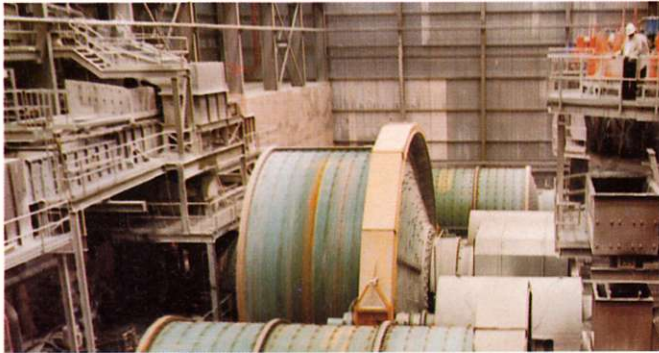


## LOOKING AROUND THE MINE



Company Head Office –  
Box 10335 – Pacific Centre  
609 Granville Street  
Vancouver, B.C.  
V7Y 1G5

Company Mine Office –  
P.O. Box 1500  
Logan Lake, B.C.  
V0K 1W0

Group tours of the mine  
are available during  
tourist season, and are  
also available for  
student parties.

Telephone –  
Logan Lake:  
575-2443

# Lornex

## MINING CORPORATION LTD.

802038

# Lornex





# Lornex

*This is your introduction and guide to the Highland Valley copper-molybdenum mine of the Lornex Mining Corporation Ltd. Associated with the mine is the attractive community of Logan Lake, 11 miles to the east, where two-thirds of the mine employees reside.*

## IN THE BEGINNING

British Columbia's Highland Valley, a 3,500 ft. high basin 45 miles southwest of Kamloops, is truly referred to as a valley of copper. Here millions of years ago, hydro-thermal fluids migrated along fractures in the cooling volcanic magma depositing minerals in the surrounding hills.

Much later in geological time, glaciers came and left, covering the region with hundreds of feet of clay, boulders and other debris, an overburden that has completely hidden much of the mineral-bearing rock.

The presence of copper in these hills has been known for several centuries. There were traces of workings by native Indians when the first settlers arrived. They

undertook some laborious and not very rewarding efforts to recover the metal never realizing that they were, in fact, standing on a valley of copper. Full realization of the extent of the deposits has come only in the past quarter-century.

The initial workings, in the early 1900's, were patches of exposed high-grade ore which was extracted, loaded into carts and hauled to the tiny Thompson River community of Ashcroft, some 27 miles to the northwest, for crushing and processing.

Through the distractions of two world wars, divided by a global depression, there was no real mining activity in the valley.

Then came the 50's, a decade of significant technological and economic progress. Metal markets were strong, and prices rose to meet growing demand. Costs were lowered through the utilization of large shovels and huge trucks, and inexpensive and highly efficient blasting systems were developed. The almost-forgotten valley now became the focus of prospector interest.

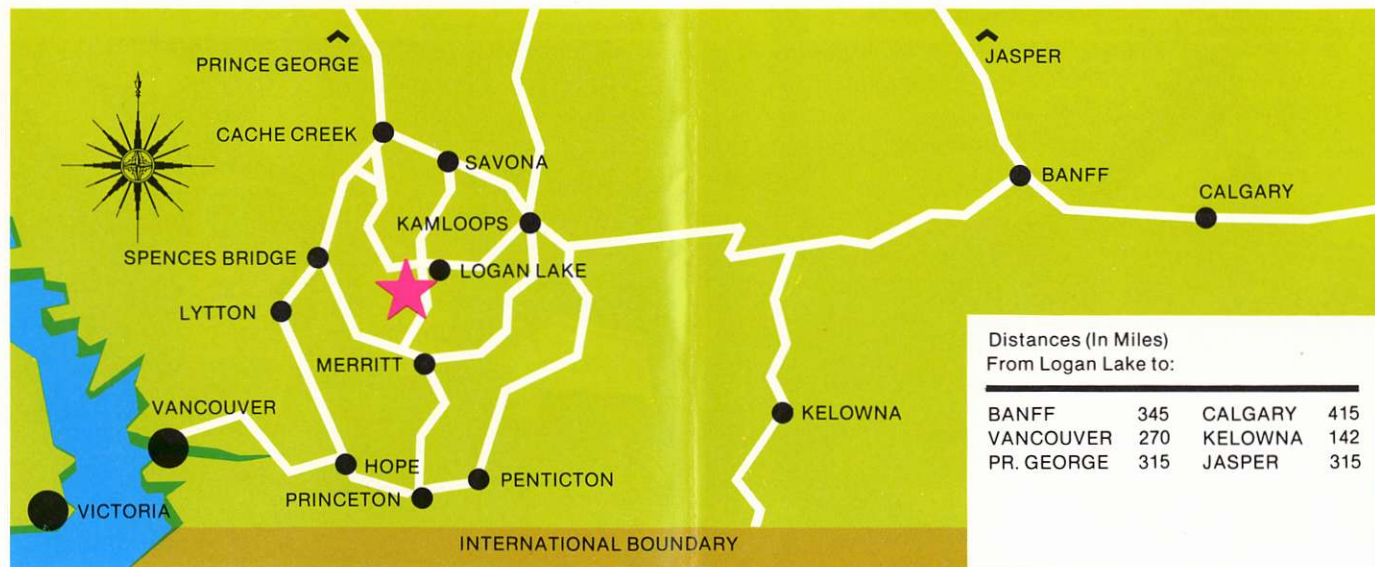
Among them was Egil H. Lorntzen, who staked a number of claims over a 10-year period and organized their development through the Lornex company, very

properly named for him. Lorntzen and his associates quickly realized that the discoveries were extensive but mostly low-grade ore, and topped by deep over-burden in many places. Development costs would be high, but the extent of the mineralization would make mining feasible. The presence of molybdenum, a metal widely used to make alloys, added to the value.

Despite the confidence of the Lornex developers several major firms examined the property and rejected opportunities to participate. Then, in 1965, Rio Algom undertook to finance a comprehensive exploration program. It purchased \$4.6 million worth of Lornex shares and sold 40 percent of them to Yukon Consolidated Gold Corp. Another \$2 million was raised by a rights offering. By 1968, some \$6.8 million had been spent in exploration. In 1970, after thorough evaluation of the inherent risks, the decision was made; commence development immediately. Less than two years later, in October 1972, and after a capital expenditure of \$144 million, the venture came into production.

Results quickly justified all the confidence of the mine developers and subsequent discoveries of additional ore reserves indicated major expansion was possible.

In August, 1979, approval was given to spend \$2,550,000 on early engineering, construction facilities and orders for long term delivery of equipment, subject to final approval of an expansion plan. Later that year the decision was made to expand. Lornex became the largest open pit copper mine in Canada not long after its 1972 startup. In 1982 it is now a global-scale operation — completely supporting the judgment of its developers in the belief that efficient mining and processing would transform the low-grade ore of the Highland Valley into a modern bonanza.





## THE ROLL OF MACHINERY

Nothing better symbolizes the Lornex operation than the industrial symphony of large shovels and huge trucks delving into the ore-rich earth in the main excavation site.

The confidence of the company in the whole operation is exemplified by the many millions of dollars invested in this vital equipment in the past decade. Expanding the 1977 truck fleet of 11 mammoth 235-ton capacity Wabco 3200's and 23-120 ton Wabco's was the 1979 addition of 22-170 ton Lectra Haul trucks. These latest have become the work-horse of the pit as they are more easily handled on the narrower circular road benches.

Three drills and six shovels that were in service when the expansion began have been augmented with two Bucyrus Erie 45R extended mast drills and three new Bucyrus Erie 295B1 shovels of 22 cubic yard capacity. This equips the mining department with the capability of moving 95 million tons of ore, waste rock and over-burden annually, making Lornex the second largest open pit rock mine in North America.

The size of this equipment is breathtaking. The giant trucks are powered by engines similar to those used in railway locomotives, and each wheel, standing

12 feet in height, is fitted with enormous tires tested to stand up to 4,000 hours (about eight months) of continuous hard service.

This expansion of the working equipment places a severe load on maintenance so eight new bays and a 14,000 square foot warehouse have been added to the original 20 repair bays to meet this demand.

Additional ore production led to an expanded crusher establishment, in this case augmented by a 60 by 89 inch gyratory crusher and another 3,000 foot conveyor system that will stockpile 600,000 tons of ore to support the new third feed line into the concentrator.

The new processing facilities are housed in a 40,000 square foot addition to the concentrator with a 12,500 horsepower, 34-foot autogenous mill; two 16½ by 27 foot ball mills; and 32-1200 cubic foot flotation cells. The central control room has been modernized with improved instrument monitoring and processing computerization.

The resultant products are not only more in quantity but their quality has been improved by introduction of a new molybdenum leaching plant, which reduces the copper content in the

molybdenum and produces a more desirable product for marketing.

New production records are being achieved as the new system is broken in and reaches capacity of 80,000 tons per day, an increase of 68%. The original pit was designed for a life term of 21 years, but despite this additional production, discovery of new ore reserves indicates that the life of the mine will extend well into the 21st century.

Vital to the mine operation is an assured supply of water, obtained in the first instance from a Thompson River pumping station and moved nearly 17 miles over hills to the minesite. The major expansion program has required a large increase in the water handling system. Water storage, for example, has been increased threefold to 300 million gallons, and the pumping system for the recycling of mill water has been amplified.

The plant, in fact, operates to about 80 percent on recycled water, limiting the drawdown from the river and exemplifying the first rule of resource husbanding.

Worth noting, in consideration of the size of the project, is the fact that this is one development that has been completed within its original budget, a matter of genuine satisfaction to the company.

▼ A 22-cubic-yard shovel loads a 235-ton truck



▼ Shipping out the concentrate





## A COMPUTERIZED SYSTEM

In this age of the computer Lornex is proud to be keeping pace with the most useful developments in that field of operational and management control. There is virtually no part of the operation which is not involved with a computer.

The accounting offices, maintenance shops and processing departments are directly linked to this management hub. Warehouse lines give easy survey of stocks and replacements, permitting constant control of inventory of some 24,000 items on a basis of instant demand.

The enlarged mill computer centre is a special world where skilled technicians can direct instant adjustments in production flows to minute degrees. Instructions given to the computer by operator specialists, instrument technicians, metallurgists and other Lornex experts demand immediate response.

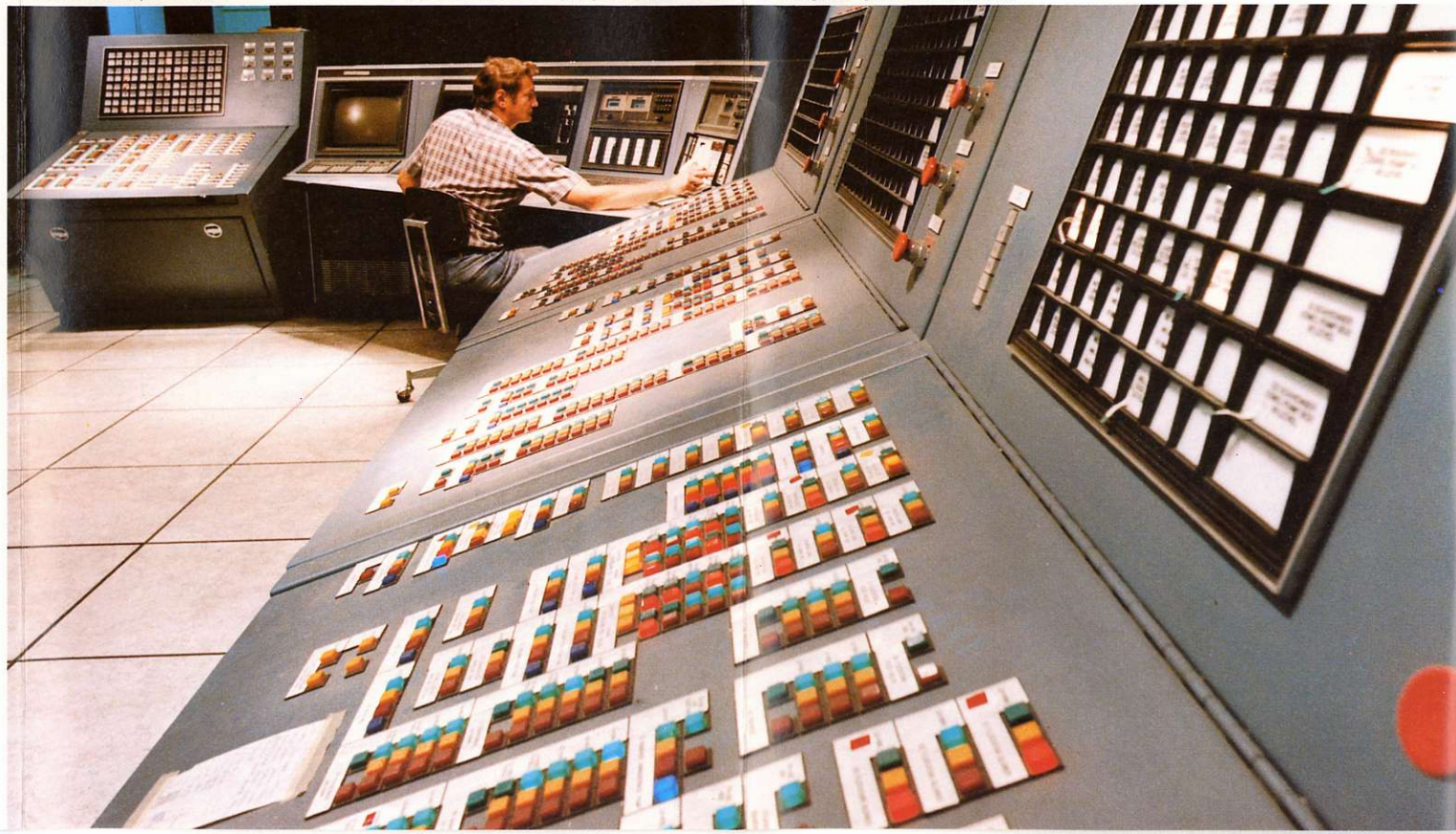
Control and dispatching of the truck haulage fleet and the loading shovels is continuously monitored by a central processor computer, located inside the pit operations complex. Commands emanate from this nerve centre to the most distant corners of the vast open pit.



▲ Electronics help in office



▲ Ore grinding mills turn endlessly



▼ Operational heart — computer control room





▲ Laboratory testing



▲ One year's growth in the rehab area



▲ A busy engineering department



▼ The Thompson River pumping station

## PROTECTING OUR WORLD

Ecological protection is of real concern to the staff at Lornex with the realization of the need to avoid any more than minimal damage to its environment.

Millions of dollars have been spent to carry out a carefully designed scientifically-sound program, a protective system that includes water reclamation, dust control, grounds maintenance and land restoration. The water that moves waste sand into the tailings pond is constantly recycled from the area. There is continual testing to ensure that no tailings substances are escaping into the valley streams.

As the tailings pond fills, its solid shores are tended by agronomists who are conducting ongoing experiments to determine the proper types of ground cover. Grasses and plants quickly respond to this opportunity to restore the balance of nature. The dumps of waste rock and over-burden will receive the same kind of attention and will be replaced as they become inactive with results being constantly assessed.



## AT WORK AND AT HOME

The Lornex family of workers continues to grow with each expansion. More than 300 additional employees have been added as a result of the most recent enlargement.

Lornex is proud of the fact that its worker turnover rate is the second lowest in British Columbia, well under two percent per month. There are some obvious reasons for this continuity of service in our work force. Lornex, for example, has always been conscious of the relationship between job security and a comfortable home and community environment. This resulted, in the first place, in the construction of the town of Logan Lake, some 11 miles east of the mine.

Job satisfaction begins at home, and home satisfaction is wound around things like a pleasant living environment, modern facilities, and many of the advantages of urban living surprisingly evident in an attractive rural setting.



▲ Learning to play the game



▲ The community's all-denominational church

▼ An aerial view of Logan Lake



Geography certainly plays a role in the popularity of the area. It is close to Vancouver, the scenic Okanagan, bustling Calgary and the U.S. border and its entree to the U.S. West Coast. All this is important but even more so is the actual town site. It is carefully placed to provide an outdoor setting. The community has many amenities; it boasts an enlarged shopping mall with well stocked shops, an all-denominational Church, a library, hotel and a motel as well as a recreation centre. There is a medical clinic, an ambulance and firefighting service, and cable TV arrangements that give inhabitants a wide choice of the best programs on the air.

The new educational facilities offer education up to Grade 10, the last two senior grades are completed in Kamloops. All these desirable things have produced a growing community of some 4,000 residents. During 1981, 160 new apartment units and 375 new homes were built and housing construction continues at prices well below big city levels.

For those who enjoy outdoor living there are few regions in Canada with as much to offer as Highland Valley and its environs. There is hunting, fishing in scores of nearby lakes, skiing, camping, hiking and trail riding. The recreation centre with its arena offers skating, hockey and curling, and is a venue for banquets and meetings. Adjacent tennis courts service summer needs. The acceptability of Logan Lake is evidenced by its continuing growth. Like the mines in the region, it too will expand as the need arises.

▼ The children love hockey





## LOOKING TO THE COMPANY'S FUTURE

Marking time has no place in the operational phraseology of Lornex. Since the first decision to develop the property the company has been looking to the future, and continues to do so even as it tries to perfect the present. The company is entering into a period of extending its exploration staff and its interests.

Its strategy includes a sharp interest in the finding and developing of all kinds of base metals, a long-term goal that now is being broadened to include coal mining and major precious metals involvement. It is looking at new possible development in several parts of Canada and the United States; in British Columbia, the Yukon, the Northwest Territories and the western and northwestern States of the U.S.

Future development faces even more difficult problems than the original venture in the Highland Valley. The same approximate time lag of about seven years from the start of a project to production exists. Today's rules are more stringent than in the past in the environmental realm and will be diligently observed.

Lornex has one important advantage in seeking new projects. The company is debt free and able to finance more expansion from the firm's current revenues.

## LOOKING TO THE EMPLOYEES' FUTURE

The company's ambitions offer a challenge and an opportunity to young Canadians

▼ Bird's-eye view of the central core



who want to make a career in mining. As the company expands, so will the work force and attractive opportunities for advancement will become apparent.

The expansion programs, in addition to opening the way for young Canadians to find rewarding jobs, will also emphasize the need for a system of providing trained personnel, a problem which Canadian industry has yet to overcome.

Lornex will continue to do all that it can to encourage training programs, both within its own organization where a continuing upgrading and training policy is maintained, and as part of the concerned industrial leadership of the province and of the nation.