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THIS IS BY BRIAN BACKLER.

BETHLEHEM COPPER CORPORATION LTD.

1969 High	1969 Low	Recent Price	Earnings per share (ended Feb. 28) 1969	Earnings per share (ended Feb. 28) 1970 (E)	Indicated Dividend	Yield	P/E Ratio *
$21.00	$13.12	$16.00	$1.27	$1.50	$0.50	3.11	10.6

(E) — Estimated
* – Based on 1970 estimated earnings

SUMMARY AND RECOMMENDATION

Assuming a conservative long range copper price of $0.45 (Canadian) per pound we calculate a Present Value of $12.83 per share for Bethlehem Copper. It appears that a long range price of $0.50 (Canadian) per pound would be more realistic and this would increase the Present Value to $14.83 per share. Thus at the current market price of $16.00, this stock offers an excellent fundamental value. We recommend that this stock be purchased at this level and on dips by those accounts seeking relative safety and longer term growth.

Bethlehem Copper has now entered a new growth phase since the discovery of a vast orebody owned by Valley Copper Mines. Bethlehem not only has a significant quantity of new ore (200,000,000 tons) on its own property but also participates, through a share interest and a royalty agreement, in the affairs of Valley Copper Mines. The Company's aggressiveness in exploration could also cause some activity over the shorter term.

Net earnings for the year ended February 28, 1970 are estimated at $1.50 per share. Annual dividends are currently set at $0.50 per share but the possibility exists for a dividend increase later this year.

It is to be noted that the above Present Value calculation does not include any future earnings contribution from the newly discovered ore zone. Thus for those accounts wishing a natural resource vehicle, engaged in the development of low cost copper reserves, this company must be given serious consideration.

COMPANY HISTORY

Bethlehem Copper Corporation Ltd. owns and operates an open pit copper mine located in the Highland Valley area of south central British Columbia. Production started in December, 1962 at an original mill rate of 3,300 tons daily. Capacity has been increased in three separate stages to the present mill rate of 14,000 tons per day. This property is recognized to be the first open pit low grade copper mine to be developed in Western Canada. Credit for this development is due to the far-sightedness of the original partners, Mr. H. H. Heustis, Mr. P. M. Reynolds and Mr. J. A. McLallen. This group was finally able to interest Japanese investors in financing a minimum scale operation. Once in production the low operating costs, coupled with expanded ore reserves and improved copper prices, resulted in several major mill expansions.

In early 1961 exploration and development of the Highland Valley property was financed by the Japanese Sumitomo group of companies, through the purchase of 700,000 shares for a consideration of $850,000. During 1962, the Sumitomo group provided a further $5,000,000 (U.S.) to bring the property into production at a rate of 3,300 tons per day. The loan was secured by first mortgage bonds which were fully redeemed by mid-1964. Pursuant to an original agreement, this redemption was effected in part by conversion of $600,000 (U.S.) principal amount to Bethlehem shares at $1.50 per share. In early 1964, further financing was undertaken to expand milling facilities to 6,000 tons per day. These funds were provided through bank loans and by the Sumitomo group which purchased a further 400,000 shares at $1.50 and 200,000 shares at $2.00 per share. Subsequently in late 1965, the Company issued $4,000,000 in convertible sinking fund debentures to aid in completion of the mill expansion to 10,000 tons per day. The debentures were retired in full by April 1968.

By mid-1967 the plant was operating at 14,000 tons per day. Its present capacity is approximately 15,000 tons per day and just recently there have been several days when the mill rate reached 16,000 tons. A molybdenum circuit was installed in 1963 and began operating in March 1964. This equipment was removed when results proved disappointing.

GENERAL GEOLOGY

The copper mineralization occurs as fine disseminations or fracture fillings within a granitic member. This deposit is often compared to the "porphyry-type" copper deposits, which are prevalent in the southwestern United States. The favourable host rock is a quartz diorite which is believed to be part of the inner phase of the Buichon Batholith. The batholith did in fact intrude and alter a volcanic series known as the Nicola Group. The copper mineralization is mainly comprised of the mineral chalcopyrite with some minor bornite.

OPERATIONS

Mining

Initially open pit mining was from the higher grade East Jersey Zone. However, following a rock slide in February 1965 mining operations were moved to the Jersey Zone. Sinee then all ore has come from the Jersey open pit. In early 1968 waste removal from the Jersey pit was accelerated as depths became greater. The current stripping ratio of 2 tons waste to 1 ton ore is expected to be maintained as all stripping equipment soon will be moved to the Heustis Zone. This latter zone will then be stripped and prepared for production by the fall of 1971. At that date, production will be programmed for both the Jersey and Heustis pits. This will allow the Company more flexibility in its mining operations and will help to assure continuous muck flow if some unforeseen problem should occur in one of the pit areas.

The truck haul from the Heustis pit will be relatively flat and the distance to the waste dump will be shorter. Currently, from the Jersey Pit, trucks are hauling up a 12% grade with waste being moved to the tailings dam some 10,000 feet away. This waste haul now adds about 1.5 cents per ton to operating costs.

The tailings dam is a major construction project and was soundly built to avoid any possibility of seepage. It also provides a very large settling basin from which much of the mill water is being reclaimed and recirculated.

The Jersey open pit measures some 2,400 feet long and about 2,000 feet across. It is planned that the eventual depth will be 1,000 feet.

Open pit mining is carried out on 33 foot benches. The mining equipment inventory includes:

3 Bucyrus Erie 88B – 5½ cubic yard shovels.
2 Michigan front end loaders (12 cubic yards).
3 Caterpillar D-8 bulldozers
15 Haulpak – 50 ton trucks (on lease)
2 Bucyrus Erie rotary drill rigs.

It appears that the key to the success of Bethlehem's operation is the ability to maintain low operating costs. For example during the year ended February 28, 1969 mine operating costs totalled $0.27 per ton of material moved (including waste). This is equivalent to $0.80 per ton of ore transported to the mill and includes most overhead charges as well as depreciation on equipment and truck rental. These costs were some $0.09 per ton of material less than the price previously paid to a contractor and represents a substantial saving considering that about 17 million tons of rock are moved annually.

Milling

The mill currently operates at an average rate of 14,000 - 15,000 tons per calendar day. The circuitry is basically a copper sulphide floatation system and incorporates fairly fine grinding. Mill heads averaged 0.58% copper for the year ended February 28, 1969. Total copper produced during the same period equalled 50,500-000 pounds. Mill costs have held fairly constant over the past several years and are currently estimated at $0.80-0.85 per ton of ore milled. Metal recoveries have averaged 83% - 84% for some time and this appears to be the optimum level for this operation.

The severe winter season last year presented some problems in the crushing plant. A study is now underway to consider alternative methods that would ensure better muck flow during periods of cold weather. A study is also being conducted on the possibility of adding additional primary grinding capacity and of converting to pebble mills. The dust collection system is being overhauled and consideration is being given to added capacity in the screening section.

For the year to date mill heads have averaged 0.53% copper. This decrease is due to a temporary increase in the low grade material being taken from side benches in preparation for establishing better grade benches at depth. The average mill grade for the current fiscal year is expected to approximate 0.55% copper.

SALES

Copper concentrates are sold under exclusive contract to the Sumitomo group of companies. This contract comes up for renewal on February 28th, 1973. Since March 1, 1967 Bethlehem has received the U.S. Export Refinery price for copper, as quoted in the E & MJ. Concentrates are hauled by specially designed trailer trucks 260 miles to Vancouver. From there the concentrates are transported by ship to the Japanese smelters. It is interesting to note that Bethlehem receives 90% of its smelter payments for concentrates on board ship in Vancouver.

ORE RESERVES

As reported in the most recent Annual Report, the Company as of February 28, 1969 had total ore reserves of 65,000,000 tons grading 0.60% copper. This calculation assumed a cut-off grade of 0.35% copper. Ore reserves are distributed as follows:—

Jersey Zone	—	28,000,000 tons of 0.58% copper
Heustis Zone	—	25,200,000 tons of 0.65% copper
Iona Zone	—	10,200,000 tons of 0.53% copper
East Jersey Zone	—	1,500,000 tons of 0.79% copper

Several other possible zones exist on the property, with the two most advanced being the Snow Storm Zone and the Hank Zone. Preliminary drilling of these zones has given evidence of interesting potential and detailed drilling will be conducted in the future.

SUMMARY OF PRODUCTION AND COSTS

The following table illustrates the growth in copper output since commencement of operations.

Year Ended	Feb. 29 1964	Feb. 28 1965	Feb. 28 1966	Feb. 28 1967	Feb. 29 1968	Feb. 28 1969
Concentrate Revenue per ton milled	$5.60	$5.35	$4.07	$4.43	$4.80	$4.88
Operating Cost per ton milled	$2.97	$2.81	$2.52	$2.32	$2.29	$2.13
Operating profit per ton milled	$2.63	$2.54	$1.55	$2.11	$2.51	$2.75
Operating cost per lb. of copper	15.1¢	17.3¢	21.9¢	23.6¢	23.6¢	21.5¢
Operating profit per lb. of copper	13.2¢	15.5¢	13.5¢	21.5¢	26.0¢	27.7¢
Dry tons milled	1,265,988	1,444,696	2,007,883	3,279,073	4,136,167	5,080,664
Average heads (% copper)	1.06	0.89	0.69	0.60	0.58	0.58
Pounds of copper produced	25,023,893	23,730,516	23,118,998	32,255,986	40,143,527	50,499,680

Average price per lb. of copper (U.S. funds)	28.45¢	31.81¢	37.06¢	48.82¢	49.15¢	49.15¢

Operating costs for the year ended February 28, 1969 averaged $2.13 per ton It is estimated that this figure will soon rise to $2.30 per ton due to increased labour and supply costs. A breakdown of estimated future operating costs is shown below.

– Mining	=	$1.15 per ton milled
– Milling	=	$0.85 per ton milled
– Administration and general	=	$0.30 per ton milled
TOTAL	=	$2.30 per ton milled

The above costs do not include exploration expenses which now average $750,000 annually or $0.14 per ton. Also not included is depreciation which accounts for an additional $800,000 annually or $0.15 per ton milled.

As can be seen, the Company has been most successful in being able to reduce unit operating costs over the past six years. This record gives credence to the assumption that management will in fact be able to hold unit costs at close to current levels. It appears that optimum levels of performance have been reached and will be maintained.

FINANCIAL RECORD

For the year ended February 28, 1969 net earnings totalled $6,799,844 or $1.27 per share, compared to $1.05 per share for the previous year.

In the six months ended August 31, 1969 Bethlehem reported net earnings of $4,123,000 or $0.77 per share. This was a 24% increase from the $0.62 per share reported for the similar period a year earlier. Higher copper prices during this most recent six month period were responsible for this improvement even though grade of ore treated was somewhat lower (0.53% copper versus 0.60% for the six month interval a year ago).

As at February 28, 1969 working capital stood at approximately $4,500,000. Currently the Company's working capital is estimated to be about $9,000,000.

During the past fiscal year Bethlehem commenced paying taxes at the maximum tax rate (45%). As a matter of interest, total taxes paid last year amounted to $5,642,000. Bethlehem's long standing application for a tax-free period with respect to the Jersey mine has been denied by the tax authorities. The Company is appealing this decision and if successful, this could mean a cash rebate of some $5,000,000 or approximately $0.90 per share.

The following chart is a financial summary of the Company since commencement of operations.

Year Ended	Feb. 29 1964	Feb. 28 1965	Feb. 28 1966	Feb. 28 1967	Feb. 29 1968	Feb. 28 1969
Concentrate Revenue	$7,081,181	$7,710,716	$8,187,366	$14,539,134	$19,871,214	$24,817,860
Operating costs (includes marketing)	3,762,282	4,052,002	5,061,227	7,605,506	9,462,988	10,836,064
Operating profit	3,318,899	3,658,714	3,126,139	6,933,628	10,408,226	13,981,796
Depreciation	237,115	312,773	317,568	483,204	841,605	1,094,468
Exploration	–	–	–	134,222	390,760	545,569
Taxes on income (includes deferred)	–	–	–	1,425,500	3,665,000	5,592,737
Net Income	2,822,564	3,132,299	2,768,533	4,791,744	5,506,661	6,799,844
Net Income Per share	$0.66	$0.60	$0.53	$0.92	$1.05	$1.27
Long-Term debt	2,991,050	–	4,000,000	4,000,000	4,444,793	561,300
Working capital	695,019	294,422*	1,454,787	3,704,370	4,577,688	4,521,420
Number of shares issued	4,270,500	5,201,000	5,211,500	5,222,000	5,261,250	5,346,343

Note * – Working Capital deficit

NEW OREBODY

Valley Copper Zone – Lake Zone

In the summer of 1968 Valley Copper Mines discovered a vast copper orebody which extended into the Bethlehem property. Cominco Ltd. which holds a 70% interest in Valley Copper Mines has indicated a zone some 3,000 feet long and approximately 3,100 feet wide which could contain one billion tons grading 0.4% copper or better. This calculation is only taken to the 1,000 foot depth and several deeper holes reveal that the mineralization extends beyond this depth.

This particular discovery caused Bethlehem to initiate a concerted drilling programme on its ground adjacent to Valley Copper Mines' boundary. To date, Bethlehem has drilled some 30 drill holes and has established that approximately 200,000,000 tons of 0.45% copper or better lie on its property. An area to the south-east appears open and Bethlehem continues to drill from a barge in the middle of Divide Lake.

Currently, Valley Copper is driving an inclined exploration adit from which bulk samples are being taken for metallurgical tests. A total of some 5,000 feet of drifting will eventually be done. The initial phase consists of driving a 1300 foot adit on a 20% decline. This is now almost complete and results to date are considered to be most satisfactory. It appears that bulk sampling is confirming the initial drill grades and in some regions slightly exceeding earlier results. The second phase of the underground programme will be to branch back in the opposite direction with two diverging drifts, also to be driven on a 20% decline. Upon completion of this underground work, a total depth of 600 feet will have been reached. Detailed lateral underground drilling will then be done in an attempt to confirm earlier estimates. This programme is expected to cost about $3,500,000 - $4,000,000 and results are expected sometime next spring.

Early tests reveal this ore to contain a major amount of bornite mineralization having excellent metallurgical recoveries (+90%).

Bethlehem has now started preliminary studies to evaluate the cost of developing an open pit on its side of the boundary but undoubtedly an agreement will be reached with Valley Copper Mines to exploit this ore as a single zone. At present Bethlehem holds a production royalty on 75% of the Valley Copper ore. This royalty amounts to 2½% of net smelter returns per ton of ore milled (which includes freight charges). Bethlehem also holds the surface rights to ground which covers approximately 25% of the Valley Copper orebody.

Through the result of winding up of a subsidiary company, Bethlehem now owns 513,000 shares of Valley Copper Mines Ltd. or a 5.13% interest in that company.

Preliminary negotiations are underway involving Lornex Mining Corporation, Bethlehem Copper and Cominco Ltd. These talks are designed to seek a means of sharing water sources and to establish tailings sites and concentrator locations.

EXPLORATION

Highland Valley Area

At present two diamond drills are doing fill-in drilling on the Lake Zone located at the southern end of Bethlehem's claim group. As stated earlier, the Lake Zone is the extended portion of the Valley Copper orebody. One of the drills is located on Divide Lake and has now started its second hole from a barge platform. The first hole (L-12) has just been assayed and averaged 0.39% copper over a 1400 foot section. Overburden totalled about 370 feet. The second drill is set up and drilling near the northeast shore of Divide Lake.

Plans are to start a major percussion drill programme on 1500 foot centers. This programme will cover most of the untested regions of the Company's 380 claims. Initially, this work will be concentrated along the western and northwestern sides of the property. Another area of interest is along the northern fringe of Indian Reservation No. 13. Bethlehem has recently acquired additional claims to the southeast, adjacent to its property. Last winter, the Company acquired a 50% interest in certain claims owned by Adera Mining Limited, adjacent to and north of the property. Bethlehem is committed to pay Adera the cost of 5000 feet of drilling on this property and will acquire a 50% interest.

In summary, the potential of other zones occurring on Bethlehem's Highland Valley property is regarded as favourable. Several intriguing targets exist. This year an exploration budget of $400,000 has been allocated to the Highland Valley region. This amount includes the cost of a regional mapping programme extending from Ashcroft to Merritt.

Exploration activities outside the Highland Valley Area

An active outside exploration programme was planned for the summer of 1969. A budget of some $360,000 was appropriated for this work and the principal areas are: —

(a) **Taseko Lake** - this property contains disseminated copper mineralization within an extensive anomalous zone. Some drilling has been done but the programme has been suspended until next year.

(b) **Topley** - the Company owns 130 claims adjoining the Newmont property to the west, approximately 20 miles south of the Granisle Copper operation. Soil sampling, stripping and a magnetometer survey have been conducted. This is now being reviewed and plans to conduct an I.P. survey are being made.

(c) **Cinnibar Basin** - this property is situated in the Bridge River district and is comprised of two separate claim groups. Bethlehem is entitled to earn an 80% interest in both groups. Drilling is now in progress on one of the cinnibar prospects and a trenching programme is underway on a tungsten showing.

(d) **Pitman** - this is a wholly owned block of 28 claims located about 20 miles north-east of Terrace. A work programme is expected to start here next month.

(e) **Kelsey Bay** - the Company recently acquired a copper prospect near Kelsey Bay on Vancouver Island. Soil sampling and limited drilling has been done for assessment purposes with additional work planned for next spring.

(f) **Australian Venture** - Bethlehem has recently taken a 20% interest in an Australian Syndicate; two of the members being Sumitomo Metal Mining and New Jersey Zinc Company. This syndicate was formed to carry out preliminary studies on six projects, two of which are now in the drilling stage.

Magee Prop. large alt. zone (w) Cu encouraging results

In review this outside exploration coupled with a concerted programme on the Highland Valley property helps to illustrate the aggressiveness of the Company. Any one of these programmes could make worthwhile news over the near to medium term.

EARNINGS PROJECTION

As stated earlier, the Company reported net earnings of $0.77 per share for the first six months of the current fiscal year (to August 31, 1969). With world copper supply still tight and with increased concern regarding foreign nationalization (e.g. Zambia and Chile) it is now fairly evident that copper will remain at close to current price levels for at least the next 6 months. Since late 1968, copper prices have risen approximately 20% to the present U.S. Export price of $0.69 per pound. A long range price of $0.45 (Canadian) appears most conservative and our projections past 1970 have incorporated this estimate. At this point of writing many industry experts feel that copper could maintain a long range price of $0.50 (Canadian) per pound.

Assuming that Bethlehem receives an average copper price of $0.60 (Canadian) over the next six months, net earnings for the fiscal year ended February 28, 1970 are estimated to be $1.50 per share. It should be noted that for each 1¢ change in copper prices, net earnings would vary by an estimated 5.1¢ per share (this estimate assumes a copper output of 50,000,000 pounds annually and an effective tax rate of 45%).

PRESENT VALUE CALCULATIONS

(a)	Present Value per share for Current Operations	= $ 7.45
(b)	Present Value per share for Potential Royalty	
	2½% of Net Smelter Return plus freight = 0.025 ($3.57 + $0.10) = $0.092 per ton.	
	Estimated annual royalty assuming minimum mill rate of 60,000 tons per day. = 60,000 x 360 x 9.2¢ = $2,000,000	
	Present Value of Royalty (taken at 10% discount rate over 30 years) = $11,300,000	
	Present Value per share of Potential Royalty	= $ 2.11
(c)	Value of Investment Portfolio	
	132,000 shares of Ionarc Smelters @ $6.00 per share = $790,000	
	513,358 shares of Valley Copper Mines @ $15.00 per share = $7,700,000	
	Total Portfolio Value = $8,490,000	
	Portfolio Value per share	= $ 1.59
(d)	Estimated Value of Working Capital per share as of fiscal year-end 1969 ($9,000,000)	= $ 1.68
	Estimated Total Present Value per share	= $12.83

Thus it has been estimated that Bethlehem Copper has a Present Value of $12.83 per share. The assumptions used in this calculation can be found in Appendix 1. It should be emphasized that the Present Value calculation does not include any future contribution of the new Lake Zone, which in fact is the eastern extension of the Valley Copper orebody. The Lake Zone has been estimated to contain some 200,000,000 tons grading 0.45% copper or better. The future exploitation of this ore will undoubtedly have considerable impact on Bethlehem's earnings. At this point it is too difficult to assess this contribution, as the method or means of developing this ore is now only in the very early stage of consideration. Undoubtedly this zone, along with Valley Copper ore will be treated as a single open pit. For example, a joint project could be formed involving Bethlehem and Valley Copper Mines. In this event, Bethlehem could retain an interest equal to its share of the total ore reserves. On the other hand, Bethlehem could re-negotiate a royalty that would apply to its ore when it became time to process it through Valley Copper's plant. Another possibility, assuming all ore is mined as a single pit, Bethlehem could contract the mining of its own ore out to Valley Copper and then treat this ore in its own separate mill which would be a new installation with a capacity of some 15,000 tons a day. Thus there are a number of alternatives to develop Bethlehem's new ore zone. The Company, through its holding of certain surface rights and its title to a substantial tonnage of ore, is in a most favourable position to negotiate an agreement to its advantage.

As a final note, the calculation of a Present Value of $12.83 per share was based on a future copper price of $0.45 (Canadian) per share. As stated earlier, this may well prove to be a conservative average long range price. Assuming an average price of $0.50 (Canadian) copper over the next 13 years, the Present Value of the current mine operations would be increased by $2.00 per share. Thus the total Present Value of Bethlehem Copper would equal $14.83 per share.

CAPITALIZATION

Long-Term Debt — $561,300

Deferred Income Tax — $705,926

Shareholders Equity

	Authorized	Issued
Capital Stock	10,000,000 shares	5,350,793 shares

BEB/ef

OCTOBER, 1969 RESEARCH DEPARTMENT

APPENDIX 1

Assumptions used in Present Value Calculations of Current Operations

1. Mill Grades – 0.55% copper to end of 1970
   – 0.60% copper thereafter.

2. Ore Reserves – 65,000,000 tons of 0.60% copper

3. Mineable Ore Reserves – 65,000,000 tons of 0.60% copper

4. Mill Rate – 14,500 tons per day

5. Mine Life – 13 years

6. Expected Metal Recoveries – 84% for copper

7. Expected Metal Prices – $0.45 (Canadian) per pound – Alternative No. 1
   – $0.50 (Canadian) per pound – Alternative No. 2

8. Deductions for Smelting, Marketing & Freight – 7¢ per pound

9. Estimated Operating Cost

	– Mining	– $1.15 per ton
	– Milling	– 0.85 per ton
	– Admin	– 0.30 per ton
TOTAL		$2.30 per ton

10. Capital Cost Estimate

    (a) Preproduction expenses – nil
    (b) Capital assets – nil
    (c) Capital Additions – nil

11. Financing

    (a) Debt – none
    (b) Equity – none