330272

ADDENDUM TO

.

*

EVALUATION REPORT

ON THE

SHERWOOD GOLD MINE AREA

Alberni Mining Division Vancouver Island British Columbia

by

R.T. HEARD, P.ENG.

N.C. CARTER, PH.D. P.ENG.

September, 1991

TABLE OF CONTENTS

-

	Page
INTRODUCTION	1
VANCOUVER ISLAND GOLD DEPOSITS	2
Bedwell River Area	5
POTENTIAL FOR ADDITIONAL RESERVES - SHERWOOD PROPERTY	10
CONCLUSIONS	16
REFERENCES	20
APPENDIX I - Certificates of Authors	21

Tables

Table	1 -	- Privateer Mine - 1938-1943	4
Table	2 -	- Production - Bedwell River Area	7
Table	3 -	- Reported Reserves - Bedwell River Area	10

Figures

								Following	Page
Figure	1	-	Vancouver	Island	Golđ	Deposi	ts		2
Figure	2		Additional	Veins	- She	rwood	Property	,	12

INTRODUCTION

The writers have been requested to prepare an addendum to the section of the November,1989 report prepared by the writers which dealt with a geological assessment of the Sherwood gold prospect in the southern part of Strathcona Provincial Park on Vancouver Island. Mr. George Heard, who prepared the economic evaluation of the Sherwood property for the 1989 report, is currently working out of the country and is unable to continue with his involvement in this project.

This report incorporates new information pertaining to the Sherwood gold property that was not available prior to the writers' initial geological assessment. These data have been augmented by observations obtained during an examination of the Sherwood property September 2,1991. The report also includes a more detailed description of Vancouver Island gold deposits and occurrences and an expanded section dealing with gold-bearing vein deposits in the general Bedwell River area in order to provide a better perspective of the potential of the Sherwood property.

The additional information presented herein supports the writers' original geological assessment of the Sherwood gold property in terms of potential for the discovery of additional reserves on the property and our estimate of total inferred tonnage of 51632 tonnes grading 40.97 grams/tonne

gold and 70.07 grams/tonne silver within the explored limits of the Sherwood vein structure.

VANCOUVER ISLAND GOLD DEPOSITS

Numerous gold deposits and occurrences are known throughout Vancouver Island (Figure 1). Gold mineralization is associated with a variety of mineral deposit types and in a diversity of geological settings.

Gold is recovered as a significant by-product from the BHP-Utah Island Copper porphyry deposit near Port Hardy (797,000 ounces to the end of 1987) and from the Westmin Resources Myra Falls massive sulphide deposits at Buttle Lake (467,292 ounces to 1987). Some by-product gold has also produced from iron-copper skarn deposits in northern Vancouver Island.

The best known and most widespread style of gold mineralization on Vancouver Island is that associated with quartz veins and fissure zones. These narrow (1 metre or less), tabular and discordant bodies are developed in a variety of host rock types but do have a pronounced spatial (and probably genetic) relationship to granitic intrusions of relatively young (Tertiary) geological age. These veins contain small amounts of native gold in addition to more common sulphide minerals including pyrite, sphalerite,

galena and chalcopyrite. The presence of lead and zinc sulphides (galena and sphalerite) is usually an indicator of better gold grades. Vein walls are commonly sharply defined and marked by a thin selvage of sheared and altered wallrock. Gold (and silver) values are generally restricted to the veins with values in wallrocks occurring only where they are cut by quartz stringers emanating from the main veins.

Gold-bearing quartz veins and fissure zones occur throughout Vancouver Island but are most prevalent along the west coast. Four distinct camps or districts include, from north to south, Zeballos, Bedwell River area, Kennedy River and Alberni Inlet. All of these areas have yielded gold production in the past, with most coming from the Zeballos camp where 276,067 ounces gold and 120,140 ounces silver have been recovered since 1933.

The Privateer mine accounted for more than 60% of the Zeballos camp gold production between 1933 and 1948. Much of the 170,428 ounces from Privateer was produced in a six year period as follows:

Table 1 - Privateer Mine - 1938-1943

<u>Tons Mined</u>	<u>Tons Milled</u>	<u>Gold(ounces)</u>	Silver(ounces)
235,232	123,571	128,700	48,336
Tonnes	Tonnes	<u>Gold(grams)</u>	<u>Silver(grams)</u>
213399	112102	4003017	1503418

Average recovered grades/ton milled: 1.042 oz/ton gold 0.39 oz/ton silver

" /tonne milled: 35.71 grams/tonne gold 13.41 grams/tonne silver

Privateer operated between 1937 and 1948 but like most Canadian gold mines, was closed for two years during World War II because of shortages of manpower and supplies.

Production was from three parallel, east to eastnortheast striking, steeply north dipping quartz veins developed in 5 cm - 0.75 metre shear zones in skarnified limey sediments and andesite tuffs marginal to a Tertiary quartz diorite stock. In some cases, gold mineralization was associated with sheeted zones 1 up to metre wide (Stevenson, 1950) in which 5 -20 cm spaced fractures contained 0.3 - 2.5 cm wide guartz-sulphide stringers. In addition to locally coarse grained native gold, the veins contained sulphide minerals of pyrite, arsenopyrite, pyrrhotite, sphalerite, galena and chalcopyrite. Vein widths ranged from 2 cm to 1.2 metres with an overall average of 25-30 cm (0.25-0.30 metre). Locally, these narrow widths were

enhanced by the presence of small stringers carrying gold values which split off and parallelled the main vein. In some cases, these quartz stringers would be numerous enough to form a zone averaging 0.75 metre in width (MacDonnell, 1939).

No. 1 vein, which accounted for most of Privateer production, was mined over a strike length of 1000 metres and a vertical range of more than 250 metres. This vein, which was discovered in 1936, contained some exceptionally rich sections. Some 2,275 tons of development ore shipped to the Tacoma smelter in 1937 averaged 4.146 oz/ton gold (142 g/t) and 1.82 oz/ton silver (62 g/t) and one 197 lb. sack shipment which yielded 143 ounces of gold (4448 grams) and 31.76 ounces of silver (988 grams) (MacDonnell, 1939).

25 to 48% of ore mined was sorted from a picking belt prior to entering the mill circuit where gold was recovered by amalgamation and cyanidation. Operating costs per ton of ore milled in 1943 were \$12.36.

Bedwell River Area

The Bedwell River area as here defined includes a 900 square kilometre area encompassing several inlets in Clayoquot Sound and the southern part of Strathcona Provincial Park (Figure 1).

The Sherwood gold property is situated in the northeast

part of this area which includes numerous other gold deposits and occurrences. The earliest documented prospecting and mining activity consisted of gold placer mining along Bedwell River in the 1860's. Gold-bearing veins were discovered along Bedwell River and on Flores and Meares Islands around the turn of the century and exploration and development work continued in the district during the years pre- and post World War I.

Discoveries of high grade gold mineralization in the Zeballos area in the early 1930's re-focussed attention on the Bedwell River area and resulted in the discovery of the Musketeer, Buccaneer and Sherwood gold properties in 1938 and 1939.

More than a dozen gold deposits in the Bedwell River area have yielded at least some production since 1898 (Table 2). Average grades per tonne mined, which includes some sorted material, are 19.11 grams/tonne gold (0.554 oz/ton) and 13.95 grams/tonne silver (0.40 oz/ton).

Gold-bearing veins in the Bedwell River area are developed in a variety of host rocks including Paleozoic and Mesozoic volcanic rocks and Mesozoic granitic rocks. Andesite, felsite and porphyry dykes, which often parallel the vein structures, are of probable Tertiary age and may be genetically related to the veins. Most known veins are

TABLE	2	-	PRODUCTION	-	BEDWELL	RIVER	YBBY
-------	---	---	------------	---	---------	-------	------

Property	Tonnes Min	ed Tonnes	Milled Gold	(g)	Silver(g)	Copper(kg)	Lead(kg)
repercy	tounes utu	cu ivanco	milled ovid	1.131	priver(d)	cohher (wà)	nearing

BIG BOY 1933-41(4 years) Noyeha River Vein	63	5070	2956	212	203
ABCO 1935-38 Woyeha River Vein	78	7217	3204	256	
PROSPBR 1942;1950 Bedwell River Vein	90	6687	6288	37	
BB and M 1940 Bedwell River Vein	3	1569			
AVON 1969 Bedwell River Vein	8	31	435	861	
KALAPPA 1913-14 Meares Island Vein	1372	17697	110229	27380	
IRON CAP 1898	17	933	809	169	
Meares island Vein	17				
HAPLE LEAF 1940 Warn Bay Vein	3	124		2	

TABLE	2	-	PRODUCTION	-	BEDWELL	RIVBR	ARBA

Property	Tonnes Nined	Tonnes	Nilled	Gold	(g)	Silver(g)	Copper(kg)	Lead(kg)

GOLD PLAKE 1940 Warn Bay Vein	45	18	8099			
FANDORA 1960–64 Tranquil Inlet Vein	972	844	45660	8367		
MUSKETEER 1942 1961-63 1974-75 Bedwell River	9263	4599	94956	53896	522	11099
BUCCANEER 1941-42 1959 Bedwell River	4416	5957	121581	39128	694	3206
DELLA 1906 Drinkwater Ck.	5		1377			
SHBRWOOD 1942 Drinkwater Ck.	20		1866	3110	50	391
TOTALS	16372	11418	312827	228422	30183	14899

spatially related to regional west-northwest faults.

The form and composition of the veins are similar to those in the Zeballos area. Quartz is the predominant gangue mineral with subordinate carbonate. Native gold is intimately associated with sulphide minerals which constitute between 2 and 20% of vein material.

Most known veins in the Bedwell area are steeply dipping and preferred structural trends are north-northeast and eastnortheast as exemplified by the principal veins on the Musketeer property. Vein widths in the district range from a few cm to 2 metres with an overall average of less than 0.30 metre.(The maximum width of the Musketeer veins is 23 cm (Joubin,1940) while Sargent(1941) noted that the Sherwood vein structure attained greater widths than other veins in the district owing to the presence of smaller veins branching off the main structure). Defined strike lengths of known vein structures are between 10 and several hundred metres but average less than 50 metres.

Reserves are reported for four gold prospects in the Bedwell River area, including the Sherwood property, in B.C. Ministry of Energy Mines and Petroleum Resources MINFILE 92F - Alberni(1990) as follows:

Table 3 - Reported Reserves - Bedwell River Area

Property	Tonnes	<u>Gold(grams/tonne)</u>
PROSPER	8150	31.93
FANDORA	181500	10.29
MUSKETEER*	18034	11.32
SHERWOOD**	45000	51.00

* Combined reserves for Trail and Main veins at the end of 1940 (prior to mining) were reported by Joubin(1940) as 42850 tonnes grading 13.68 grams/tonne

** Writers' estimate: 51632 tonnes grading 40.97
grams/tonne and 70.02 grams/tonne silver

POTENTIAL FOR ADDITIONAL RESERVES - SHERWOOD PROPERTY

Since the preparation of the November,1989 report, the writers became aware of additional information relevant to the exploration potential and geological assessment of the Sherwood property. The following comments are based in part on reports prepared for Cangold Mining Ltd. by B.W.W. McDougall, Consulting Mining Engineer, in 1944 and 1946 and on an information brochure issued on behalf of Cangold Mining and Exploration Company Ltd. in 1947. The writers also had an opportunity to examine parts of the Sherwood property on September 2,1991 and observations from this site visit are included. The writers were prohibited from carrying out any sampling during the property examination on orders from the Government of British Columbia.

McDougall's 1944 report includes a section entitled

"Concerning Development Opportunities" in which he states " This report is primarily concerned with a consideration of the Sherwood property from the point of view of the economic aspects ot the ore resources at present indicated and partly developed, <u>but apart from this entirely 'salvage' point of</u> <u>view the occurrences of other ore shoots in the shear and of</u> <u>other ore-bearing shears elsewhere on the property are</u> <u>possibilities of equal or even greater importance</u>." (emphasis McDougall's)

McDougall(1944) refers to the presence of two goldbearing veins on the southwest side of Drinkwater Creek on Lots 1825 and 1831 more or less on trend with and at elevations of more than 100 metres vertically below the lowest known levels of the Sherwood structure on the opposite side of the valley. This leads McDougall to postulate that there are possibilities for additional shoots within the Sherwood shear zone southwest of and below its known limits "extending to and even below the level of Drinkwater Creek". McDougall recommended exploratory diamond drilling to test for a westerly continuation of the Sherwood structure below the prominent talus fan and a prospecting program for a possible easterly extension in the area between No. 1 level and Love Lake.

A helicopter reconnaissance of the southwestern

Drinkwater Creek valley in the area of Lots 1825 and 1831 identified at least two areas of rusty gossanous rock.

A 1946 letter report by McDougall refers to a 1945 prospecting program undertaken on "Sherwood Knob" which occupies all or parts of Lots 1830,1842,1843 andd 1844. A sketch map of this area appeared in the 1947 Cangold information brochure and is included here as Figure 2. Reference is made to the discovery of several vein which structures trend north-northeast and apparently intersect the main Sherwood east-northeast trending structure. The principal one of these is the Mac Vein (Figure 2) which, according to McDougall, can be followed for a distance of 2,000 feet (600 metres). Near surface samples reported by McDougall returned values of nearly one ounce per ton. Two other narrow vein fractures, more or less parallel to the Mac structure, were also reported to contain gold values.

One of the writers (RTH) had an opportunity to traverse and photograph the area of the Mac vein recently. Several sloughed pits, some with old tools nearby, were noted over a few hundred metres distance near the northern end of a prominent 2-4 metre wide depression which trends northnortheast across the eastern flank of Sherwood Knob. These pits, which may have originally been 1 x 1 metre and as much

as 2 metres deep, are marked by rusty soil containing fragments of drusy white quartz. Some cross veins were noted marginal to the main depression marking the trace of the structure and porphyry dykes trend both normal and parallel to the structure. A parallel depression, 60-70 metres east of the one just described, marks the trace of what would have been the Mac No.5 vein (Figure 2) as identified by McDougall. Branching shears, oblique to and equally persistent as this structure, were seen to be marked by abundant epidote, quartz and iron staining on fractures. A large gossanous area on a fracture face near the southern end of this gully or depression contained remnants of pyrite and quartz crystals.

McDougall refers to five additional vein fractures on the Patullo No.2 (Lot 1844) claim - these are probably the Taylor veins noted on Figure 2. An assay of 1.5 oz/ton gold was reported from one of these veins. These veins were not examined during the recent Sherwood site visit due to time constraints and weather conditions.

McDougall recommended a diamond drilling program to further assess the significance of these structures, to be followed as warranted by underground exploration from the existing workings on the main Sherwood structure.

McDougall's 1946 letter report also refers to prospecting along the trace of the main Sherwood structure which is marked by an easterly trending gully extending some 600 metres between the No.1 underground level and the southwest side of Love Lake. Evidence of trenching over a distance of several hundred metres along the trace of this structure was noted during the recent property visit. The westernmost trench or pit was excavated to a depth of at least 3 metres but it appears that only soil and boulders were encountered. Some 20 metres to the east, the remains of an adit, now caved, was also unsuccessful in penetrating the overburden cover which appears to be extensive in this draw or gully.

Some excellent exposures were noted in the area of the PDQ No.2 vein east of Love Lake and immediately east of the Sherwood claims. This ground is not part of the property owned by Sherwood Mines Limited (N.P.L.) or associated companies but visual observations from the air followed by walking along the shear zone hosting the PDQ No. 2 vein showed the strike and dip of this structure to be the same as that for the Mac veins on Sherwood Knob.

Pioneer Gold Mines Ltd. explored two parallel veins 300 metres apart on the PDQ claims in 1941 and 1942 and reported gold values of 37.37 grams/tonne over a width of 0.30 metre and a length of 54 metres for the No. 1 vein and 28.46 grams/tonne over a 0.33 metre width and a 104 metre length

for the No. 2 vein. Underground work carried out on the PDQ No. 2 vein in 1942 consisted of an adit collared at 1410 metres elevation just below the summit of a prominent ridge or "knob" immediately southeast of Love Lake. The adit was driven southerly on the north-northeast striking, steeply west dipping PDQ No. 2 vein for a distance of 33 metres. Sampling results of this underground work are unknown.

An inspection of this adit showed a vein width of 0.10 metre at the portal. The width increases to about 0.20 metre midway along the drift to 0.25 metre at the face. An andesite dyke occupies the footwall of the vein throughout the length of the adit. At the face, wallrocks marginal to the vein are intensely altered with some evidence of quartz stringers.

The PDQ No. 2 vein is exposed in a number of open cuts extending up the slope from the adit to the top of the ridge, a horizontal distance of about 100 metres. Here, a prominent depression marks the trace of the "break" or shear zone within which the vein and footwall dyke are developed. Closely spaced fracturing with guartz-epidote fillings was noted in country rocks marginal to this "break" and numerous 0.5 - 1 metre wide andesite dykes were seen to follow the dominant north-northeast and west-northwest fracture directions.

The PDQ veins, while not situated on the property owned by Sherwood Mines Limited (N.P.L.) and associated companies, are further evidence of widespread gold-bearing vein mineralization in the immediate area of the Sherwood mine property. As noted previously, it is considered significant that the PDQ No. 2 vein strikes north-northeast or parallel to the gold-bearing vein structures noted on Sherwood Knob, 1 km west.

CONCLUSIONS

A review of Vancouver Island gold deposits serves to illustrate the potential significance of the Sherwood property.

The Privateer at Zeballos has been the most successful vein gold mine to date on Vancouver Island. Recovered grades from this operation per tonne milled between 1938 and 1943 were 35.71 grams/tonne gold and 13.41 grams/tonne silver. On basis, average grades were 18.75 tonne mined a per grams/tonne gold (0.544 oz/ton) and 7.05 grams/tonne silver (0.20 oz/ton). As previously noted, vein widths at Privateer averaged 0.30 metre or less. By comparison, average sampled widths on the Sherwood property as reported by Sargent(1941), Pioneer Gold Mines Ltd. (1941) and McDougall (1944) range from 0.34 to 0.76 metre. Weighted average gold grades (uncut)

range from 43.20 to 70.45 grams/tonne. Diluted gold grades for Sherwood, as calculated by McDougall(1944) and Barr(1990) are 17.14 grams/tonne (0.50 oz/ton) and 22.39 grams/tonne (0.653 oz/ton) respectively and are very similar to the Privateer gold grades on a per tonne mined basis.

Sherwood gold grades appear even more significant when compared with other known deposits in the Bedwell River area. This is corroborated by Barr (1990, page 27) who states "Of significance, however, is the assessment by the writer that of all the gold deposits in the Bedwell River area, the Sherwood Vein has demonstrated the greatest average width, combined with estimated ounces of contained gold within probable and possible reserves, which include the only two operating properties (Musketeer and Buccaneer)."

The existence of other vein structures on the Sherwood property and the fact that only cursory work had been done on these prior to cessation of operations in the early 1940's confirms the writers' opinion that the property is highly prospective for the discovery of additional gold-bearing zones.

The principal target areas for the discovery and development of additional zones, based on information at hand, include (1) the eastern extension of the Sherwood vein structure between the No. 1 level and Love Lake; (2) the area

below the present underground workings in the Drinkwater Creek valley; (3) the two areas with reported gold-bearing vein structures on Sherwood Knob; and (4) the areas of reported veins southwest of Drinkwater Creek.

McDougall(1944,1946) recommended diamond drilling for three of these areas but for various reasons, this program was never carried out. An inspection of the area of the probable eastern extension of the Sherwood vein structure confirms that drilling would be the only viable method of exploring this particular area.

It is important to note that the most significant known vein gold deposits in the Bedwell River area (Sherwood, Musketeer, Buccaneer) were not discovered until the late 1930's, or several years after the Zeballos discoveries. The advent of World War II effectively curtailed development and production at gold prospects and mines across Canada. The ramifications of the war on the development of the Musketeer property is well described by Joubin(1986).

By the end of the war, increases in overall costs coupled with the fixed gold price seriously hampered the development of gold prospects and most producing mines remained open only by way of Federal Government subsidies. Renewed interest in gold, beginning in the mid 1970's, occurred at at time when the Sherwood and a number of other

attractive properties had been effectively alienated by Provincial Government legislation affecting Provincial Parks.

It is interesting to speculate on what might have happened with the Sherwood property had it been discovered in the early 1930's.

The September 2,1991 site examination of the Sherwood property served to confirm the writers'original estimate of total inferred tonnage within the developed portion of the Sherwood vein structure of 51632 tonnes with a weighted average grade of 40.97 grams/tonne gold and 72.02 grams/tonne silver. Further assessment of the potential of other known vein structures on the Sherwood property was precluded by the inability of the writers to collect samples by virtue of an order from the Government of British Columbia.

REFERENCES

- Barr,D.A.(1990): Report for the Ministry of Attorney General, Province of British Columbia on Sherwood Mines Limited's Sherwood Gold Mine Property, Drinkwater Creek Area, Alberni Mining Division, British Columbia
- Carson, David J.T. (1969): Tertiary Mineral Deposits of Vancouver Island, CIM Transactions Volume 72, pp.116-125
- Ernst Henderson and Company(1947): Cangold Mining and Exploration Co. Ltd. - information brochure
- Heard,R.T.,Carter,N.C. and Heard,G.W.(1989): Evaluation Report on the Sherwood Gold Mine Area, Alberni Mining Division, Vancouver Island, British Columbia-private report prepared for Casamiro Resource Corporation
- Joubin, Franc(1940): Musketeer Property various letter progress reports to Pioneer Gold Mines Ltd.
 - (1986): Not for Gold Alone Memoirs of a Prospector, Deljay Publications, Toronto
- MacDonnell,G.F.(1939): The Privateer Mine, Zeballos, B.C. CIM Transactions Volume 42,1939,pp.347-358
- McDougall,B.W.W.(1944): Report on the Sherwood Group of Mineral Claims, Drinkwater Creek Area, Alberni Mining Division, Vancouver Island, B.C. -private report for Cangold Mines Ltd.
- _____(1946): Consulting Engineer's Report letter report to Cangold Mines Ltd.
- Pioneer Gold Mines Ltd. (1941): Annual Report for 1941
- Schroeter, T.G., Lund, C. and Carter, G. (1989): Gold Production and Reserves in British Columbia, B.C. Ministry of Energy Mines and Petroleum Resources Open File 1989-22
- Stevenson, John S.(1950): Geology and Mineral Deposits of the Zeballos Mining Camp, British Columbia, B.C. Department of Mines Bulletin No. 27

APPENDIX I

Certificates of Authors

.....

CERTIFICATE

I, NICHOLAS C. CARTER, with residence and business address at 1410 Wende Road, Victoria, British Columbia, do hereby certify that:

- 1. I am a Consulting Geologist and have been registered with the Association of Professional Engineers and Geoscientists of British Columbia since 1966.
- I am a graduate of the University of New Brunswick with B.Sc.(1960), Michigan Technological University with M.S.(1962) and the University of British Columbia with Ph.D.(1974).
- 3. I have practised my profession in eastern and western Canada and in parts of the United States for more than 25 years.
- 4. I have not, directly or indirectly, received or expect to receive, any interest, direct or indirect, in the property of Casamiro Resource Corporation, Sherwood Mines Limited (N.P.L.) and Cinta Resource Corp., or any of their affiliates, nor do I beneficially own, directly or indirectly, any securities of Casamiro Resource Corporation, Sherwood Mines Limited (N.P.L.) and Cinta Resource Corp., or any of their affiliates.
- 5. I am the co-author of the foregoing report and an Evaluation Report on the Sherwood Gold Mine Area, Alberni Mining Division, Vancouver Island, British Columbia dated November,1989. My contributions to these reports is based on a thorough review of data pertaining to the Sherwood mine property and other gold prospects on Vancouver Island and on my background knowledge of similar deposits elsewhere in British Columbia and other parts of North America. I attended at a site examination of the Sherwood property September 2,1991.
- 6. I grant permission to Casamiro Resource Corporation, Sherwood Mines Limited (N.P.L.) and Cinta Resource Corp. to use this report for any purposes in connection with the business of Casamiro Resource Corporation, Sherwood Mines Limited (N.P.L.) and Cinta Resource Corp. including its use in arbitral or litigation proceedings to recover damages for property injuriously affected.

Dated at Victoria, British Columbia this 6th day of September,1991



00 STRAIT

00

109 BRIDGE RIVER CAMP



