate production because of metallurgical difficulties. At the same time, financial problems forced Western to indefinitely defer it's plan to build a townsite on the east shore of Buttle Lake.

As the mining at Lynx progressed deeper, and a higher proportion of lead-bearing underground ore provided feed for the mill, in 1970 a lead circuit in the mill was established. Lead concentrate production increased markedly from 931 tons in 1970 to 8,803 tons in 1973 as the Myra Mine came into production with attendant increase in cyanide content in the tailings. In response, Western built an alkaline-chlorination plant to neutralize the tailings although it did not perform satisfactorily until 1975. Since 1974, the B.C. Pollution Control Board standards for Western Mines have been made more stringent and in some instances Western has had difficulty in meeting them; although independent reports prepared by outside consultants in 1974 and 1980 indicated that tailings deposition was not making significant contribution to the levels of dissolved metals in Buttle Lake. Despite these assurances, there was still considerable environmental concern regarding Western's operations being expressed by both government and citizen groups.

In 1980, Western discovered a major new ore deposit in the vicinity of its existing operation, and the government in anticipation of a greatly increased production rate and mining life for the area ordered Western to undertake investigations of alternative measures to dispose of tailings besides dumping into the lake. By September 1981, Western Mines, which was now renamed Westmin Resources Ltd., had carried out three conceptual tailings disposal schemes and had one pilot deposition operation in progress as well as an expanded water quality monitoring program. Westmin had also taken steps to improve current effluent quality by upgrading diversion ditches to keep run off water out of the mine, recycling mine drainage water into the mill for process water and treating the excess with lime to neutralize it and, on an experimental basis, passing the effluent stream from the alkaline-chlorination plant back into the mine drainage system for treatment. These measures appear to have reduced the quantity of effluent and improved its character considerably.

By the end of 1980, the company had mined and milled a total of 4.6 million tons of ore and produced and shipped approximately 230,000, 71,000 and 537,000 tons of copper, lead and zinc concentrates, respectively, to smelters mainly in B.C., USA and Japan. The quantity of metals recovered and payable to the end of 1980 is estimated to be as follows:

gold	300 thousand ounces
silver	8.3 million ounces
copper	118 million pounds
lead	51 million pounds
zinc	495 million pounds
cadmium	900 thousand pounds

During the past 5 years the average number of employees has been 312, although with the preproduction activities in 1981, this level, including contractors has built up to approximately 360.

Elsewhere in the area, since Westmin's operations started, other groups have been active. There were prospecting activities on Cream Silver's property adjacent to Western, on Quadra Island, at Mt. Washington and in the upper Quinsam Lake area. Mt. Washington had a brief period of production from 1965 - 1967, on Quadra Island 2,035 tons of ore were produced in 1968 and a little in 1969. In the early 1970's near upper Quinsam Lake the Sylvanite property was explored for tellurium, the Moore property was explored for copper, and the Iron River property for iron. From 1977 - 1980 the Quinsam Coal joint venture of Luscar and Weldwood carried out considerable exploration and development work on Weldwood's coal property at Quinsam Lake in preparation for an anticipated start of mining in the 1980's.

## REFERENCES

1. Gunning, H.C. "Buttle Lake Map - Area, Vancouver Island", Geological Survey Summary Report, 1930, Part A, Geological Survey of Canada, Ottawa, 1931, pp 56-78.
2. Young, G.A. and Uglow, W.L. The Iron Ores of Canada, Volume 1. Geological Survey of Canada, Economic Geology Series No.3, Ottawa, 1926, pp 71-79.
3. Minister of Mines Province of British Columbia, Annual Reports, ~~of~~ the years 1890 - 1959, Victoria, British Columbia Department of Mines, 1891 - 1960.
4. Minister of Mines and Petroleum Resources Province of British Columbia Annual Reports, for the years 1960 - 1978, Victoria, British Columbia Department of Mines and Petroleum Resources, 1961 - 1979.
5. British Columbia Department of Mines and Petroleum Resources, Geology, Exploration and Mining in British Columbia, for the years 1969 - 1974, Victoria, British Columbia Department of Mines and Petroleum Resources, 1970 - 1975.
6. British Columbia Department of Mines and Petroleum Resources, Exploration in British Columbia, for the years 1975 - 1978, Victoria, British Columbia Ministry of Mines and Petroleum Resources, 1976 - 1979.
7. Western Mines Ltd. Annual Reports, for the years 1961 - 1980, Vancouver, Western Mines Ltd., 1961 - 1981.

# WESTERN MINES LIMITED

(NON- PERSONAL LIABILITY)

## Managing Director's Report

November 23, 1961

The President and Directors,  
Western Mines Limited,  
Vancouver, B.C.

Gentlemen:

### AINSWORTH PROPERTY

The properties at Ainsworth have been maintained in good standing but have remained inactive due to the depressed market conditions for lead and zinc. A major producer of lead and zinc has, however, shown interest in the property and may continue negotiations next year.

### BUTTLE LAKE PROPERTY

In May the Company optioned from P. M. Reynolds and Associates the Lynx, Paramount and Price groups of mineral claims located near the south end of Buttle Lake on Vancouver Island.

This property comprises 23 Crown Granted and six located mineral claims. With an additional thirty-six claims staked by the Company, it has been possible to consolidate into one property an area approximately 6,000 feet wide and 21,000 feet in length covering a fairly well defined shear zone.

It is most significant that important mineralization appearing on the three properties apparently occur within the common favourable structure.

The location of the properties are shown in the map accompanying this report. Access to property is by 28 miles of good gravel highway from Campbell River to Upper Campbell Lake, 24 miles by water transportation to the south end of Buttle Lake and thence along Myra Creek via two miles of jeep road constructed by the Company this summer.

A tent camp has been established on Myra Creek 1½ miles from Buttle Lake and at the present time three diamond drills are testing the Paramount and Lynx showings.

The Consolidated Mining and Smelting Company, a major shareholder of Western Mines Limited, completed a geological study and mapped the more important structures. They have continued to assist in financing the project and supplying valuable technical assistance in conducting the exploration work at the property.

### LYNX PROPERTY

Mapping of this property indicated the favourable quartz-sericite schist zone to have widths up to 600 feet. Open cuts have uncovered good mineralization locations within this zone.

Drilling to date has indicated two parallel ore zones approximately 220 feet apart and most recently at depth, a possible third zone between the other two. The westerly showing so far has proven vertical continuity of 150 feet and is open at depth and along strike. The following intersections have been cut in this zone.

D.D. Hole No.	Intersection		True Width in Feet	Gold oz./T	Silver oz./T	ASSAY RESULTS		
	From	To				Copper %	Lead %	Zinc %
W1 .....	23.0	26.5	3.5	0.16	7.7	6.7	7.4	27.6
W8 .....	116.0	120.0	4.0	0.09	4.6	3.3	2.1	25.6
	120.0	125.0	5.0	0.01	1.5	0.5	0.3	3.0
	125.0	127.0	2.0	0.04	1.7	0.6	0.8	9.4
	127.0	134.0	7.0	0.20	5.6	1.4	3.0	20.7
			18.0	0.10	3.7	1.4	1.8	15.6
W9 .....	147.0	158.0	11.0	0.06	17.8	1.4	3.0	15.8
Totals and Averages .....			11.0	0.10	8.8	2.0	2.8	16.7

Using an X-ray drill shallow holes were drilled on 100 feet centers along the westerly contact of the altered quartz-sericite zone. Scattered mineralization was present in all holes drilled with high grade mineralizations occurring in two. The zone to the east was cut by Hole W7, a shallow hole near the surface, and presumably by hole W8 at 150 vertically below where the mineralized zone widens to 40 feet (core recovery from this zone was very poor). The intersection in Hole W7 assayed over 7.5 feet 0.05 oz/ton gold, 3.6 oz/ton silver, 2.4% copper, 0.80% lead and 9.6% zinc. Core recovered from Hole W8 suggests a grade comparable to the upper intersection. Hole W9 is being deepened to probe for a further downward extension at a depth



of approximately 300 feet vertically below the surface. It is planned to continue to explore along the strike of these zones this winter with large drills capable of cross cutting the entire favourable structure. A possible third zone may have been located between the other two zones as indicated by a most recent intersection assaying over 15 feet as follows.

0.07 oz. Au.  
 1.2 oz. Ag.  
 1.7% Cu.  
 1.0% Pb  
 16.1% Zn

**PARAMOUNT PROPERTY**

The principal showings in this zone are located at an elevation of about 1,500 feet above sea level, approximately 4,000 feet south-east of the Lynx. Previous work included 16 diamond drill holes totalling about 4,300 feet 60 feet of crosscutting and a minor amount of trenching. This work has indicated a zone estimated to contain 60,000 tons to a depth of 200 feet over a length of 200 feet with an average width of 14 feet. The average grade is estimated at 0.13 oz/ton gold, 7.70 oz/ton silver, 1.47% copper, 1.6% lead and 14.0 zinc.

Two new crosscut trenches 65 feet apart within this zone has indicated the existence of considerable larger tonnages of somewhat lower grade ore. These trenches have returned the following assays:

Width Feet	Gold oz./T	Silver oz./T	Copper %	Lead %	Zinc %
35 .....	0.13	4.60	1.08	1.04	10.0
25 .....	0.11	5.35	2.80	1.13	13.80

Short diamond drill holes have recently indicated that major ore structures may dip flatly into the hillside, and drilling is being continued to determine the actual dip. Should the ore structure be found flat dipping, much of the previous drilling would have been under the major ore structures thus explaining the negative results obtained in many instances. The steep terrain on which the ore occurs will limit the amount of effective diamond drilling that can be done from the surface. A most recent vertical hole (W101) intersecting this structure down dip is higher in grade over a similar width and returned the following assays:

0.10 oz. Au.  
 4.9 oz. Ag.  
 1.8% Cu.  
 1.1% Pb.  
 11.1% Zn.

Underground exploration is being planned and will be relatively inexpensive.

**PRICE PROPERTY**

This property is located 7,000 feet southeast of the Paramount and contains numerous mineralized occurrences at elevations ranging from 900 feet to 1,900 feet above sea level. Previous work has been limited to a number of open cuts showing the same type of high grade mineralization as the Paramount and Lynx.

Prospecting this past summer has located a massive band of pyrite up to 4 feet in width assaying 1.3% copper.

Additional work in this area is planned for next year.

**CONCLUSIONS:**

The results of the modest programme completed this year have been very encouraging and suggests definite possibility of developing substantial tonnage of good grade of ore, particularly in the Lynx zone. The character of the ore in the three main showings is unusually high grade thus negating the requirement of proving large tonnages to justify an economical producer. The possibility of establishing a small high grade mine is excellent and toward this end serious consideration will have to be given to an underground development programme in the near future. The present drilling programme, which includes widely spaced holes, will be completed before planning an underground programme as larger ore zones may be found and thus indicate more advantageous locations for underground work.

Respectfully submitted,  
 J. A. C. ROSS, P.Eng.  
 Managing Director

# WESTERN MINES LIMITED

(NON-PERSONAL LIABILITY)

Vancouver, B.C.  
December 12, 1962

## President's Report

TO THE SHAREHOLDERS — WESTERN MINES LIMITED

The Tenth Annual Report of your Company is submitted along with the Balance Sheet, Statement of Deferred Exploration and Mine Development Costs, Auditor's Report and the Report of Mr. J. A. C. Ross, P.Eng., Managing Director.

In our last formal report to Shareholders, under date of June 13, 1962, we summarized progress from the last Annual Meeting to May 31, 1962. This report covered activities at the property, outlined the results of diamond drilling, gave a plan and typical section of drill results and indicated an ore reserve on the Lynx and Paramount of 593,672 tons, including dilution at 10%. The indicated grades were:

Gold .....	0.056 ounces
Silver .....	3.7 ounces
Copper .....	1.4%
Lead .....	1.2%
Zinc .....	9.1%

over an average width of 11.2 ft. Reserves at this period were based on a calculation of 1,200 tons per vertical foot and at this time underground exploration had just commenced.

The Directors are now pleased to submit for your information the report of the Managing Director which outlines results of exploration to the year end—September 30, 1962—and includes information on progress to December 1, 1962.

Shareholders will undoubtedly be gratified to learn that we now have extended our indicated Lynx ore reserve figure to 1,487,000 tons with an improved grade including the higher 15% dilution of:

Gold .....	0.09 ounces
Silver .....	3.37 ounces
Copper .....	1.8%
Lead .....	1.2%
Zinc .....	9.8%

The average true width is now 15 ft. and the tons per vertical foot has increased to 2,100. Ore of this grade has a gross value of \$43.50 per ton and an approximate net smelter return value of \$19.50 per ton.

It is interesting to note that the tonnage herein outlined is still within the strike length previously explored by diamond drilling. Increasing this tonnage and grade has been accomplished by a vigorous programme of underground drifting, cross-cutting and underground diamond drilling, coupled with a careful study of the geological conditions.

In addition to the above tonnage, we still have the indicated 100,000 tons at the Paramount where work in the past few months has been minimal because of the concentration of activity on the Lynx. We do, however, have some encouraging diamond drill results from the Paramount which extends the favourable zone towards the Lynx warranting detailed exploration. As soon as equipment and crew are available, it is planned to explore the Paramount with an underground adit.

Metallurgical test work on representative samples from the Lynx is now underway in two laboratories. Preliminary reports are satisfactory and show that good metallurgical results are obtainable.

Holdings in the Myra Falls area have been expanded to a total of 105 claims.

The situation at our Ainsworth lead and zinc property remains as previously reported. Due to depressed market conditions it is not advisable to consider any activity at this time. A watchman is maintained on the site at Ainsworth.

It is anticipated that in the coming year, plans for production at Myra Falls can be seriously considered and we hope to have something to say on this subject in our half-yearly report to Shareholders in May or June.

On behalf of the Board,

H. M. Wright, President

December 10, 1962

## WESTERN MINES LIMITED

### Report of The Managing Director

For the year October 1, 1961 to September 30, 1962

The Directors,  
Western Mines Limited,  
802 - 850 West Hastings Street,  
Vancouver 1, B.C.

Gentlemen:

During the fiscal year October 1, 1961, to September 30, 1962, exploration and development work on the Company's properties at Myra Falls on Buttle Lake, Vancouver Island, proceeded continuously with the exception of a short period in March when the property was closed because of heavy snow fall and freezing conditions in Buttle Lake. Since resumption of work, the operation has been expanded as rapidly as conditions permitted with the result that at the present time the company's operations employ 68 men either directly or under contract. The work being carried out includes maintenance of transportation systems to Campbell River, complete camp operation, road construction, logging, surface drilling, underground development and diamond drilling and related engineering and geological services.

#### **SURFACE EXPLORATION**

Surface diamond drilling has continued throughout the year with most of the work carried out on the Lynx Property and a minor amount on the surface of the Paramount. Programmes have been carried out on surface geological mapping, surveying, prospecting and limited geophysical work to assist in the search for additional ore zones. As a direct result of these efforts, the company staked additional mineral claims in the area to bring the total held by the company to 23 crown granted mineral claims, two by Mineral Lease and 80 located claims.

Surface prospecting was successful in finding of a new zone of favourable quartz sericite schist. This zone was staked late in the year but further investigation has necessarily been deferred until next year because of early snow fall in this area. Geophysical test work over known ore zones has indicated that electro-magnetic equipment may be helpful in locating mineralized zones in areas covered by glacial till and soil. This programme has indicated an anomaly extending the Lynx Zone towards the Paramount to the south in an area heavily covered by overburden and as yet not tested by drilling.

Soil analysis was successful in locating a low grade copper zone on the Paramount property 600 feet north west of the main showing. Diamond drilling under this area has revealed low grade copper and zinc mineralization and has proven strong persistence of the quartz sericite schist zone to the north in the direction of the Lynx zone. Diamond drill hole No. 107, located 300 feet north-west of the main showing, crossed the quartz sericite zone and cut 43 feet of mineralization averaging 0.02 oz. gold, 0.44 oz. silver, 0.94% copper and 0.03% zinc.

#### **DIAMOND DRILLING AND DEVELOPMENT**

Surface Diamond Drilling was continued on the Paramount and Lynx properties. Since June work has been concentrated on underground exploration of the Lynx ore zone and by the year end sufficient headings had been opened up to permit systematic exploration by diamond drills.

The following table summarizes exploratory and development work completed to September 30, 1962.

### DIAMOND DRILLING

Type	Zone	To Sept. 30, 1961 Feet	Year 1962 Feet	Total Feet
Surface	Paramount	4,300*	2,517	6,817
Surface	Lynx	433	11,036	11,469
Underground	Lynx	0	3,290	3,290
Total Drilling		4,733	16,843	21,576

### UNDERGROUND HEADINGS

Drifts	Lynx	0	977	977
Crosscuts	Lynx	0	765	765
Crosscuts	Paramount	60**	0	60
Total Underground Headings		60	1,742	1,802

\* Includes 4,300 feet by previous operators.

\*\* Includes 60 feet by previous operators.

With the exception of diamond drilling, which is under contract to Boyles Brothers Diamond Drilling Company, all underground work has been carried out directly by the company. For this work a complete mining plant was purchased, installed and housed at the Lynx Adit location.

### ORE RESERVES

Underground development at the Lynx was not sufficiently advanced to permit diamond drilling until late in August. By December 1st sufficient work was completed to permit an assessment of the ore potential of this zone and to determine in a general way the structural features of the ore occurrences and favourable areas.

In this short period of time it has not been possible to determine accurately the size nor shape of the numerous deposits now known to exist on the property. It is gratifying to find however, that the underground exploration work to date on the 1200 level has proven before dilution, the existence of 2100 tons per vertical foot over an 800 foot strike length as compared to the previous estimate of 1200 tons per vertical over a strike length of 1,000 feet by H. C. Gunning, P.Eng., in his report of April, 1962. The 800 foot length explored to date is open at both ends and additional ore will undoubtedly be found as the exploration work advances. Surface drilling completed earlier in the year has cut important intersections 320 feet to the north of the most northerly ore zone located underground to date.

Although only a very limited amount of drilling has been completed above and below the 1200 foot level it is reasonable to expect that ore in similar quantities will be found in the area above the 1200 level to the surface, an average vertical height of 250 feet. Similarly the zone could be expected to extend to the 1,000 foot level or 200 feet below the 1,200 level. Additional ore will undoubtedly be found both north and south of the area explored to date.

On the basis of these assumptions and the knowledge gained from underground studies, the following table lists the quantities of ore in the Lynx Zone that is partially developed ore indicated and inferred at this time.

Location	Tons	Average Metal Content				
		Gold Oz/Ton	Silver Oz/Ton	Copper %	Lead %	Zinc %
Between Section 100 to 900	945,000	0.10	3.81	2.0	1.4	11.2
South of Section 100	75,000	Assumed to be as above				
North of Section 900	273,000	Assumed to be as above				
Totals and Averages	1,293,000	0.10	3.81	2.0	1.4	11.2
Dilution @ 15%	194,000	0.01	0.40	0.20	0.10	0.60
Totals and Averages (including dilution)	1,487,000	0.09	3.37	1.8	1.2	9.8

In estimating the quantity of ore south of Section 100, it is assumed that ore will continue for 100 feet south at the same ratio of tons per vertical foot as found to exist in the developed zone. As knowledge of the area to the north is more limited only half the ratio of tons per vertical foot of the developed area is assumed for a strike length of 320 feet to the most northerly known ore intersection.

The average width of all ore zones developed to date is 15 feet.

Although little is known of the lineal and depth extent of the favourable quartz sericite schist zone beyond the 1200 foot length tested by surface diamond drilling, there is evidence these dimensions could be greatly increased beyond those presently known. As ore zones could exist anywhere within this favourable formation, the possibility for substantial additions to the ore reserves are excellent.

The remarkable success achieved in developing ore on the Lynx property has justified concentrating efforts in this zone with the result that only limited work has carried out on the Paramount and Price properties. Sufficient work has been done on the Paramount so far however, to indicate the existence of about 100,0000 tons of ore of a grade comparable to the Lynx. The structure has not been defined and is still open on strike.

The ore potential of the main Price Zone has not been tested by drilling, but the favourable quartz sericite schist zone is known to be several hundred feet wide and contains mineralization of the same character existing on the surface of the Lynx Property.

It is planned to carry out underground exploration work on the Paramount and diamond drilling on the Price when equipment becomes available and weather conditions permit.

#### **CAMPS AND TRANSPORTATION**

In April 1962, the Company purchased from Victoria Plywood Ltd., a completely equipped camp on Thelwood Creek, capable of accommodating fifty men. Two new pre-fabricated 10-man bunk-houses were purchased and erected at the campsite. For handling personnel and supplies the Company acquired a 22 passenger water-taxi and an all steel twin-engine driven landing barge capable of carrying loads up to thirty tons.

During the year the Company relocated sections of the jeep road from Buttle Lake to the Lynx Property and improved it to a good truck standard. A branch road was constructed to the Paramount Property in preparation for underground work. At the year end a road from the Thelwood camp to the Price Property was under construction, the main purpose of which is to facilitate diamond drilling in the area. In all a total of 5.8 miles of road including three bridges have been constructed or improved.

A small scale logging operation has necessarily been carried on to remove and clear timber from roadways, landing and adit sites.

The Company gratefully acknowledges the assistance received from the Mines Branch of the British Columbia Department of Mines and Petroleum Resources and the cooperation of the Parks Branch of the Department of Recreation and Conservation.

#### **POWER, WATER AND ACCESS**

Applications to the Government for water licences have been filed by the Company for hydro power, milling and domestic purposes. Studies on the development of hydro power in the area are continuing.

The Company is investigating the various road possibilities into the property although it will be extremely expensive to construct an access road from existing highways or tide water to the mine site. The alternative will be the permanent installation of docks and water transportation facilities on Buttle Lake.

#### **ACKNOWLEDGMENTS**

The valuable assistance and cooperation of the Directors of the Company is herewith gratefully acknowledged. Much of the success for the past year's operation must be accredited to the efforts of the loyal staff and particularly to Mr. G. M. MacDougall, Mine Manager, for his splendid effort in assembling and maintaining an efficient and smooth working organization.

Respectfully submitted,

J. A. C. Ross, P.Eng.  
Managing Director.





1990  
ANNUAL  
REPORT



## Mine Exploration

Positive exploration results were achieved in 1990 as new zones of massive sulphide mineralization were discovered near existing mine workings at both mines. Reinterpretation of major faults in the Lynx Mine led to the discovery of additional massive sulphide mineralization east of the West "G" Zone orebodies. This new zone of typical Lynx grade ore is largely responsible for an approximate 20 per cent increase in Lynx mine reserves in 1990 over 1989 figures.

At the H-W Mine, diamond drilling east of known orebodies along the North Lens trend, resulted in the discovery of a significant new zone of H-W ore grade massive sulphide mineralization. With intersections up to 30 metres thick, the new zone referred to as 43 Block covers a minimum strike length of 150 metres. Exploration drifting is planned in both mines to provide access for continued diamond drilling to define the extent of these discoveries.

Exploration diamond drilling also continued to evaluate the Ridge Zone, an area north and approximately 300 metres below existing Lynx workings. Additional poly-metallic, ore grade, massive sulphide intersections, up to six metres thick, were intersected. This mineralization is not included in reserve estimates. Diamond drilling is continuing to test this zone, both east and west of the latest results.

In the 1989 annual report to shareholders, new Geological Reserves, (as of January 1, 1990), were reported which were based on revised parameters and thus were not strictly comparable with previous reserves reported. This 1990 report includes updated Geological Reserves, (as of January 1, 1991), which are comparable with January 1, 1990 reserves and demonstrate a net increase of 616,400 tonnes despite the milling of 1,171,337 tonnes during the year.

"Geological Reserves" are an estimate of "in-situ" reserves, or those which are estimated to be "in the ground", (refer to Glossary). A geological reserve does not rigorously take into account extractability and economic factors. For this reason "Mineable Reserves", which include the impact of mining losses, dilution, cut-off grades and economics applied to "Geological Reserves", have also been calculated. It is intended to state both Geological and Mineable Reserves in future reports to allow meaningful comparisons and analyses to be carried out.

## Geological Reserves as of January 1, 1991

Mine	Proven & Probable Reserves (Tonnes)	Grades				
		Gold (g/t)	Silver (g/t)	Copper (%)	Lead (%)	Zinc (%)
H-W	10,721,000	2.3	32.3	2.0	0.3	3.8
Lynx	225,100	2.7	87.3	1.9	0.8	8.6
Price	209,500	1.2	53.1	1.1	1.1	8.3
<b>TOTAL</b>	<b>11,155,600</b>	<b>2.3</b>	<b>33.8</b>	<b>2.0</b>	<b>0.3</b>	<b>4.0</b>

Proven & Probable Geological Reserves As of						
January 1, 1990	10,539,200	2.1	32.0	2.0	0.3	3.7

Net Gain for year 616,400 tonnes (after milling 1,171,337 diluted tonnes in 1990).

## Mineable Reserves as of January 1, 1991

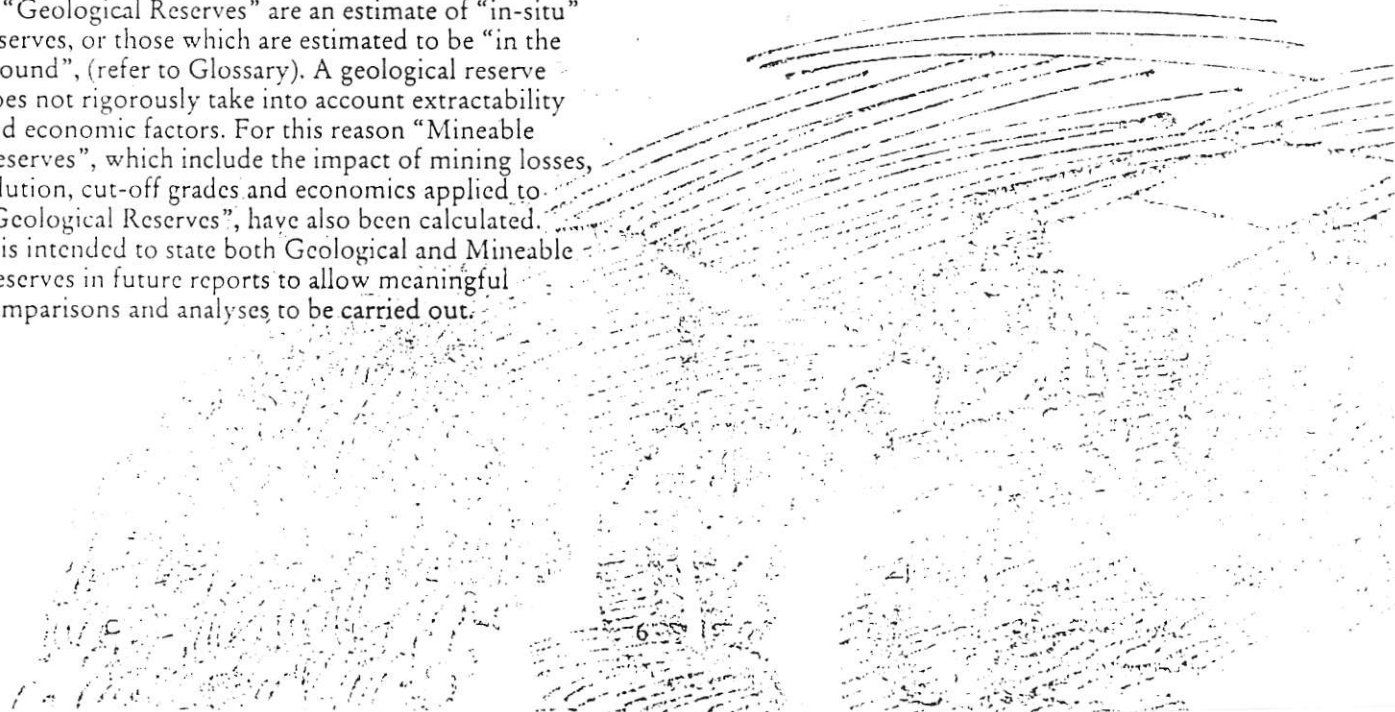
Mine	Proven & Probable Reserves Tonnes	Grades				
		Gold (g/t)	Silver (g/t)	Copper (%)	Lead (%)	Zinc (%)
H-W	9,486,700	2.1	30.4	1.8	0.2	3.5
Lynx	252,800	2.4	77.8	1.7	0.7	7.6
Price	235,500	1.1	47.3	1.0	1.0	7.4
<b>TOTAL</b>	<b>9,975,000</b>	<b>2.1</b>	<b>32.0</b>	<b>1.8</b>	<b>0.3</b>	<b>3.7</b>

## Geological Resources\* as of January 1, 1991

(Not Included in Geological or Mineable Reserves)

3,857,200	2.5	18.9	1.2	0.1	1.6
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

\*Consists primarily of auriferous pyrite considered non-economic with current prices and technology.

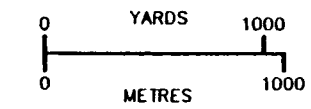
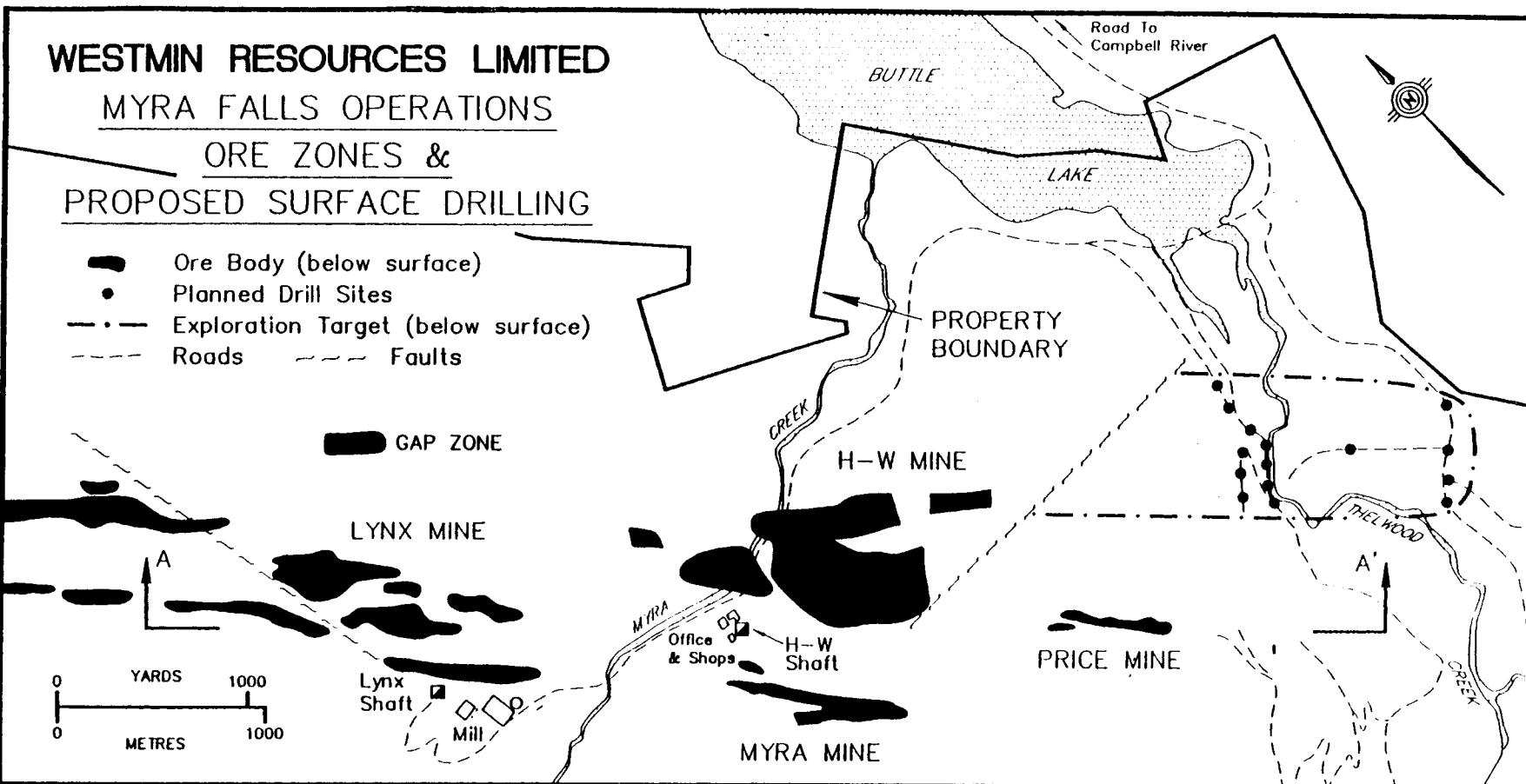


# WESTMIN RESOURCES LIMITED

## MYRA FALLS OPERATIONS

### ORE ZONES & PROPOSED SURFACE DRILLING

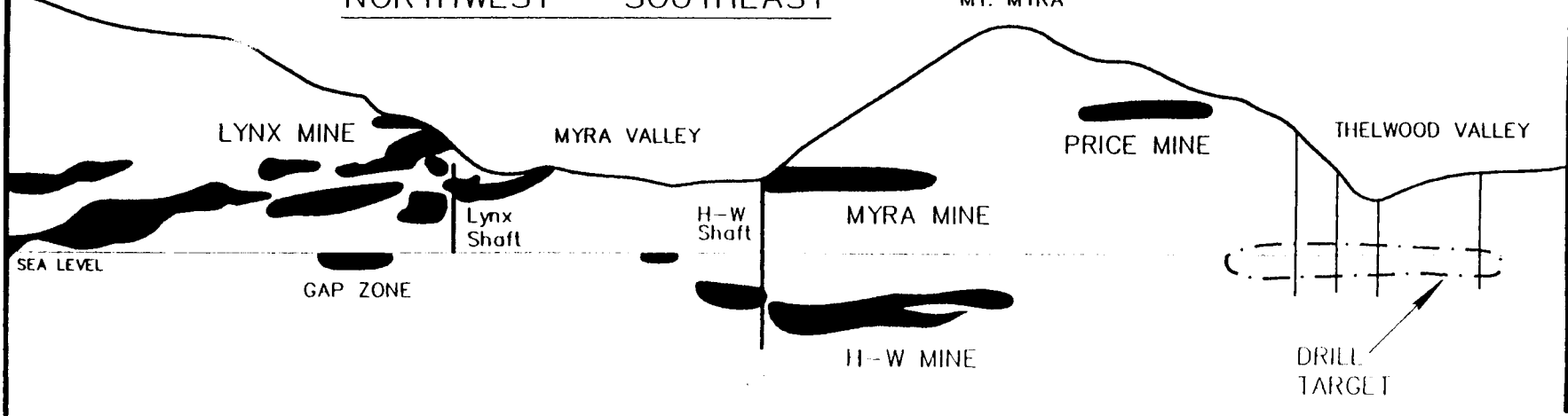
-  Ore Body (below surface)
-  Planned Drill Sites
-  Exploration Target (below surface)
-  Roads
-  Faults



NW  
MT. PHILLIPS

### VERTICAL SECTION A-A' NORTHWEST - SOUTHEAST

SE





**T.P. (TIM) RIORDON, P.ENG.**

3456 Duval Road  
North Vancouver, BC V7J 3E6

Telephone: (604) 985-8126

#### PROFESSIONAL SUMMARY

- Twenty years experience in the operation of open pit and underground mines in Canada and Australia
- Proven safety and production results
- Acknowledged as a competent and efficient mine operator

#### PROFESSIONAL EXPERIENCE

- Vice President — Operations** • Supervised the management of a narrow-vein gold mine and a silver, lead, zinc mine.
- Mine Manager** • Four years general management of union and non-union open pit and underground mines.
- General Superintendent** • Overall direction of large unionized underground plant and engineering facilities. Labour Relations a significant portion of scope.
- Mine Superintendent** • Responsible for coordination of mining activities at two large unionized underground operations.
- Mine Engineer** • Responsible for long and short range planning at a large open pit mine.

#### EMPLOYMENT HISTORY

Treminco Resources Ltd.	(1990)
Giant Resources (Australia) Ltd.	(1988)
Teck - Corona Operating Corporation	(1987)
Falconbridge Ltd.	(1982)
Trenaman & Spencer Associates	(1980)
Cassiar Asbestos Corporation	(1977)
Prior to 1977 — Experience gained with various mining companies including underground mining and shift supervision, construction and geological field work.	

#### EDUCATION

Degree in Civil Engineering, Lakehead University	(1976)
Diploma in Mining Technology, Haileybury School of Mines	(1972)

#### PROFESSIONAL AFFILIATIONS

Professional Engineers of British Columbia

#### PAPERS

- Mining Operations at Giant Yellowknife Mines, C.I.M.M. Operators Conference Bathurst, NB
- Excellence in the Survival Mode, C.I.M.M. Operators Conference, Elliot Lake, ON