1984 ANNUAL REPORT

# CONSOLIDATED CINOLA MINES LTD.

# REPORT TO THE SHAREHOLDERS

1984 became a year of excellent progress for the Company. As you are aware the development toward production of the Company's gold property in the Queen Charlotte Islands was temporarily slowed because of the desire of our joint venture partner to sell its half interest in the property. This came about as a result of a corporate decision by Energy Reserves Group (E.R.G.) to divest of all its mining interests and concentrate on its oil and gas holdings. In August of 1984 Cinola was able to arrange a buyer for the E.R.G.'s interest and a satisfactory buy out price and agreement was initiated.

Misty Gold Inc., a private British Columbia Company, successfully acquired E.R.G.'s. 50% interest in the Cinola Queen Charlotte gold deposit. The general terms of the agreement call for a total of 5 million dollars (Cdn.) to E.R.G. plus a royalty package based on a sliding scale tied to the gold price. To date, 2.5 million dollars has been paid to E.R.G. with the balance payable in April 1986. In November of 1984 Misty Gold and Cinola agreed to a share exchange whereby Misty Gold is now a wholly-owned subsidiary of Cinola. The obligation for the second payment to E.R.G. is now the responsibility of Cinola on behalf of Misty Gold.

The significance of the year's events is that Cinola can once again own all of the property (subject to a minimal royalty schedule to Energy Reserves) and move ahead to production or negotiate a new financing agreement in the future with another major mining company. At the end of 1984 there were eight major companies appraising the technical data now fully available to Cinola.

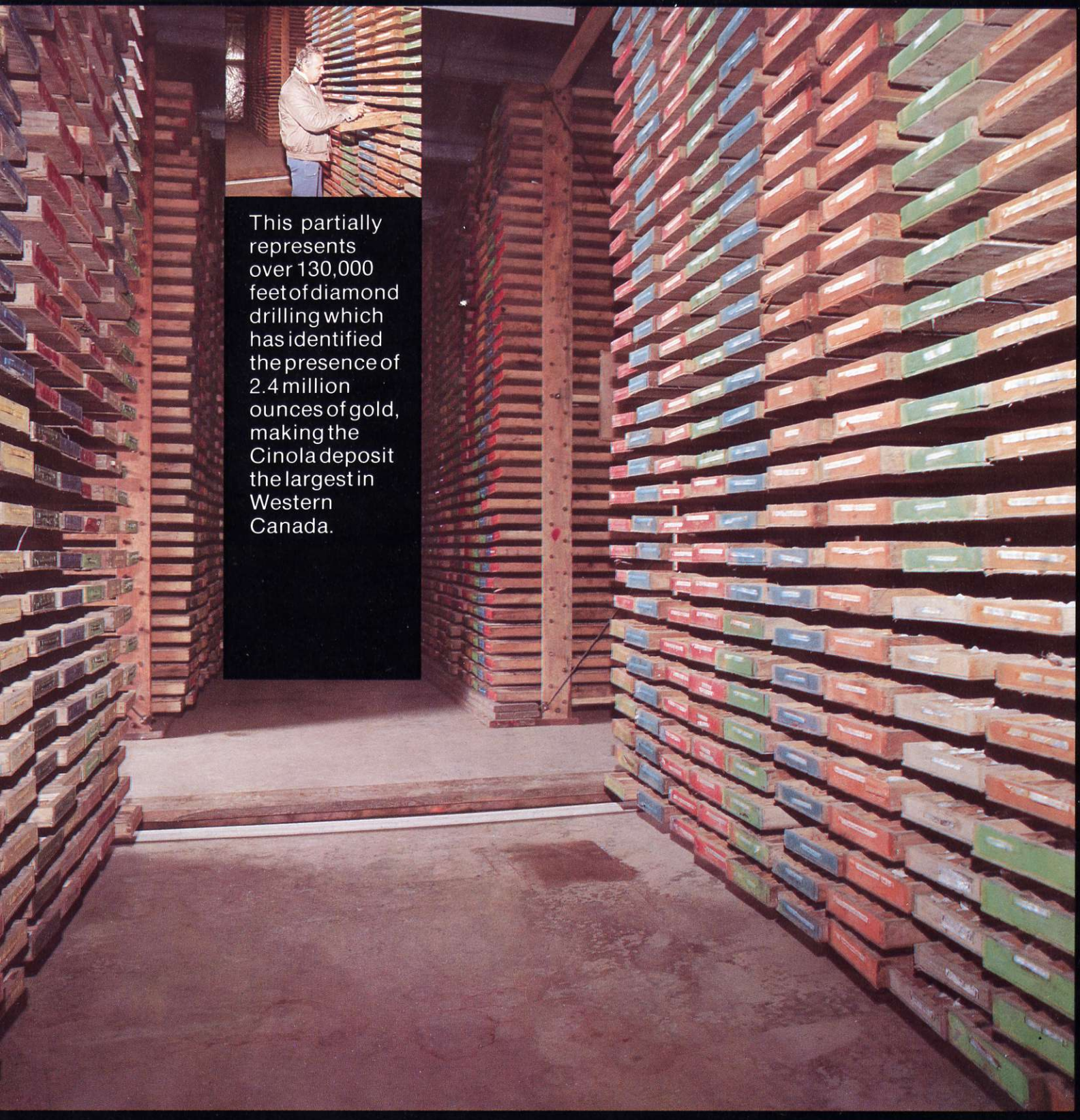
Additional diamond drilling and metallurgical programs were carried out in 1984 to confirm higher grades and test their milling and recovery characteristics. The results showed that gold grades in excess of 0.10 ounces per tonne will give recoveries of 78% and that in excess of ten million tonnes of this grade could be selectively mined from the deposit. E. Ostensoe who conducted the additional diamond drilling concluded "...That a possible 7 million tonne orebody amenable to selective open pit mining at a grade of 0.10 ounce gold per tonne previously identified by data available to Kilborn Engineering probably understates the gold content and that the data base enables some flexibility in calculating the operation parameter for a mining operation". (Report to Consolidated Cinola Mines Ltd. - Inclined Diamond Drilling Cinola Gold Deposit, Graham Island, Queen Charlotte Islands, British Columbia November - December 1984).

In concluding this overview of 1984, we consider this past year as one of major positive significance in the progress towards production from the gold property as we look forward to higher prevailing gold prices in 1985.

On behalf of the
Board of Directors

Reno J. Calabrigo
Interim President and Chief Executive Officer

Angelo Tosi
Chairman of the Board

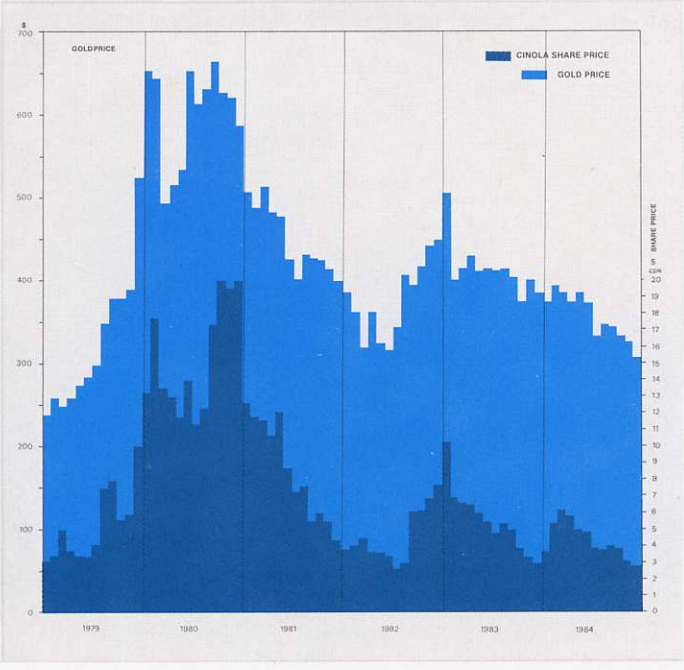


This partially represents over 130,000 feet of diamond drilling which has identified the presence of 2.4 million ounces of gold, making the Cinola deposit the largest in Western Canada.

## OIL AND GAS EXPLORATION

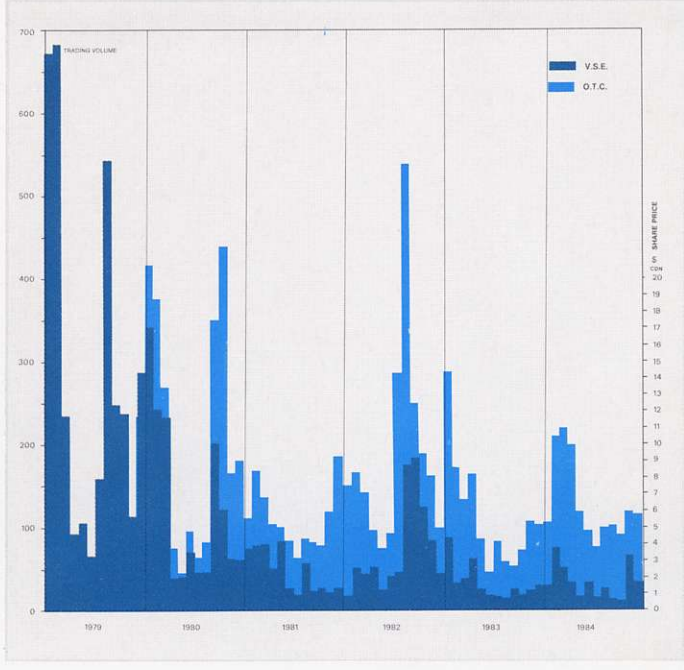
Cinola's participation in Permit 276 in the Canning Basin of Western Australia is still in effect but the first well was not started in 1984 for various reasons. However, the drilling of a stratigraphic hole in the Oakover Graben is scheduled to commence in May 1985.

### CONSOLIDATED CINOLA MINES LTD. MONTHLY CLOSING SHARE PRICE TREND MONTHLY CLOSING GOLD PRICE TREND 1979 - 1984




### CLOSING MONTHLY TRADING VOLUME OF CONSOLIDATED CINOLA MINES LTD. 1979 - 1984

VANCOUVER STOCK EXCHANGE & O.T.C.



# AUDITORS' REPORT TO THE SHAREHOLDERS

We have examined the consolidated balance sheet of Consolidated Cinola Mines Ltd. as at December 31, 1984 and the consolidated statements of deficit and changes in financial position for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as we considered necessary in the circumstances.

In our opinion, these consolidated financial statements present fairly the financial position of the company as at December 31, 1984 and the results of its operations and the changes in its financial position for the year then ended in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Coopers & Lybrand

Vancouver, B.C.
January 18, 1985
(March 15, 1985 as to note 13)

CONSOLIDATED CINOLA MINES LTD.

# CONSOLIDATED BALANCE SHEET

AS AT DECEMBER 31, 1984

| | 1984 | 1983 |
|---|---|---|
| **ASSETS** | | |
| CURRENT ASSETS | $ | $ |
| Cash and short-term deposits | **133,112** | 234,302 |
| Accounts receivable | **7,605** | 1,601 |
| Prepaids | **6,873** | 925 |
| Loans to directors | | 24,000 |
| | **147,590** | 260,828 |
| INVESTMENTS (note 4) | **116,853** | 151,515 |
| QUEEN CHARLOTTE GOLD PROPERTY (note 5) | **8,355,660** | 9,813,024 |
| FIXED ASSETS (note 7) | **31,245** | 30,787 |
| | **8,651,348** | 10,256,154 |
| **LIABILITIES** | | |
| CURRENT LIABILITIES | | |
| Accounts payable and accrued liabilities | **128,226** | 89,333 |
| LONG-TERM ADVANCES (note 8) | **2,500,000** | 9,079,764 |
| CAPITAL LEASE (note 6) | **6,214** | |
| | **2,634,440** | 9,169,097 |
| **SHAREHOLDERS' EQUITY** | | |
| CAPITAL STOCK (note 9) | **9,547,809** | 4,175,689 |
| DEFICIT | **(3,530,901)** | (3,088,632) |
| | **6,016,908** | 1,087,057 |
| | **8,651,348** | 10,256,154 |

NATURE AND CONTINUANCE OF OPERATIONS (note 1)
APPROVED BY THE DIRECTORS

Angelo Tosi
Director

Ken J. Catalyn
Director

# CONSOLIDATED STATEMENT OF DEFICIT

FOR THE YEAR ENDED DECEMBER 31, 1984

| | 1984 $ | 1983 $ |
|---|---|---|
| BALANCE - BEGINNING OF YEAR | **3,088,632** | 2,700,727 |
| Compensation to former employee | **50,000** | |
| Administrative costs - see Schedule | **365,210** | 341,954 |
| Write-down of investment (note 4) | **19,411** | |
| (Gain) loss on disposal of investment | **(17,352)** | 34,765 |
| Write-off of interest on loans to directors | | 11,186 |
| Legal fees relating to settlement with Energy Reserves Canada Ltd. | **25,000** | |
| BALANCE - END OF YEAR | **3,530,901** | 3,088,632 |

# CONSOLIDATED SCHEDULE OF ADMINISTRATIVE COSTS

FOR THE YEAR ENDED DECEMBER 31, 1984

| | 1984 $ | 1983 $ |
|---|---|---|
| Advertising | **2,087** | 87 |
| Automobile | **4,983** | 13,530 |
| Corporation capital tax | **20,977** | 17,344 |
| Depreciation | **7,897** | 8,783 |
| Donations, dues and subscriptions | **2,247** | 1,760 |
| Equipment rental | **9,618** | 5,220 |
| Lease financing costs | **743** | |
| Legal, accounting and audit | **31,532** | 57,482 |
| Office supplies, postage and delivery | **8,230** | 8,086 |
| Printing and stationery | **17,059** | 18,700 |
| Public relations, travel and promotion | **27,780** | 17,871 |
| Rent and taxes | **36,517** | 14,600 |
| Salaries and benefits | **148,681** | 180,946 |
| Sundry | **11,584** | 1,246 |
| Telephone and telegraph | **17,805** | 13,316 |
| Transfer agent fees | **25,193** | 23,082 |
| Professional fees | **1,526** | 4,050 |
| | **374,459** | 386,103 |
| Less: Overhead charges recovered from joint venture | | 20,002 |
| Interest income | **9,249** | 24,147 |
| | **9,249** | 44,149 |
| | **365,210** | 341,954 |

# CONSOLIDATED STATEMENT OF CHANGES IN FINANCIAL POSITION

FOR THE YEAR ENDED DECEMBER 31, 1984

| SOURCE OF WORKING CAPITAL | **1984** **$** | 1983 $ |
|---|---|---|
| Proceeds from issue of capital stock | **122,120** | 189,712 |
| Increase in long-term advances | | 914,360 |
| Proceeds from disposal of investment | **32,603** | 100,000 |
| Issue of shares for takeover of Misty Gold Inc. (note 3) | **5,250,000** | |
| Capital lease (note 6) | **6,214** | |
| | **5,410,937** | 1,204,072 |
| USE OF WORKING CAPITAL | | |
| Exploration and administrative costs | **365,210** | 341,954 |
| Deduct: Item not affecting working capital - Depreciation | **(7,897)** | (8,783) |
| | **357,313** | 333,171 |
| Compensation to former employee | **50,000** | |
| Acquisition of telephone system | **8,355** | |
| Write-off of interest on loans to directors | | 11,186 |
| Exploration and development costs | **376,520** | |
| Loss on disposal of investment | | 34,765 |
| Additions to mineral properties | **4,745,880** | |
| Purchase of investments | | 25,374 |
| Joint venture expenditures | | 1,005,205 |
| Legal fees re debt settlement (note 8) | **25,000** | |
| | **5,563,068** | 1,409,701 |
| DECREASE IN WORKING CAPITAL | **(152,131)** | (205,629) |
| WORKING CAPITAL - BEGINNING OF YEAR | **171,495** | 377,124 |
| WORKING CAPITAL - END OF YEAR | **19,364** | 171,495 |
| REPRESENTED BY: | | |
| Current assets | **147,590** | 260,828 |
| Current liabilities | **128,226** | 89,333 |
| | **19,364** | 171,495 |

# NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

FOR THE YEAR ENDED DECEMBER 31, 1984

## 1. NATURE AND CONTINUANCE OF OPERATIONS

The company is in the process of developing its Queen Charlotte gold property (note 5) and is of the opinion that these properties contain economically recoverable ore reserves. During the year, the company entered into agreements to restructure the ownership of the property (notes 3, 5 and 8). Pursuant to these agreements, the company has an obligation in the amount of $2,500,000, upon satisfaction of which it will have a 100% interest in the Queen Charlotte gold property. The company is currently attempting to arrange the necessary financing to satisfy this obligation.

The recoverability of the amounts shown for mineral properties and deferred costs is dependent upon the ability of the company to obtain the necessary financing to satisfy the obligation of $2,500,000 and to complete the development, and upon future profitable production.

## 2. SIGNIFICANT ACCOUNTING POLICIES

(a) Principles of Consolidation

The consolidated financial statements include the accounts of the company and its wholly-owned subsidiary, Misty Gold Inc., consolidated from November 21, 1984, the date of purchase.

(b) Deferred Costs

Each group of permits or licences in a designated exploration or development area is accounted for as a separate area of interest. All exploration costs and administration costs are written off in the year incurred. If it is determined that an area of interest contains economically recoverable reserves, all development costs, including interest, relating directly to that area are deferred. These deferred development costs, together with property acquisition costs, will be amortized against related revenues by the unit-of-production method upon commencement of commercial production.

(c) Fixed Assets

Fixed assets are carried at cost less accumulated depreciation. Annual depreciation is provided as follows:

| Asset | Method | Rate |
|---|---|---|
| Office furniture | Declining-balance | 20% |
| Automobile | Declining-balance | 25% |
| Telephone system | Declining-balance | 20% |

(d) Loss per Share

Basic loss per share has not been calculated as it is not considered meaningful at this state in the company's operations.

## 3. ACQUISITION OF SUBSIDIARY

On November 21, 1984, the company acquired 100% of the shares of Misty Gold Inc. (Misty), a company acquiring a 50% interest in the Queen Charlotte gold property (note 5). The transaction, which involved the issuance to the shareholders of Misty of one share of the company for each share of Misty, has been accounted for by the purchase method. Details of the transaction are as follows:

| | | $ |
|---|---|---|
| Purchase price of 50% interest in the Queen Charlotte gold property | 2,500,000 | |
| Intercompany debt, at cost | 2,500,000 | |
| Advances to Cinola | 534,120 | |
| Liability assumed | (2,500,000) | 3,034,120 |
| Consideration - 1,500,000 shares at an attributed value of $3.50 | 5,250,000 | |
| - legal fees | 30,000 | 5,280,000 |
| Excess of cost over net book value attributed to mineral property (note 5) | | 2,245,880 |

# NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

FOR THE YEAR ENDED DECEMBER 31, 1984

## 4. INVESTMENTS

| | 1984 $ | 1983 $ |
|---|---|---|
| Kennedy Resources Inc. - at cost 227,000 shares (market value $59,020) (1983 - 288,000 shares) | **56,750** | 72,000 |
| Ark La Tax Industries Ltd. - at market 32,943 shares | **6,588** | |
| Ark La Tex Petroleum Corp. - at cost 20,000 shares | | 26,000 |
| Westland Syndicate - at equity 30 units | **53,515** | 53,515 |
| | **116,853** | 151,515 |

All the company's investments are involved in exploration and development of natural resources. At December 31, 1984, there were no quoted values for these investments, except as shown.

During the year, the 20,000 shares of Ark La Tex Petroleum Corp. were exchanged for 32,943 shares of Ark La Tex Industries Ltd. These shares have been written down to market value.

## 5. QUEEN CHARLOTTE GOLD PROPERTY

| | 1984 $ | 1983 $ |
|---|---|---|
| Deferred development costs | **6,817,157** | 6,440,637 |
| Deferred interest charges | **3,883,102** | 2,729,972 |
| Mineral properties | **3,142,415** | 642,415 |
| Excess acquisition cost of Misty Gold Inc. (note 3) | **2,245,880** | |
| | **16,088,554** | 9,813,024 |
| Less: Intercompany debt eliminated on consolidation (note 8) | **(7,732,894)** | |
| | **8,355,660** | 9,813,024 |

The company's mineral properties are situated in the Queen Charlotte Islands, in the Skeena Mining Division, British Columbia. The company is of the opinion that these properties contain economically recoverable ore reserves. These properties were acquired for $450,000 cash and 300,000 shares of the company. Energy Reserves Canada, Ltd. (ERC) earned a 50% interest in these properties, having contributed the initial required $5,000,000 to their development.

Under an agreement dated November 21, 1979, the company and ERC entered into an unincorporated joint venture to explore, develop, mine, process and sell gold and other minerals from the Queen Charlotte gold property. The venturers had equal interests in the assets and liabilities, net earnings or losses of the joint venture. ERC subsequently assigned its interests in the properties and in the joint venture to Energy Reserves Canada (Metals) Ltd. (ERM).

Under an agreement dated August 2, 1984, Misty Gold Inc. (Misty) agreed to acquire the interest of ERM in the joint venture for cash consideration of $2,500,000 of which $1,250,000 has been paid at December 31, 1984, and $1,250,000 is payable on or before April 6, 1985 (note 8). The agreement is subject to a net smelter returns royalty ranging from .5% to 5% unless, subject to certain conditions, Misty elects to satisfy such royalty interest by a lump sum payment in cash (see note 13).

Under an agreement dated August 8, 1984, the company and Misty entered into an unincorporated joint venture to own, explore, and develop the Queen Charlotte property. On November 21, 1984, the company acquired 100% of the shares of Misty (note 3) and, therefore, effectively is acquiring a 100% interest in the property.

In the year ended December 31, 1984, the company expended $376,520 on exploration of the property.

# NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

FOR THE YEAR ENDED DECEMBER 31, 1984

## 6. CAPITAL LEASE

The company has acquired a telephone system by a lease agreement commencing September 1984 for 43 months at $293 per month. The lease payments over the next four fiscal years are as follows:

| | $ |
|---|---|
| 1985 | 3,514 |
| 1986 | 3,514 |
| 1987 | 3,514 |
| 1988 | 880 |
| Total lease payments | 11,422 |

## 7. FIXED ASSETS

| | 1984 | | | 1983 |
|---|---|---|---|---|
| | **Cost** **$** | **Accumulated depreciation** **$** | **Net** **$** | Net $ |
| Office furniture | **46,401** | **29,102** | **17,299** | 21,624 |
| Leasehold improvements | **3,229** | **3,229** | | 969 |
| Automobile | **16,848** | **10,702** | **6,146** | 8,194 |
| Telephone system (note 6) | **8,355** | **555** | **7,800** | |
| | **74,833** | **43,588** | **31,245** | 30,787 |

## 8. LONG-TERM ADVANCES AND CONTINGENCY

| | **1984** **$** | 1983 $ |
|---|---|---|
| Due to ERC and ERM | **2,500,000** | 9,079,764 |

ERC and ERM had commenced an action in the Courts with respect to funds expended on the Queen Charlotte gold property on the company's behalf. This claim was settled out of court by Misty under an agreement dated August 2, 1984 whereby Misty agreed to purchase the claim against the company from ERC and ERM for consideration of $2,500,000 of which $1,250,000 was paid on the execution of the agreement with the balance of $1,250,000 due on April 6, 1985 (see note 13). The company subsequently acquired 100% of the shares of Misty (note 3). A credit of $7,732,894 arising from the elimination of the intercompany debt on consolidation has been deducted from the deferred exploration and development costs of the joint venture (note 5). This amount is determined as follows:

| | $ |
|---|---|
| Contribution to joint venture by ERC and ERM on behalf of the company | 6,349,792 |
| Accrued interest in dispute | 3,883,102 |
| ERC and ERM's claim against the company | 10,232,894 |
| Cost of acquisition of above claim by Misty | 2,500,000 |
| Elimination of intercompany debt on consolidation | 7,732,894 |

Under the same agreement (note 5), Misty acquired ERM's 50% interest in the Queen Charlotte gold property for a sum of $2,500,000 out of which $1,250,000 was paid on the execution of the agreement with the balance of $1,250,000 due on April 6, 1985 (see note 13).

Should Misty be unable to satisfy the $2,500,000 obligation, the August 2, 1984 agreement would be in breach, and the company would have an obligation at December 31, 1984 of approximately $10,000,000 with respect to advances to the joint venture by ERC and ERM on its behalf, and accrued interest thereon.

# NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

FOR THE YEAR ENDED DECEMBER 31, 1984

## 9. CAPITAL STOCK

| | 1984 $ | 1983 $ |
|---|---|---|
| Authorized - | | |
| 10,000,000 shares without par value | | |
| Issued and fully paid - | | |
| 3,842,788 (1983 - 3,799,788) shares for cash | **3,978,884** | 3,856,764 |
| 690,438 shares for mineral properties | **318,925** | 318,925 |
| 1,500,000 shares for the acquisition of Misty Gold Inc. (note 3) | **5,250,000** | |
| 6,033,226 | **9,547,809** | 4,175,689 |

During the year ended December 31, 1984, the company issued 43,000 shares for a cash consideration of $122,120 relating to options exercised. At December 31, 1984 options were outstanding to directors and employees to purchase 239,000 shares of the company at $2.84 per share prior to August 24, 1985, 144,000 shares at $3.15 per share prior to November 27, 1986 and 138,000 shares at $4.75 per share prior to February 28, 1989.

## 10. INCOME TAXES

No income taxes are payable for the year. At December 31, 1984, the company had approximately $11.8 million of exploration and development expenditures which are available to reduce taxable income in future years. No future tax benefit has been recognized in the accounts.

## 11. COMMITMENTS

The company is committed to make minimum payments under the terms of lease agreements as follows:

| | $ |
|---|---|
| Year ending December 31, 1985 | 26,278 |
| 1986 | 26,278 |
| 1987 | 26,278 |
| 1988 | 26,278 |
| 1989 | 17,517 |

The company has five-year employment contracts with two directors, one officer and one employee of the company commencing January 1981 with options to renew them for an additional five years at the discretion of the individuals. The contracts provide for minimum yearly increments in remuneration at a rate which is 5% higher than the cost of living index. At December 31, 1984 the annual salaries under the contracts totalled $116,943 (1983 - $159,780).

## 12. RELATED PARTY TRANSACTIONS

Related party transactions undertaken by the company during the year are disclosed elsewhere in the notes to the financial statements.

## 13. SUBSEQUENT EVENT

By agreement dated March 15, 1985, the payment of $2,500,000 to ERC and ERM has been delayed one year to April 6, 1986, in consideration of $200,000 cash and the deletion of the buy-out clause of the royalty interest of ERC and ERM.

# CORPORATE DATA

## Officers and Directors:

Angelo Tosi
Chairman and Director

Kenneth G. Sanders, P. Eng.
President and
Chief Executive Officer

Reno A. Calabrigo
Vice President

Reno J. Calabrigo
Vice President, Admin. Secretary and Director

John J. Crowhurst, P. Eng.
Director

## Cinola Operating Company Ltd.:

Kenneth G. Sanders, P. Eng.
Chairman

## Solicitors:

Shrum Liddle & Hebenton
1300 - 999 W. Hastings Street,
Vancouver, B.C. V6C 2W5

Milgrim, Thomajan, Jacobs & Lee
405 Lexington Avenue, New York, N.Y.
10017

## Bank:

Toronto Dominion Bank
Hastings and Hornby,
839 W. Hastings Street, Vancouver, B.C.

## Registrar and Transfer Agent:

Central Trust Company
700 - 750 W. Pender Street, Vancouver, B.C.
V6C 2B2
320 Bay Street, Toronto

## Investment Bankers:

Drexel Burnham Lambert
60 Broad Street, New York, N.Y.

## Exchange Listing:

Vancouver Stock Exchange
Symbol CSZ
Over-the-counter
NASDAQ symbol CCIMF

## Head Office:

440 - 625 Howe Street,
Vancouver, B.C. V6C 2T6

## Registered Office:

1300 - 999 W. Hastings Street,
Vancouver, B.C. V6C 2W5

## Authorized Capitalization:

10,000,000 common shares

## Issued:

6,033,226

## Direct Inquiries to:

Reno J. Calabrigo M.B.A.
440 - 625 Howe Street,
Vancouver, B.C. V6C 2T6
(604) 669-1524

# CASE HISTORIES OF MINERAL DISCOVERIES

## Volume I

# DISCOVERIES OF EPITHERMAL PRECIOUS METAL DEPOSITS

**Victor F. Hollister**
*Editor*

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*of the*
American Institute of Mining,
Metallurgical, and Petroleum Engineers, Inc.
New York, New York • 1985

# Chapter 13

# QUEEN CHARLOTTE, CANADA

## Discovery of the Queen Charlotte Gold Deposit

V. F. HOLLISTER

The Queen Charlotte gold deposit (also known as the Specogna, Babe, or Cinola) was discovered in late 1970 by Efrem Specogna and Johnny Trico. They were prospecting along the trace of the Sandspit fault, and they sampled jarositic material that included veins from the fault zone. Their assays included some good gold values. They located the Babe Claims in 1971 and optioned them to Kennco Explorations Ltd. Kennco conducted stream sediment and soil geochem studies, geological mapping and drilling of 55.2 m (181 ft) in two drill holes. Kennco withdrew from the property, and by 1977, Cominco, Placer Development, Silver Standard, and Quintana Minerals had each successively worked on the deposit. Consolidated Cinola Mines bought the claims in 1977 and completed exploration of the deposit ultimately in a joint venture arrangement with Energy Reserves. Energy Reserves entered in late 1979, and by 1983, a total of 200 surface and 12 underground drill holes had been completed, totaling 28 600 m (93,832 ft). In addition, a 461.9 m (1515 ft) adit was driven in the ore body. Reserves published by Cinola aggregate 34 Mt (37 million st) of 1.7 g (0.060 oz) Au per tonne.

All industry geologists working in the area agree that the Queen Charlotte gold is an epithermal gold deposit in porous volcaniclastic and clastic rocks that is genetically related to a Miocene-Pliocene rhyolite plug. The geologic description here follows the oral presentation made by G. G. Richards, J. S. Christie, and M. R. Wolfhard at a 1976 CIM meeting. Additional comments by the late C. S. Ney of Kennco Explorations are included with the Richards, Christie, and Wolfhard data to complete the geologic setting. The attached reprint by Champigny and Sinclair (1980) provides additional data on the deposit.

The Queen Charlotte (Babe, Specogna, or Cinola) gold deposit is located on Graham Island in the northern Charlotte Islands, at the fault boundary of the Skidegate plateau and the Charlotte lowlands. The Sandspit fault marks the physiographic boundary, and it is intruded by rhyolite porphyry at the deposit. Because displaced geochem anomalies, drainage patterns, and topography suggest dextral and east side down movement for the fault, exposed east block rocks are younger than rocks west of the fault. The east block, which included the ore deposit, is a lowland largely masked by unconsolidated Pleistocene and Recent clastic rocks. Rocks west of the rhyolite plug, on the Skidegate plateau, are Cretaceous carbonaceous and calcareous shale unconformably overlain by a thin veneer of rhyolite tuff. The deposit is about 100 m (328 ft) above sea level.

### GEOLOGIC SETTING

At the ore deposit, the Sandspit fault is a complex structure. However, lithologies on either side of the fault-controlled rhyolite porphyry plug are distinct. West of the rhyolite, the upper member of the Cretaceous Haida formation shale is the most common rock type. The member is composed of dark grey to black, poorly consolidated, and thinly bedded carbonaceous and calcareous shale. The sequence is silicified to an argillite or a hornfels near the rhyolite. West of the rhyolite porphyry plug, but not importantly involved in the mineralization, is a thin masking cover of rhyolite tuff. The tuff unconformably succeeds the cretaceous shale, but it is largely eroded in the mine area.

East of the fault-controlled rhyolite porphyry plug is a thick section of conglomerate and sandstone of the Miocene-Pliocene Skonun formation. The ore body occurs within the coarse clastics, the rhyolite intrusive as the western boundary. Ore is entirely contained within the clastics. Original permeability of the clastic rocks was a major control for ore deposition and alteration, and for that reason, the Skonun formation is described in greater detail.

The Skonun formation clastics unconformably overlie Haida shale. The Skonun is at least 300 m (984 ft) thick in the mine area, where it trends northerly and dips easterly 15° to 25°. The sequence is about 62 percent conglomerate, 31 percent coarse arkosic sandstone, and 7 percent interbedded siltstone and sandstone. Contacts between adjacent beds are generally sharp. Stratigraphic correlations between drill

holes are based on projections of sandstone, siltstone, or conglomerate units rich in mafic volcanic pebbles. The correlations show that some beds are preferred hosts for mineralization, and porosity seems to have been the most important control.

The principal rock type in the ore zone is a medium grey to pale brown polymictic conglomerate with subangular to rounded pebbles and cobbles. The coarse fraction, with an average clast diameter of 3 cm (1.2 in.), comprises 70 percent of the conglomerate. Graded bedding of poorly sorted particles and load cast structures are abundant. Clast lithologies are 60 percent felsic volcanic rock, 20 percent mafic volcanic rock, 10 percent siltstone. The favorable host is therefore composed mostly of felsic volcaniclastic and clastic sediments. Wood fragments, to 3 percent of the rock, are intermixed with both the coarse and fine fraction of the conglomerate. However, as much as 15 percent of the sandstone is wood fragments. Leaves, peat, and shells (pelecypods) accompany the wood.

Rhyolite porphyry occurs in the discovery outcrop and in numerous exploration drill holes. The rhyolite seems to be controlled by a strand or branch of the Sandspit fault, although separate dikes are exposed outside of the main plug. The dikes contain up to 20 percent fragments of silicified black shale. The contact zone of the plug and the intruded rock includes a mixture of rhyolite breccia, with Skonun conglomerate and sandstone fragments, developed as the rhyolite penetrated the Haida and Skonun formations. In outcrop the rhyolite is variably brecciated. Unweathered rhyolite is pale grey and contains about 3 percent quartz eyes and 10 percent feldspar phenocrysts. The ground mass is too altered for its protolith to be determined.

The Sandspit fault, at the mine, is called the Footwall fault. This fault, although occupied by the rhyolite porphyry, may not be the main strand of the fault, but it is part of that system. It is clear from the field relationships that fault movements occurred during alteration and mineralization.

## ALTERATION AND MINERALIZATION

The Skonun coarse clastics are pervasively altered by silicification, sericitization, and illite and kaolin argillization. Clay and sericite alteration are most extensive. Supergene kaolin also occurs near the surface. Near the rhyolite porphyry, alteration tends to be stronger in some strata, and it weakens from the rhyolite contact to the east. Both clay and sericite occur in the matrix as well as in the clasts of the conglomerate. Pyrite and marcasite also occur pervasively in the conglomerate and as a replacement of wood fragments. These sulfides constitute about 2 percent of the altered Skonun rocks. Chlorite occurs within 20 m (66 ft) of the rhyolite porphyry as disseminations and stringers. The rhyolite is altered to clay, with lesser sericite and silicification also occurring. The Haida shale is altered near the rhyolite porphyry, mostly to clay. Clearly the silica cap has been removed by erosion and the bonanza zone is exposed in the Queen Charlotte deposit.

Mineralization is controlled by the bedding and by stringers and stockworks related to fault movement. Hypogene mineralization includes very fine grained quartz, chalcedony, pyrite, marcasite, hematite, native gold, and cinnabar. Chalcopyrite and sphalerite occur as rare microscopic traces. Barite is suggested by some analyses, and carbon is present as a black, very fine grained dust in the siliceous veins. Calcite and adularia are not obvious in the veins. Pyrite and marcasite are the most usual vein sulfides, but some pyrite and marcasite concentrations are barren of gold. The gold is normally very fine grained.

Petrographic studies suggest that gold mineralization occurs in two stages. The earliest is extremely fine grained gold, with an Au:Ag ratio of about 1:3. The average grade of this stage ore is on the order of 1 g (0.035 oz) Au. No copper, lead, or zinc sulfides occur at this stage, and mineralization probably is selectively controlled by porosity of the strata. Mineralization seems to decrease away from the fault and its rhyolite intrusion in this stage.

The second stage is associated with steeply dipping veins and veinlets that cut the clastics. The gold grain size is generally somewhat larger, and the Au:Ag ratio is 1. The average grade of the quartz veins is on the order of 8.5 g (0.3 oz) Au, and copper, zinc, and lead sulfide occur in this stage. Mineralization is controlled by veins and veinlets that are mostly steep to vertical.

Oxidation occurs within 20 m (66 ft) of the surface.

## CONCLUSIONS

Clearly, the Queen Charlotte deposit is typical of epithermal mineralization in volcanic and volcaniclastic rocks. Mineralization occurs in a wide range of porosites and chemical properties within conglomerate beds. However, specific beds with higher porosities are preferred hosts. Mineralization altered the conglomerate, and deposited silica and sulfides in the interstices of the clasts. Younger quartz-chalcedony veins cut the bedding and carry better grade gold values. The sulfide mineralogy and the illite-kaolin-sericite alteration are typical of mineralization found below the silica cap, in the bonanza zone.

# Progress Report on the Geology of the Specogna (Babe)Gold Deposit*

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## INTRODUCTION

Specogna (Babe) gold property consisting of 41 full claims and seven fractions is 17.6 km (11 miles) south of the town of Port Clements on Graham Island (Fig. 1). The showing is a prospecting discovery, founded in late 1970 by Efrem Specogna and Johnny Trico. Five companies optioned the property successively from 1971 to 1975 during which time geochemical sampling, trenching, and diamond drilling were conducted. Consolidated Cinola Mines Ltd., the present owner, bought the claims in 1977 and diamond drilled a total of 708 m (2323 ft) the same year. Another 1 254 m (4114 ft) of diamond drilling in 1978 and 2 041 m (9977 ft) in the first eight months of 1979 have been completed. Sutherland Brown and Schroeter (1975) were the first to describe the showings formally and produced a generalized geological cross-section of the deposit. A more detailed description was given by Richards, et al. (1975) who emphasized the fine-grained character of the siliceous ore and the general geochemical expression. Our study is based on detailed geological examination of 5 506 m (18,064 ft) of diamond-drill core and limited surface exposure during the summer of 1979. Computerized logging techniques (GEOLOG System) were used as a basis for the work (Blanchet and Godwin, 1972; Godwin, Hindson, and Blanchet, 1977). The GEOLOG System proved to be a useful tool for rigorous description of such a large amount of drill core.

## REGIONAL GEOLOGY

The general area about the Specogna gold deposit includes a major fault system and four main rock formations (Sutherland Brown, 1968). These include Sandspit fault system, the Haida and Honna formations of Cretaceous age, the Masset formation of Early Tertiary age, and the Skonun formation of Mio-Pliocene age (Fig. 2).

Sandspit fault system separates the two main physiographic provinces of the area, Queen Charlotte lowlands on the east and the Skidegate plateau to the west. The fault zone strikes about 143 degrees and seems to have involved large vertical movement. Southwest of the deposit, the Haida

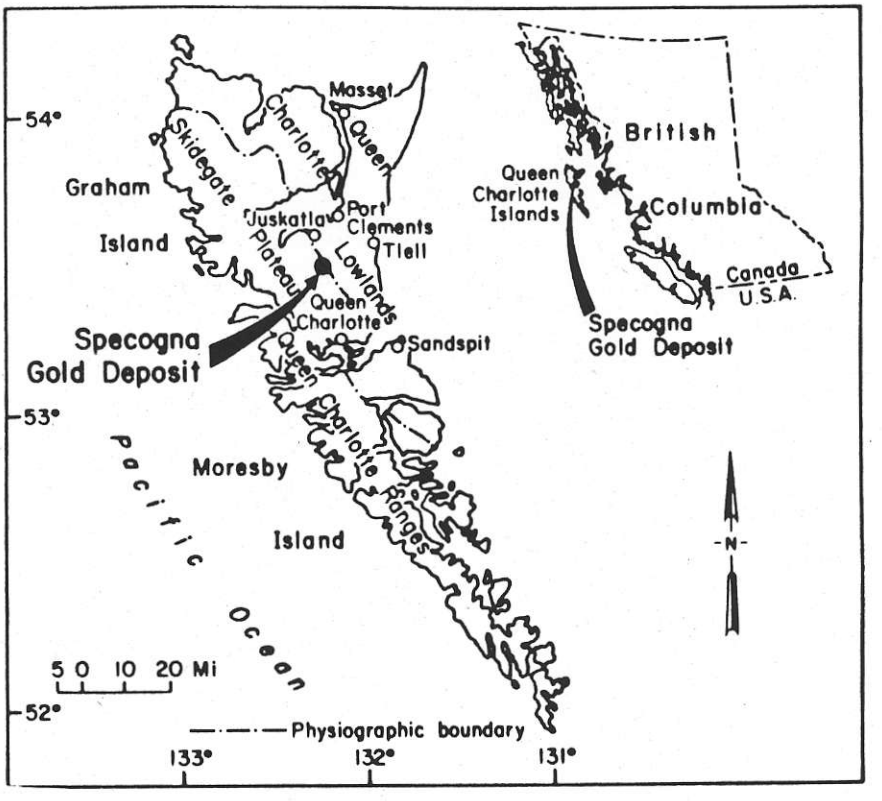


**FIG. 1.** Location of the Specogna gold deposit, British Columbia.

*Reprinted from "Progress Report on the Geology of the Specogna (Babe) Gold Deposit," by N. Champigny and A. J. Sinclair, *Geological Fieldwork, 1979*, Province of British Columbia, Ministry of Energy, Mines and Petroleum Resources, 1980, pp. 159–171. Used by permission.

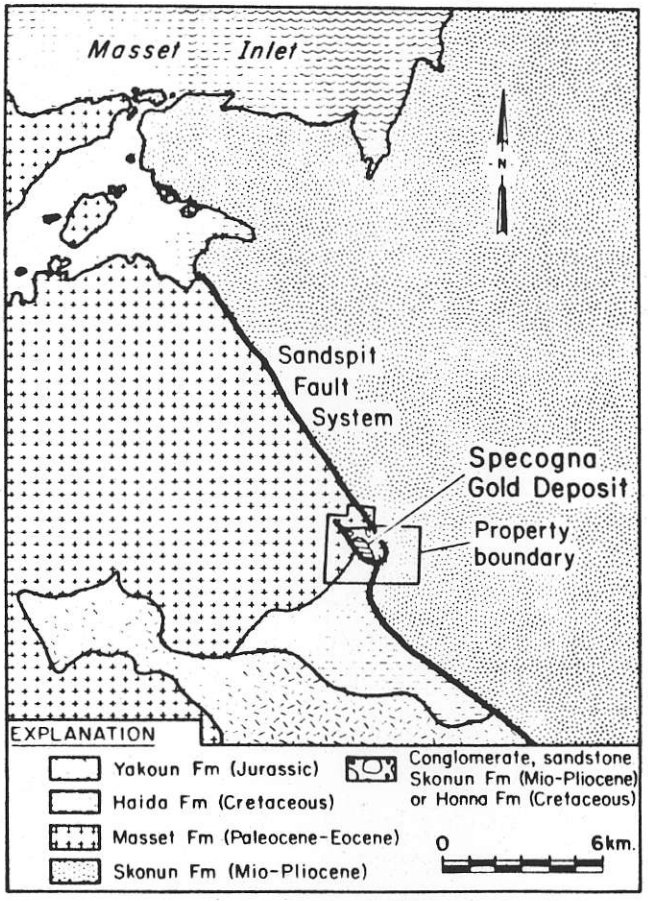


**FIG. 2.** Rock formations of the area around the Specogna gold deposit.

formation is divided into a lower sandstone member and an upper shale member (Sutherland Brown, 1968). The overlying Honna formation was mapped originally as an extension of the Haida formation. Identified lithologies are conglomerate with coarse pebbles to small cobbles, coarse sandstone, and minor siltstone or shale. Sutherland Brown and Schroeter (1975) remapped these sedimentary rocks as part of the Skonun formation. West of the gold prospect the Masset formation marks the beginning of the Skidegate plateau. It is composed exclusively of volcanic rocks ranging from mafic to felsic in composition. East of the Sandspit fault system, the Queen Charlotte lowlands are underlain by the Skonun formation consisting of poorly lithified sands, shale, and conglomerate (Sutherland Brown, 1968).

## STRATIGRAPHY

The deposit is situated on two small hills [210 m (689 ft) above sea level] between the Skidegate plateau and the Queen Charlotte lowlands. A shale sequence representing the Haida formation and an overlying interbedded sequence of pebble conglomerate and coarse sandstone of Skonun age are both intruded by a stock of rhyolite porphyry (Fig. 3). A thin cover of glacial till and sand overlies all rocks.

## SHALE SEQUENCE—HAIDA FORMATION

This formation extends from the Masset volcanic rocks on the west side of the property to the overlying coarse clastic sequence on the east. The thickness of the shale sequence on the property is unknown although Sutherland Brown (1968) reported that the upper shale member of the Haida formation is 320 m (1050 ft) thick at the type locality. A maximum thickness of 34 m (112 ft) was penetrated in drill hole 79-5. The sequence is composed of dark grey to black, poorly consolidated and thinly bedded calcareous shale. Minor sandy layers have been observed. Near the contact with the rhyolite porphyry, the shale sequence becomes an argillite or hornfels due to intense silicification. On the basis of lithology this shale sequence appears to correlate with the upper member of the Haida formation.

## CONGLOMERATE—SANDSTONE SEQUENCE

A coarse sedimentary sequence overlies the Haida formation to the west and extends to the Sandspit fault system on the east (Fig. 3). The contact between the two sequences has not been observed clearly in drill core because of pervasive silicification and intrusion of the rhyolite porphyry (Figs. 3, 4, and 5). Thickness of the sequence throughout the drilled area varies from 0 to 300 m (984 ft). Strike changes from northwesterly to northeasterly with most of the values around 015 degrees. Strata consistently dip 15 degrees to 25 degrees to the east. Thicknesses of mappable units range from 0.1 to 30 m (0.3 to 98 ft), with a 2-m (6-

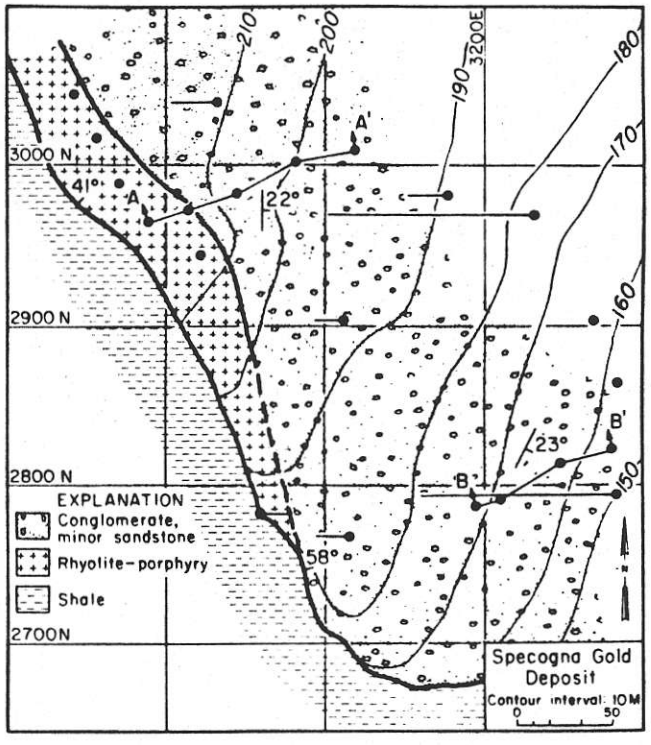


**FIG. 3.** Stratigraphy of the Specogna gold deposit.

ft) average. The sequence contains about 62 percent conglomerate, 31 percent coarse sandstone, and 7 percent interbedded sandstone and siltstone with minor shale interbeds. Contacts between adjacent units in the sequence are generally sharp but transitional contacts are also observed. Mafic volcanic pebble-rich conglomerate, interbedded sandstone, and shaly siltstones and some sandstone units have been used successfully for stratigraphic correlation between drill holes (Figs. 4 and 5).

The principal rock type is a medium grey to pale brown polymictic conglomerate with well-rounded to subangular large pebbles and small cobbles. Graded bedding and load cast structures are abundant. The coarse fraction totals 70 percent of the rock with an average fragment diameter of 3 cm (1.2 in.). Particles are moderately poorly sorted and sphericity is low to intermediate. Most of the conglomerate units are pebble supported. Pebble and cobble lithologies are 60 percent felsic volcanic rock, 20 percent mafic volcanic rock, 10 percent granite, 5 percent argillite and shale, and 5 percent conglomerate, sandstone, and siltstone. Acid volcanic clasts include massive and banded rhyolite, rhyolite porphyry, quartz, and rare pyroclastics, chert, and hematitic rhyolite porphyry. Mafic volcanic pebbles are mostly dark green porphyritic andesite with feldspar and hornblende phenocrysts. Granitic fragments consist of a quartz feldspar mosaic with about 10 percent disseminated mica. Commonly 1 to 3 percent of wood fragments are intermixed with the coarse and fine fraction. The matrix of these conglomerates occupies 30 percent of the volume of the rock, and grains are a medium to coarse-grained sand size.

Sandstone units are medium grey to dark brown, medium to coarse grained with bedding and graded bedding commonly apparent. Two to 15 percent wood fragments are present with rare occurrences of leaves and shells.

Minor but persistent medium to pale grey interbedded sandstone and siltstone-shale units are found locally. They show bedding, graded bedding, crossbedding, ripple marks, and rare convolute bedding and flame structures. Local soft sediment slumping is indicated by conglomerate lenses in sandstone units, disrupted bedding, and matrix replacement.

The coarse nature of the sediments, their polymictic character, and rapid changes from conglomerate to sandstone units suggest a marine near shore environment of deposition for the clastic sequence. The sequence appears to correlate with the Skonun formation based on lithologic similarity (Sutherland Brown and Schroeter, 1977).

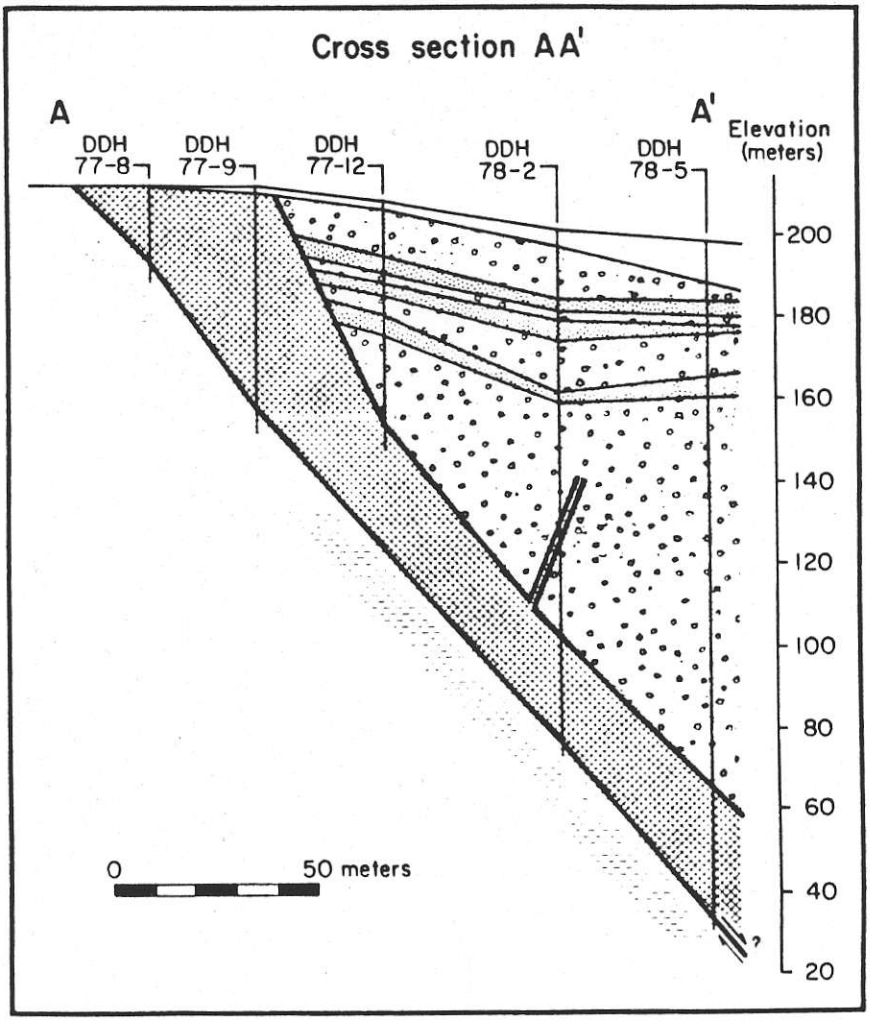


**FIG. 4.** Cross-section A–A' (location shown on Fig. 3; see Fig. 5 for legend).

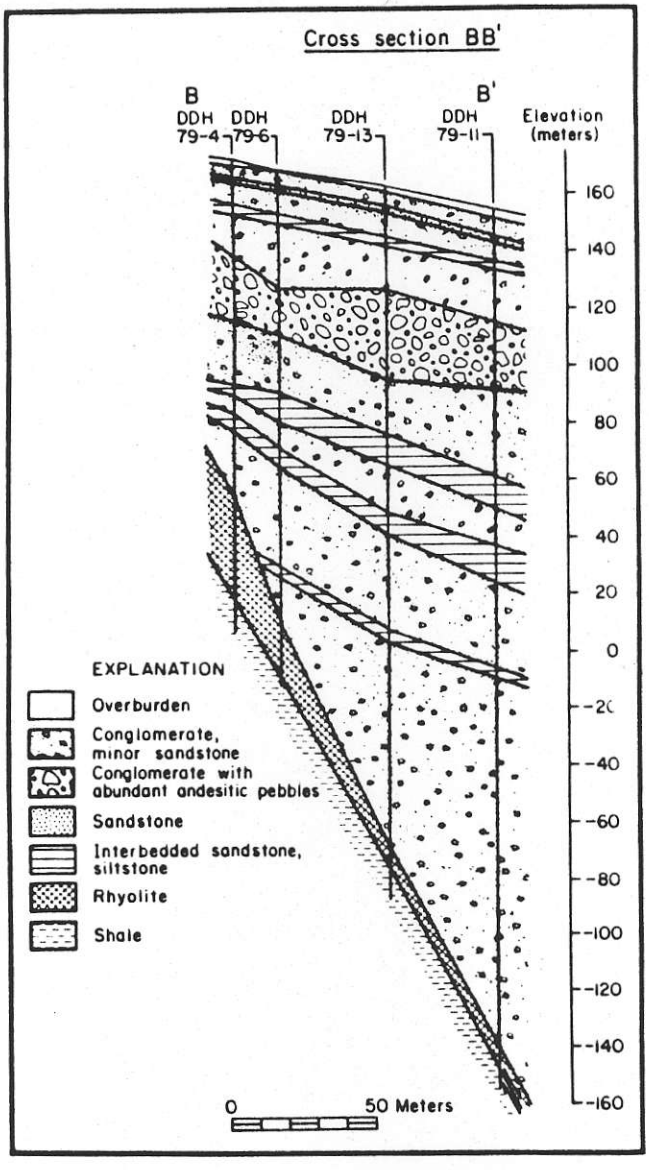


**FIG. 5.** Cross-section B–B′ (location shown on Fig. 3).

## RHYOLITE PORPHYRY

A stock of rhyolite porphyry crops out sparsely east and west of the footwall fault. Dykes of the same composition crop out within the shale sequence west of the footwall fault. In drill hole 77-5 the porphyritic rhyolite crosscuts the shale sequence at four intervals of a few meters each. These dykes or sills contain up to 20 percent fragments of black silicified shale. In drill hole 79-4, from 144 to 147 m (472 to 482 ft), a series of shale lenses is intermixed with the porphyritic rock. Sandstone and conglomerate fragments are found in the quartz feldspar porphyry in drill hole 78-3 from 102 to 103 m (335 to 338 ft). A porphyritic dyke intersects a conglomerate unit from 44.3 to 44.7 m (145 to 147 ft) in drill hole 78-4. These field relations indicate that the rhyolite porphyry is younger than both the shale and conglomerate-sandstone sequence. Locally the contact with the coarse clastic sequence is sharp but in many places a transition zone exists. The contact zone is composed of a mixture of highly deformed conglomerate, sandstone, and rhyolite fragments in an aphanitic bluish grey siliceous matrix.

The thickness of the main rhyolite porphyry mass decreases to the east (Figs. 4 and 5). Drill hole 75-4 intersected 155 m (509 ft) of intermized rhyolite porphyry and shale after penetrating the footwall fault.

The rock is pale grey and contains 2 to 3 percent bluish grey subrounded quartz eyes 1 to 4 mm (0.04 to 0.16 in.) in diameter and 5 to 10 percent white subhedral to euhedral feldspar phenocrysts. The rhyolite is brecciated in many places with the fragments contained in a dark grey to black siliceous matrix. Aphanitic fragments of rhyolite in a white glassy matrix and streaky banding with preferential orientation of the phenocrysts are observed. These two features are possibly characteristic of an extrusive phase of the porphyry.

## STRUCTURE

The major structural feature of the Specogna gold deposit is the footwall fault, which strikes 157 degrees and dips 40 to 60 degrees to the east (Figs. 4 and 5). The footwall fault parallels the Sandspit fault system and is probably a part of that system. In the drill core the footwall fault is recognized by an abrupt change from silicified shale to soft, relatively fresh shale. Slickensides have been found in drill hole 79-4 at 153.5 m (504 ft) in altered rhyolite porphyry. On surface the fault is visible as a scarp near the southwest boundary of the deposit (Fig. 3). Northwest of the present drilling area, an outcrop called the Marino showing exposes the fault contact. At the base of the exposure a gouge zone, 20 cm (7.9 in.) wide, separates the rhyolite porphyry from a black homogeneous shale. Slickensides are abundant in the shale. There the footwall fault strikes 150 degrees and dips 55 degrees to the east.

In drill hole 75-4, located 250 m (820 ft) northwest of the Marino showing, the rhyolite porphyry is observed both beneath and above the footwall fault. Thus, faulting occurred at least in part after the intrusion of the rhyolite porphyry. Displaced gold geochemical anomalies, drainage patterns, and topography suggest a dextral fault with a downward movement of the east block. This is the same movement picture observed for the Sandspit fault system (Sutherland Brown, 1968).

## DISTRIBUTION, FORM, AND SETTING OF THE DEPOSIT

The gold-silver deposit terminates abruptly against the footwall fault to the west and dies out gradually to the north and east (Fig. 3). The rocks are highly anomalous in mercury and arsenic and less anomalous in antimony, copper, and zinc. Gold and silver values are plotted on Figs. 6 and 7. Two distinct populations are recognized: a first population of low-grade gold and silver values with a wide range of gold/silver ratios, and a second population of high-grade gold values with gold/silver ratios of about 2:1. Gold values range between 0.0003 and 0.078 kg/t (0.01 and 2.50 oz per

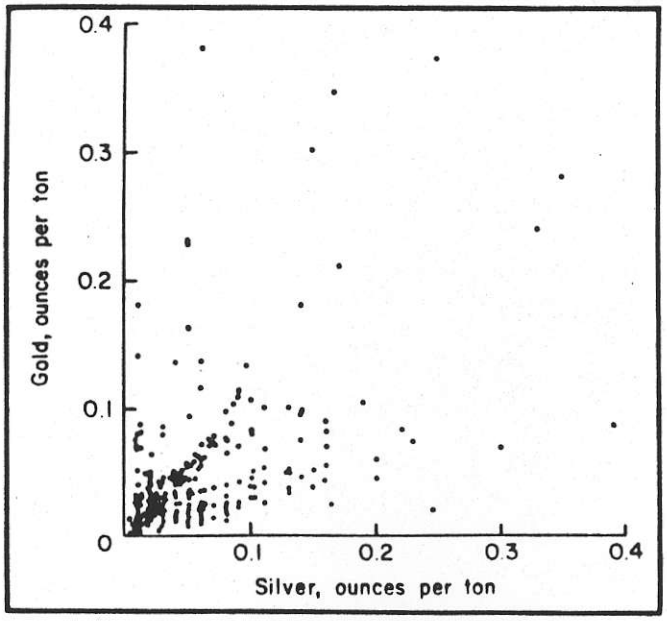


**FIG. 6.** Gold-silver scatter diagram for low-grade assays from drill core, based largely on 2-m (6.6-ft) core lengths.

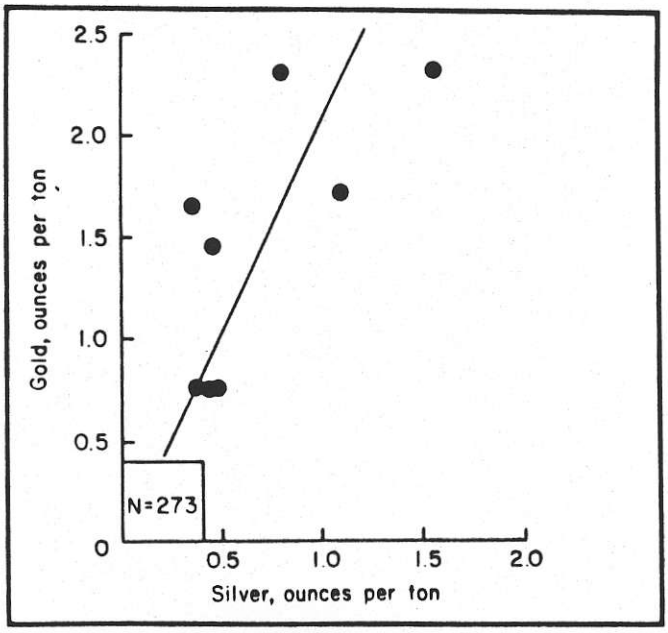


**FIG. 7.** Gold-silver scatter diagram for high-grade assays (> 10 g/t gold), based on 2-m (6.6-ft) core lengths. The straight line represents a gold/silver ratio of 2:1.

st). High-grade gold values (that is, greater than 5.7 ppm) are found in quartz veins and at the contact zone between the rhyolite porphyry and the coarse sediments (Fig. 8).

Intense silicification characterizes the host rocks. Leached rims of pebbles and cementation of the matrix in pebble conglomerate units by very fine-grained silica is common. The degree of silicification of the host rocks increases toward the rhyolite porphyry body.

Several generations of veins and stringers crosscut the host rock. Larger veins strike 020 ± 20 degrees and dip 60 to 90 degrees in either direction. Their widths range up to several meters. Increased quartz veining toward the rhyolite porphyry has been measured quantitatively in most drill holes (Fig. 8). Individual veins present clear accretionary features such as crustification, chalcedonic quartz, and development of well-formed quartz and calcite crystals reaching 2 cm (0.79 in.) in size. Wallrock silicification is common. Some veins contain numerous angular fragments of host rock. Banding in the veins is common; several coloured bands of quartz show the different episodes of veining. Microveins and stringers commonly pervade wood fragments, producing a chessboard texture on a hand specimen scale. Crosscutting relationships support the following sequence of veining in order of decreasing age: (1) massive sulphide viens; (2) dark grey to black quartz veins, (3) bluish grey quartz veins, (4) white and cherty quartz veins, and (5) calcite veins.

## MINERALOGY

Opaque minerals identified in drill cores and hand specimens include in decreasing order of abundance: pyrite, marcasite, limonite, hematite, native gold, and cinnabar. Chalcopyrite and sphalerite have been identified in polished sections of rhyolite porphyry from 157 to 173 m (515 to 568 ft) in drill hole 78-6.

Limonite staining (a pale yellow to reddish brown fine-grained mixture) is present on surface exposures and up to a depth of 20 m (66 ft) in drill holes. Hematite occurs as finely disseminated grains in quartz veins and massive veinlets in brecciated rhyolite porphyry.

Iron sulphides are encountered throughout the gold-bearing rocks. Sulphide content ranges from 0.5 to 10 percent, with an average of about 3 percent. No definite correlation can be obtained between sulphide contents and gold values (Fig. 8). Pyrite and marcasite are the most common sulphides. Pyrite is found as rims, disseminations, blebs, veins, and euhedral crystals. Rims of pyrite consist of dark brown very fine-grained coatings on pebbles in conglomerate units. These rims are thought by some geologists to be melnikovite, but verification is required. Needles, rosettes, veins, and rarely crystals are the forms observed for marcasite. Both pyrite and marcasite are present in petrified wood.

Native gold was recognized in quartz veins, with most occurrences in dark grey and bluish grey quartz veins. The gold apparently exists in a very fine form in varying amounts in most of the rock types that have undergone silicification. At the Marino showing abundant fine free gold is visible in white cherty quartz veins. Cinnabar is rare and was noticed only in a few drill holes.

Two general mineral associations are present in high-grade gold-bearing rhyolite porphyry: (1) pyrite-marcasite and (2) pyrite-marcasite-sphalerite-chalcopyrite-native gold. Sphalerite and chalcopyrite have an average grain size of about 0.2 mm (0.0078 in.) in the six polished sections examined. Native gold was observed as monomineralic grains

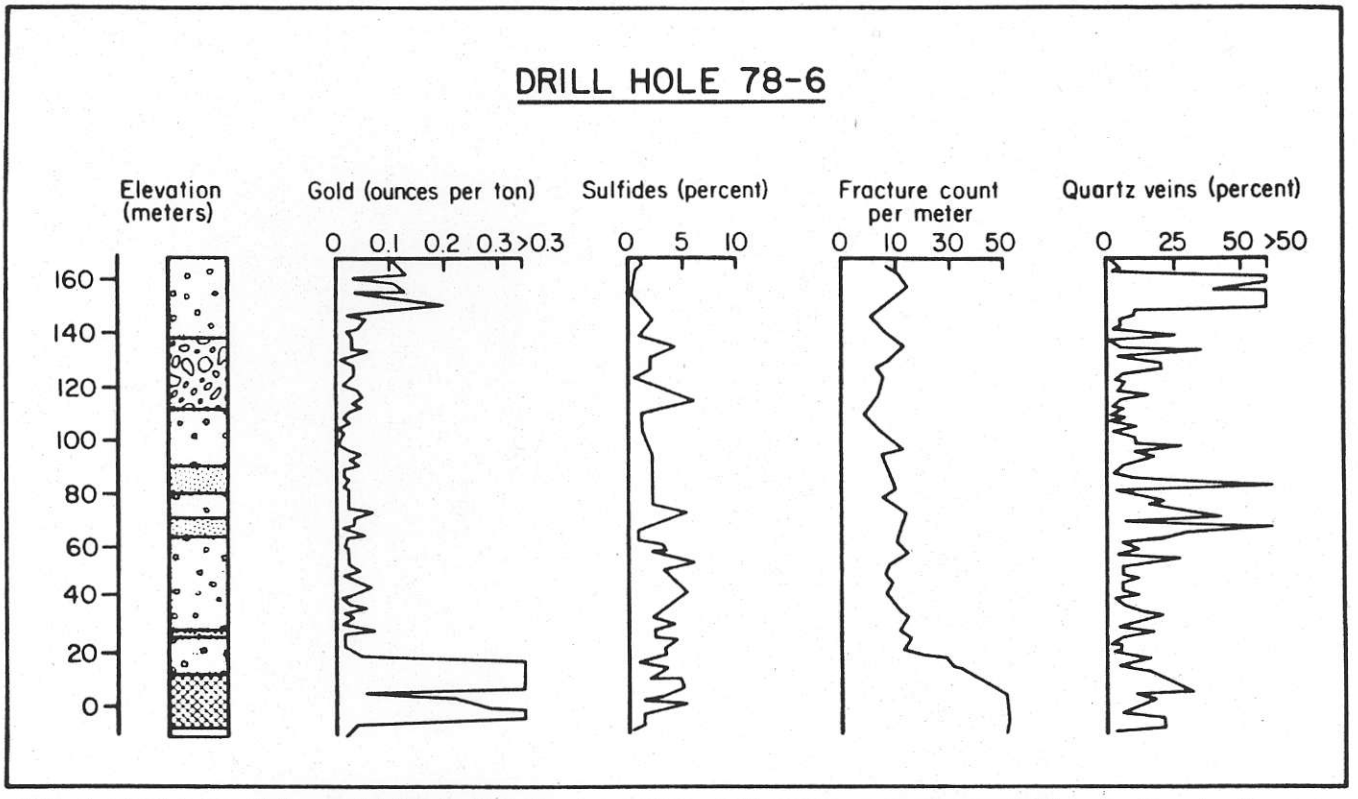


**FIG. 8.** Graphic log of diamond-drill hole 78-6 showing geology, gold assays, percentage sulphides, fracture density, and volume percent of quartz vein in core. Quantitative data are based on core lengths of 2 m (6.6 ft). See Fig. 5 for legend.

in quartz and in places as inclusions in chalcopyrite. Several soft, white unidentified minerals have been observed associated with sphalerite, chalcopyrite, and native gold. Sphalerite is not readily apparent in hand specimen, and minute grains of chalcopyrite can be confused megascopically with native gold. Paragenesis is summarized on Fig. 9.

## ALTERATION

Three alteration minerals have been identified in the gold-bearing host rock: a clay mineral (species unidentified), sericite, and chlorite. Clay and sericite alteration are the most extensive. Clay occurs in gouge zones with a white to greyish matrix and containing isolated pebbles. Feldspar phenocrysts in porphyritic pebbles and in the rhyolite porphyry are also commonly altered to a very fine mixture of clay and sericite. Sericitic alteration is also found as disseminated grains in conglomerate pebbles and matrix and in fine-grained units. Chlorite occurrences seem to be limited to within 20 m (66 ft) of the contact zone with the rhyolite porphyry where it occurs as stringers or finely disseminated grains.

## GENESIS

Sutherland Brown and Schroeter (1975) suggested that the Specogna gold mineralization occurred in a vein system in the rhyolite porphyry which is onlapped by sedimentary rocks of the Skonun formation. Richards, et al. (1976) consider the deposit to be of the Carlin type, and indicate that the rhyolite porphyry is mineralized and is younger than or equivalent to unmineralized Skonun conglomerates, suggestions accepted by Sutherland Brown and Schroeter (1977).

After careful examination of new information available from diamond drilling from 1977 to 1979, there is little doubt that the rhyolite porphyry crosscuts the conglomerate-sandstone sequence. The gold mineralization is superimposed in part on the rhyolite porphyry and appears to be spatially related to the intrusion. Intrusion of the porphyry probably created a hydrothermal system in which ascending fluids rich in gold, silver, mercury, arsenic, and antimony percolated through the porous clastic sequence. Deposition

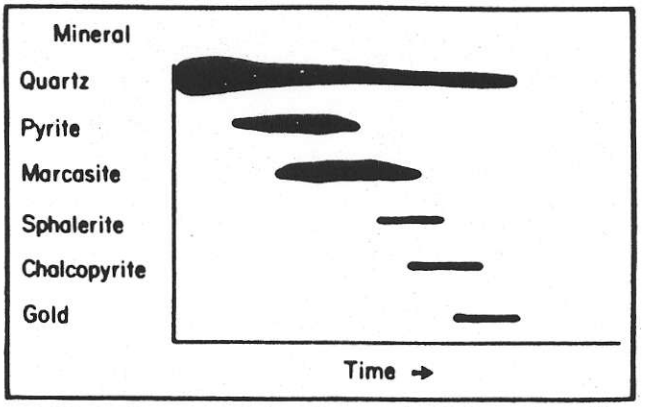


**FIG. 9.** Paragenetic line diagram for high-grade gold occurrences in drill hole 78-6.

of the gold occurred in an early stage of fluid circulation and was followed by later stages of quartz veining.

## ACKNOWLEDGMENTS

The pleasant assistance of K. G. Sanders and A. McKillop of Consolidated Cinola Mines Ltd. is acknowledged with thanks. H. J. Mah and P. H. Blanchet (International Geosystems Corp.) advised on the use of the GEOLOG System. Mr. John Gardiner provided technical assistance in the field.

## REFERENCES

Blanchet, P. H. and Godwin, C. I., 1972, "*Geolog System* for Computer and Manual Analysis of Geologic Data from Porphyry and Other Deposits," *Economic Geology*, Vol. 67, pp. 796–813.

Godwin, C. I., Hendson, R. E., and Blanchet, P. H., 1977, "Geolog: A Computer-based Scheme for Detailed Analysis of Stratigraphy, Especially as Applied to Data from Drill Holes in Coal Exploration or Development," *Bulletin*, Canadian Institute of Mining and Metallurgy, Vol. 70, pp. 123–132.

Richards, G. G., Christie, J. S., and Wolfhard, M. R., 1976, "Specogna: A Carlin-type Gold Deposit, Queen Charlotte Islands, British Columbia," Abstract, *Bulletin*, Canadian Institute of Mining and Metallurgy, Vol. 69, No. 773, p. 64.

Sutherland Brown, A., 1968, "Geology of the Queen Charlotte Islands, British Columbia," *Bulletin 54*, B.C. Ministry of Energy, Mines and Petroleum Resources.

Sutherland Brown, A. and Schroeter, T. G., 1975, "Report on the Babe Gold Prospect, Queen Charlotte Island," *Geological Fieldwork, 1975*, B.C. Ministry of Energy, Mines and Petroleum Resources, pp. 71–75.

Sutherland Brown, A. and Schroeter, T. G., 1977, "Babe Gold Prospect," *Geology in B.C., 1975*, B.C. Ministry of Energy, Mines and Petroleum Resources, pp. G73–G77.

# CONSOLIDATED CINOLA MINES LIMITED

## FACT SHEET

### DEVELOPMENT SUMMARY

| | |
|---|---|
| Number of drill holes: | 226 |
| Total footage drilled: | 96,840 Feet |
| Number of gold assays: | 14,000 |
| Total footage of underground development: | 1,515 Feet |
| Total tonnes milled (Pilot plant): | 5,022.7 Tonnes (5,535 Tons) |

### ORE RESERVE SUMMARY

- GEOLOGIC RESERVES -

| Method | Tonnes | Grade oz./tonne | Cut-off Grade oz./tonne | Total (Gross) Ounces |
|---|---|---|---|---|
| Polygonal (Manual by R.C. Hart) | 39,700,000 | 0.058 | 0.028 | 2,302,600 |
| Krieging Block Model (3 dimensional computer) | 43,251,980 | 0.054 | 0.033 | 2,335,606 |
| $1/d^2$ Block Model (2 dimensional computer) | 37,843,358 | 0.058 | 0.033 | 2,194,914 |
| | Highest Grade | | | |
| By Krieging | 9,980,000 | 0.09 | 0.07 | 898,200 |
| By $1/d^2$ | 10,160,000 | 0.10 | 0.06 | 1,016,000 |

- MINEABLE RESERVES -

| Method | Tonnes | Grade oz./tonne | Cut-off Grade oz./tonne | W/O Ratio | Total Mineable Ounces |
|---|---|---|---|---|---|
| | Cut-off Grade based on less than 75% Recovery | | | | |
| Minepak System (Moving Cone. Computer) - $335.00 gold | 38,000,000 | 0.056 | 0.033 | 1.14 to 1 | 2,128,000 |
| $1/d^2$ Model (Computer) - $335.00 gold | 34,320,000 | 0.060 | 0.033 | 1.37 to 1 | 2,059,000 |
| International Geosystems - $326.50 gold | 27,526,315 | 0.055 | 0.017 | 0.275 to 1 | 1,514,000 |
| International Geosystems - $400.00 gold | 40,086,206 | 0.052 | 0.017 | 0.469 to 1 | 2,076,225 |
| | Highest Grade | | | | |
| $1/d^2$ Model - $335.00 gold | 10,060,000 | 0.097 | 0.070 | Not stated | 975,820 |
| I.G.S. - $326.50 gold | 7,288,566 | 0.089 | 0.064 | 3.815 to 1 | 650,592 |
| I.G.S. - $400.00 gold | 8,843,920 | 0.093 | 0.064 | 5.661 to 1 | 818,664 |

### METALLURGY SUMMARY

| | | |
|---|---|---|
| Work Index | - | 18.7 to 25.4 |
| Final Grind | - | 80% minus 325 mesh |
| Mill Capacity | - | 3,000 tonnes per day to 7,000 tonnes per day. |
| Head Grade | - | 0.04 oz. per tonne to 0.14 oz. per tonne. |
| Flotation Tailings Grade (Varies directly with head grade) | - | 0.007 oz. per tonne to 0.014 oz. per tonne. |
| Flotation Recovery Range (Varies directly with head grade) | - | Between 82% and 92% depending on head grade |
| Concentration Ratio | - | 12-15 to one. |
| Concentrate Grade | - | 1.2 - 1.5 oz. per tonne. |
| Chlorinization/Cyanidation Recovery Range | - | 95 - 98% for both gold and and silver. |
| Overall Recoveries (Varies directly with head grade) | - | From 78% - 90% |

### COST SUMMARY

| | | |
|---|---|---|
| Operating Cost per Tonne Milled | - | $13.00 to $22.00 - depending on mill capacity. |
| Capital Cost Requirements | - | $50,000,000 to $120,000,000 |

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# GLOBAL MARKETS

VOL. 2, NO. 6 AUGUST 30, 1985

# Consolidated Cinola Mines Ltd.

Stock Listings:
Vancouver - CSZ
NASDAQ (U.S.) - CCIMF

Yesterday's Close:
C$3.00, US$2.25

Common Stock: n.p.v.
Authorized shares: 10 million
Issued shares: 6.15 million

Having spent nearly ten years exploring a promising gold property on British Columbia's Queen Charlotte Islands, CONSOLIDATED CINOLA MINES LTD. continues to pursue their goal of developing the property into an open-pit gold mine.

Exploration on the property, at a cost of more than C$18 million so far, has outlined an orebody estimated to contain some 2.4 million ounces of gold, ranking it among western Canada's largest known deposits.

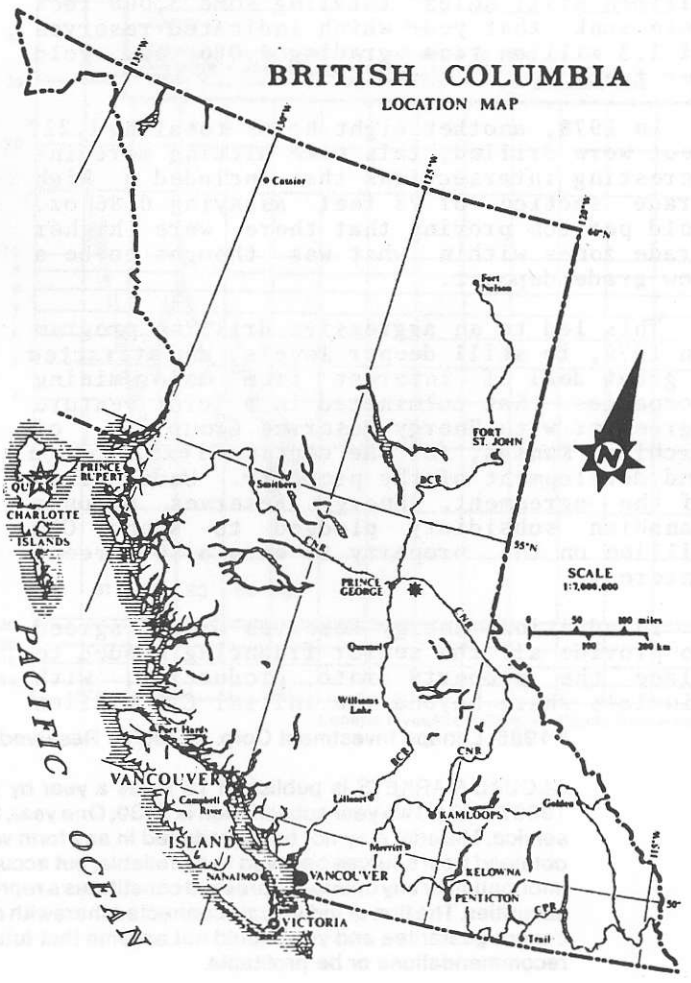
## AN EARLY HISTORY

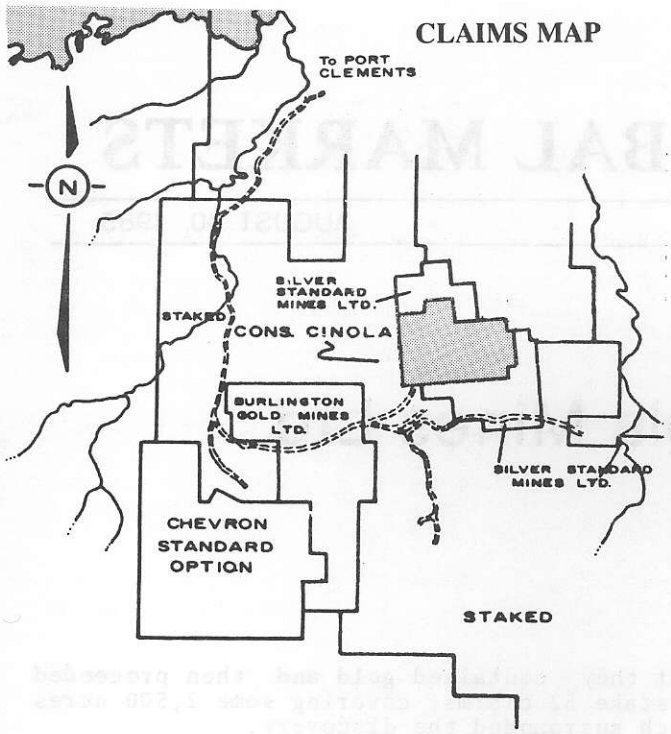
Formed in the early 1960's, Cinola's early years were largely uneventful, with the exception of some limited gold production from the Midnite Mine near Trail Creek, B.C.

In 1977 the company's fortunes took a turn for the better, however, when Kenneth Sanders approached them with an interesting gold property on which he had obtained on option from the original discoverer, Efrem Specogna.

Specogna, a logger with major Canadian forest products company MacMillan Bloedel, noted an unusual geological formation while felling trees on Graham Island, the largest of the Queen Charlotte Islands off the coast of British Columbia, in 1970. The formation was a high knob of rock at the base of which were 60-foot high cliffs that were yellow in color. Taking samples for analysis, he learned that they contained gold and then proceeded to stake 52 claims, covering some 2,500 acres which surrounded the discovery.

A number of major Canadian mining companies took and gave up options on the property until Cinola obtained an option in 1977, just as the price of gold began its historic climb.






EXPLORING THE CINOLA PROPERTY

Diamond drilling by Cinola began in 1977 in an effort to begin outlining the deposit. Fifteen drill holes totaling some 3,000 feet were sunk that year which indicated reserves of 1.3 million tons grading 0.086 oz. gold per ton.

In 1978, another eight holes totaling 1,227 feet were drilled, this time hitting more interesting intersections that included a high grade section of 78 feet assaying 0.86 oz. gold per ton proving that there were higher grade zones within what was thought to be a low grade deposit.

This led to an aggressive drilling program in 1979, to still deeper levels, and attracted a great deal of interest from major mining companies that culminated in a joint venture agreement with Energy Reserves Group Inc., of Wichita, Kansas, for the continued exploration and development of the property. Under terms of the agreement, Energy Reserves Group's Canadian subsidiary pledged to spend C$5 million on the property to earn a 50 percent interest.

In addition, Energy Reserves Group agreed to provide all the senior financing needed to place the property into production, with Cinola's share beyond the initial C$5 million to be repaid from 25 percent of its future cash flow.

If Cinola's partner decided to drop out of the project, Cinola had the right to buy back their interest at the rate of C$100,000 for each one percent interest, or could designate another party to do so.

The next few years saw a marked increase in exploration activities, including the drilling of nearly 200 holes, that brought the total drilling to more than 130,000 feet, and led to the completion of a feasibility study in 1983.

That study, which had identified some 34.3 million tons of ore grading 0.06 oz. gold per ton, estimated that the property could be brought into production at the rate of 13,500 tons per day at a cost of C$194.7 million. Annual production would be some 225,000 ounces of gold.

The mineralized zone is 3,000 feet long and 1,000 feet wide, while drill holes have yet to locate the botton of the deposit below the proposed open pit. According to one report, the rocks in the zone were "originally erosion gravels deposited as part of a large river delta system approximately 14 million years ago. The present orebody might be described as a very large gold-bearing gravel deposit [which is] thought to have overlain a volcanic eruption that terminated or cooled before reaching the surface of the earth. The gravels that now comprise the orebody also overlay another formation, and this contact between the two formations provided the path of least resistance for the sub-surface eruption of molten rock and fluids.

"The mineralizing fluids accompanying the eruption were rich in gold, and along with molten rock were forced by the volcanic pressure up along the contact of the two formations. The pressure was not intense enough to force the fluids to the surface so they percolated throughout the loosely packed gravels. Cooling of these fluids resulted in the precipitation of quartz and gold. Because the gravels were so porous, gold is found in the rock itself as well as in quartz veinlets. This explains both the consistency of the gold values throughout the deposit and the immense size of the orebody."

CINOLA NEGOTIATES BUY-OUT, THEN ACQUISITION, OF PARTNER'S 50% INTEREST

Early in 1984, with weak gold prices prevailing, Energy Reserves Group made the decision to sell off its mining assets in order to concentrate on their petroleum interests.



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With the decision to drop out of the joint venture, Cinola arranged for Misty Gold Inc., a private company, to acquire their 50 percent interest in the project for C$5 million plus a royalty varying from 0.5 to 5 percent depending on the gold price. Misty Gold paid an initial C$2.5 million and the balance becomes due early next year.

In late 1984, Cinola acquired all the outstanding shares of Misty Gold to once again hold a 100 percent interest in the property and clearing the way for its continued development.

## FEASIBILITY STUDY REVISED

After last year's drilling program revealed the grade in the southern part of the deposit was higher than estimated, another report concluded that the "seven million ton orebody amenable to open pit mining at a grade of 0.10 oz. gold per ton previously identified ... probably understates the gold content." A review of the available data allowed the company to subsequently enlarge its high grade reserves to some 14 million tons at a similar grade. A bulk sample was then taken for verification of grade and gold recovery testing.

At a capital cost of C$20 to C$50 million, the company now envisions an open pit mine with an initial milling of 2,000 tons per day and gradually increasing to some 5,000 tons per day. With an oxidation step prior to conventional flotation and cyanide leaching, an overall gold recovery of 80 percent is expected.

Production from an operation of this size would amount to 75,000 to 100,000 ounces of gold each year, at a cost of about C$200 per ounce.

## RECOMMENDATION

Following extensive exploration spanning nearly a decade, Consolidated Cinola's gold property has now been identified as one of western Canada's largest known deposits. We have taken a long look at the valuation being placed on Cinola shares by the market and several factors have led us to the conclusion that they are considerably undervalued.

In the intermediate term, several major mining companies who have expressed an interest in participating in the project as a joint venture partner are presently assessing the property. Since Cinola will undoubtedly require a new joint venture partner to pay the C$2.5 million still due to Energy Reserve an agreement, if one is to materialize, will most likely come by early next year.

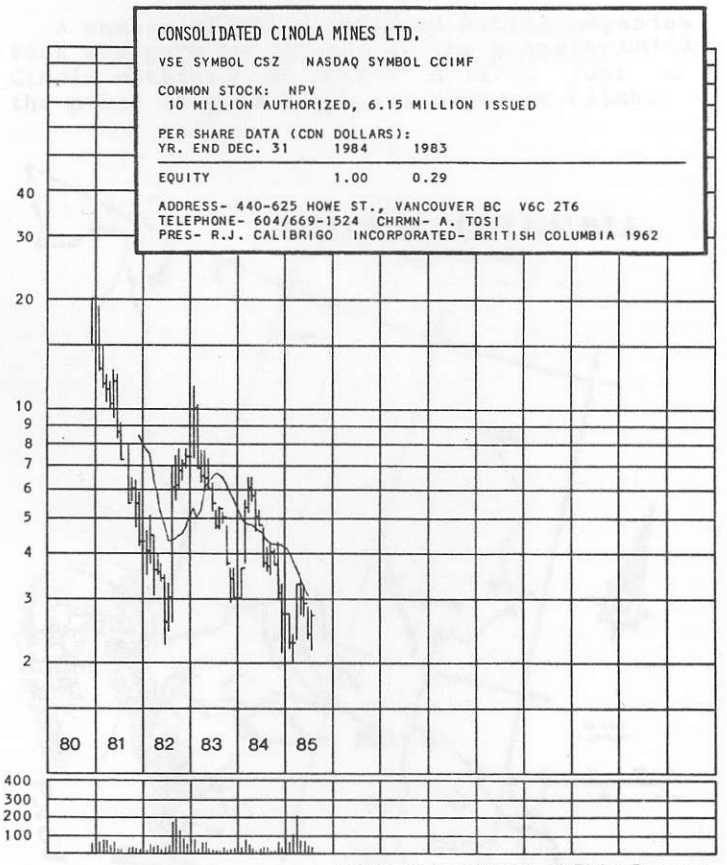
Based on the latest feasibility study, the company will have the flexibility to respond to changes in the gold price. Though the overall deposit contains an estimated 47 million tons grading 0.06 oz. gold per ton, or 2.4 million ounces of recoverable gold, nearly 60 percent is found within a higher grade section the company plans to exploit first. If the mine is brought into production, now estimated to be two or three years away, in tandem with a rising gold price, share valuations will be substantially higher than they are today.

Technically, the shares of Consolidated Cinola have closely paralleled the gold price, reaching a high of C$22 as gold soared to $850 in 1980. They then fell, with gold, to a low of C$2.25 in 1982. As gold climbed from $300 to about $500 during 1982 and into 1983, the shares advanced to C$11.50.

With the shares now at C$3, about midpoint of a 52-week range of C$2 to C$4.35, we are recommending their purchase at current levels to investors for appreciation both in the intermediate and longer term.

Consolidated Cinola Mines Ltd. is located at 440-625 Howe St., Vancouver, B.C., Canada, V6C 2T6.

Their telephone number is 604/669-1524.



**CONSOLIDATED CINOLA MINES LTD.**

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December, 1985

## CONSOLIDATED CINOLA MINES LIMITED

Consolidated Cinola Mines Limited is a Vancouver, British Columbia resource based company. Cinola's main asset is a 100% interest in one of the major gold deposits of North America. The deposit is located in the centre of 51 mineral claims on central Graham Island, the largest of the Queen Charlotte Islands, approximately 80 miles off the northwest coast of British Columbia.

### History

The gold deposit, discovered in 1971, was under continuous purchase option agreements with major Canadian mining companies until its purchase by Cinola in 1977. Low gold prices in that period slowed the development of the property. However, Cinola's purchase price in 1977 coincided with the start of an uptrending gold price cycle.

The property was purchased outright in January of 1979, after Cinola had pulled a spectacular diamond drill hole intersection of 78 feet assaying 0.86 oz. gold per tonne proving that there were higher grade zones within what was previously thought to be a low grade deposit. This led to vigorous drilling in 1979, and attracted a great deal of interest from major mining companies culiminating in a joint venture agreement with Energy Reserves Canada Limited in August 1979.

The joint venture agreement between Cinola and Energy Reserves Canada gave E.R.C. the right to earn 50% interest in the property by expending $5 million (Canadian) on exploration over 5 years. By the end of 1980 the required $5 million had been spent and E.R.C had earned its 50% interest.

At the close of 1982, approximately $18 million had been spent by E.R.C. on property development leading to the completion of a feasibility study. The results proved up 41 million tonnes of ore grading 0.067 oz. gold per tonne, which translated into roughly 2.4 million ounces of gold.

The development towards production was temporarily slowed in 1983 because of the desire of our joint venture partner to sell its half interest in the property. This came about as a result of a corporate decision by E.R.C. to divest itself of all its mining interests and concentrate on its oil and gas holdings. In August of 1984 Cinola was able to arrange a buyer for E.R.C's interest, and a satisfactory buy-out price and agreement was initiated.

Misty Gold Inc., a private British Columbia company, successfully acquired E.R.C's 50% interest in the Cinola-Queen Charlotte gold deposit. The general terms of the agreement call for a total of 5 million dollars (Canadian) to E.R.C. plus a royalty package based on a sliding scale tied to the gold price. To date, 2.5 million dollars has been paid to E.R.C. with the balance payable in April 1986. In November of 1984 Misty Gold and Cinola agreed to a share exchange, whereby Misty Gold is now a wholly-owned subsidiary of Cinola. The obligation for the second payment to E.R.C. is now the responsibility of Cinola on behalf of Misty Gold.

### Graham Island Property Report

In December of 1984, the Company completed fourteen short inclined holes totalling 3,010 feet in the upper part of the south-end of the gold deposit in a continuing program to define higher gold grades.

The best mineralized hole returned 144 feet grading 0.13 oz. gold per tonne. The fourteen holes averaged 81 feet grading 0.10 oz. gold per tonne, and represents the results of a drill sampling programme designed and executed by an independent geological consultant, E.A. Ostensoe. Seven million tonnes of this grade were outlined in an independent study by Kilborn Engineering in November 1984. However, recent analysis has shown that as much as 14 million tonnes grading 0.10 oz. gold per tonne can be selectively mined by open pit methods to a depth of 700 feet.

The results of the inclined drill holes proved to be very encouraging. A comparison of grades was made with those previously obtained from vertical drill holes in the same areas. In twenty-four comparisons, the inclined hole results averaged 16% higher than the corresponding vertical drill holes. This indicates that previously published grade figures understates the gold content.

-over-

Additional metallurgical programs were also carried out in 1984 and early 1985 to improve the milling and gold recovery percentage. Results have confirmed that 92% of the gold can be concentrated by conventional flotation methods. The latest programs have investigated chlorination of the flotation concentrates prior to cyanidation. It has been demonstrated that more gold can be recovered after the concentrates have been exposed to ferric chloride, and gaseous chlorine in a process that is used in some of the other gold mines. As high as 98% of the gold was recovered from the chlorinated concentrate. The overall gold recoveries have thus been improved to 90%. More definitive testing is continuing to confirm, evaluate, and improve recoveries.

Management

The Cinola Board of Directors is a well-balanced combination of members with financial and mining experience. Their combined experience in the financial and mining communities amount to over 90 years.

Through a formation of a strong, working relationship, the Cinola Board is able to pool individual expertise in the gold mining industry, brokerage and financial communities. The members have, and still remain, committed towards maximizing the value to the Cinola shareholders.

Financial Data

The authorized capitalization of the Company is 10,000,000 common shares, and as of December 31, 1984, 6,033,226 were outstanding. Current assets as at that date were $147,590. Long term debt amounted to $2,500,000, down from $9,813,024 (December 31, 1983). It is expected that the retirement of this note payable will involve a combination of both debt and equity financing. However, any agreement that the Company may make with a major mining company would involve the retirement of the said debt obligation by the major mining company.

Shareholders' equity has increased from $1,087,057 (December 31, 1983) to $6,016,908 as of December 31, 1984.

Future Plans

The Company remains strongly committed towards the Graham Island gold project. It is anticipated that we will see a positive culmination of these efforts leading to the production of gold on the Cinola deposit in 1987-88.

Our corporate philosophy remains unchanged with a major emphasis on basic exploration and development; avoiding diversification into other industry segments, exercising conservative financial policies, and remaining cost efficient.

Reno J. Calabrigo,
President.

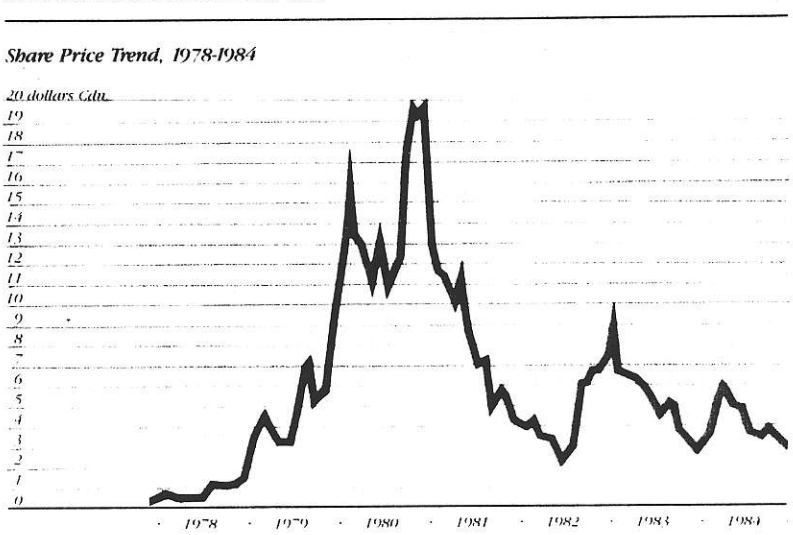
# RESEARCH

NEIDIGER/TUCKER/BRUNER, Inc.
Investment Securities

January 11, 1986

## Consolidated Cinola Mines Ltd.

| | |
|---|---|
| Symbol (OTC) | CCIMF |
| Recent Price | 1 7/8 |
| '84-'85 Price Range | 1 5/8 - 6 1/2 |
| Common Stock | 6,300,000 shares |
| Approx. Float | 4,300,000 shares |




The outlook for capital appreciation in the shares of Consolidated Cinola is quite positive. Purchase of the stock is warranted for both intermediate term and longer-term appreciation.

The gold market appears to have made it's bottom in March, 1985; consequently, we are suggesting that investors accumulate positions in under-valued gold mining stocks now.

Historically, during a period of rising gold prices, the shares of gold mining stocks have consistently outperformed the price of gold by a considerable margin. The shares of Consolidated Cinola are no exception. From 1978 to 1980, gold bullion rose from under $200 per oz. to over $800 per oz. However, during the same period, the shares of Cinola soared from under $1 per share (CDN) to $20 per share - about five times the performance of gold bullion. Even a more modest rise in bullion prices can have a significant effect on Cinola shares. When gold climbed from $300 to about $500 per oz. during the 1982 to 1983 period, the shares of Cinola advanced from about $2 to $10 per share - again more than five times the performance of gold bullion.

When comparing the market value of Cinola shares to the in-place reserve estimates, the undervaluation of Cinola's stock is staggering

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Estimated gold reserve values vary from $420 million to $720 million, depending on whether the lower grade is included (based on $300 per oz. gold prices). Over 100,000 feet of diamond drilling has identified the presence of 2.4 million ounces of gold, making the Cinola deposit the largest in western Canada.

The Cinola deposit is situated on Graham Island, off the coast of British Columbia, Canada. The property consists of 2500 acres and is operable year 'round.

Reserves are 40 million metric tonnes of mineralization grading .06 oz. of gold per tonne. We believe one of the exciting features of this deposit is that it contains 9 to 10 million tonnes which grade .10 oz. per tonne and can be mined by open pit methods.

The mill would likely have a capacity of 3000-5000 tonnes per day. A significant metallurgical breakthrough was made on the Cinola property during 1985. Flotation with a two-stage treatment of the concentrate produced an overall recovery of 86%. To date, over $18 million has been spent on the project.

While the mine is presently not in production, and some investors might consider this a negative, we view this as a special situation offering the greatest potential for profit. Large financial gains from gold mining stocks have often resulted from investments in companies with solid reserves before they started production. While we believe production is probably two years away, this could benefit Cinola as we expect higher gold prices at that time.

Sam Parks
Vice President