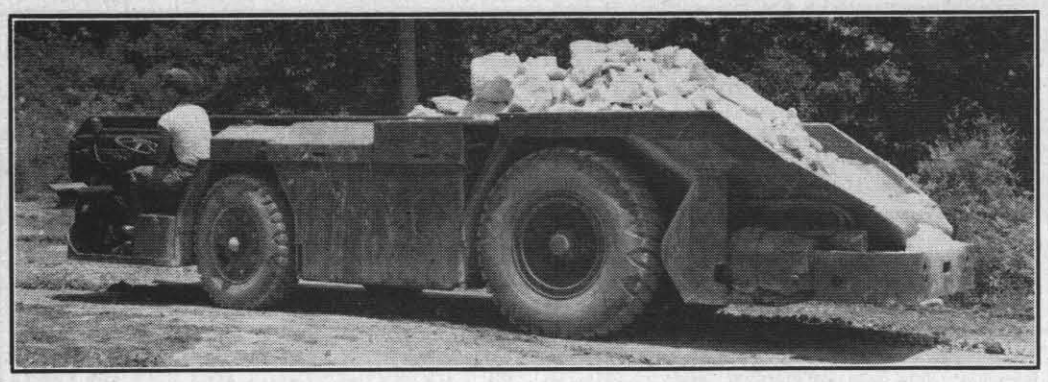
DIESEL ELECTRIC SHUTTLE CAR



Trackless Methods Cut Mine Costs

(Continued from Page 69)

the United States are less than 1,000 ft. beneath the surface. In a great many cases, slopes are used rather than shafts. To drive these slopes, a hard rock modification of one of the smaller Joy coal loaders has been used for many years. This machine is available with either electric or air drive.

The first large-scale use of this trackless equipment for development work started early in 1948 when St. Joseph Lead Co. decided to shut down its Desloge Mine as an ore producer, and to go all-out on development and remodelling. Five Joy loaders and shuttle cars were assigned to development work on a 3-shift basis. The size of drift chosen was 9 ft. high by 11 ft. wide, and 15,000 ft. of drift was driven in about 15 months of operation. This company also has some 25 drillmobiles in operation. The methods used and the results obtained are reported in a paper prepared by Elmer A. Jones, Assistant General Mine Superintendent, St. Joseph Lead Co. A summary states that development work using this equipment shows definite advantages: "Speed of cleaning, ability to work on steep grades and sharp crosscuts, good later tracking conditions, and possibility of wasting rock in abandoned stopes."

The application of trackless equipment to development work continues, and modifications of machinery to suit special conditions in several experimental applications are now under way. These include a projected installation at one of the largest mines in Canada.

have been made in recent years at even the oldest and smallest mines.

At the Wabana mine of the Dominion Steel and Coal Company, over three quarters of the company's production now travels on belts. Work has already started on what will be the longest slope conveyor system in the world. It will be 12,500 ft. long, and capable of delivering 1,000 tons of ore per hour. It will consist of two flights of 1,420 ft. and eight flights of 1,230 ft. of 36-inch wide belting travelling at the rate of 575 ft. per minute. The mines themselves are almost completely mechanized. Thirteen continuous mechanical miners are employed. Each of these machines is capable of producing 500 tons per shift.

An old time miner going underground at almost any of our mines today would be ill at ease, if not completely lost. Likewise, visitors to some of the new mines rising today who are versed with the now familiar mining plants are due for a pleasant surprise and a revision of thinking.

NOTE: Copies of the following papers referred to in the above article may be obtained from Joy Manufacturing Company (Canada) Ltd., Galt, Ontario, on request, without charge.

(1) **TRACKLESS MINING IMPROVES ORE PRODUCTION FOR T.C.I.**; by Leland H. Johnson, Tennessee Coal, Iron & Railroad Co.
TRACKLESS MINING SUCCEEDS IN HEAVY ABRASIVE IRON ORE; Engineering and Mining Journal, January 1951.
(2) **TRACKLESS MINING IMPROVES ORE PRODUCTION FOR T.C.I.**; by Leland H. Johnson.
(3) **WABANA IRON ORE**; — A description of the Wabana Iron Ore Properties of the Dominion Steel and Coal Corp.
(4) **DEVELOPMENT WORK WITH TRACKLESS EQUIPMENT**; Mining Engineering, June 1950.

New Designs Feature Modern Mine Plants

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long winters will be reduced to only a fraction of that required for the big frame structures common to most mines.

At the Barvue, where a 4,200-ton milling unit is getting under way, the plant is being designed for very low cost operation to treat the comparatively low grade zinc-silver ores. Although initial production will be taken from an open pit, development of the mine for underground production will proceed simultaneously. By the utilization of open pit mining, production will be attained several years earlier than would otherwise be possible.

Conveyor Hoisting

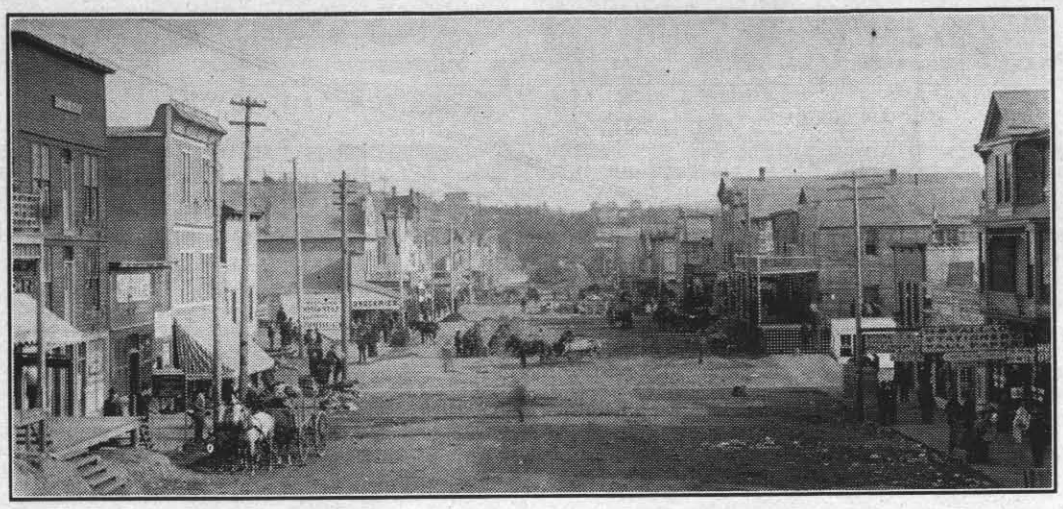
Hoisting of the ore both from the pit and from underground will be by conveyor belts. Consequently, the shaft will be for service purposes only, which means a much smaller opening. In this connection, there will be a marked saving in electric power, a commodity not too abundant in the area at the present time. A mine hoist of sufficient capacity to raise the contemplated tonnage would require an electric motor of at least 1,000 horse power. On starting such a unit, the surge power requirement would run to 2½ times this. In other words, the peak load would be quite high. Power engineers calculate a much lower power requirement for belt conveyor hoisting.

Also with an eye to cost saving, the milling units will be large. In earlier mill design, the trend was towards the installation of a number of smaller units. Installation and maintenance costs for say two 500-ton grinding units would exceed that of a single 1,000-ton unit. Hence, fewer but larger pieces of equipment.

Conveyor hoisting of ore, even from considerable depths, is a trend that is quickly gaining an upper hand over that of the conventional skip hoisting, especially where large tonnages are involved. The iron mines are using this method almost exclusively. At the Helen mine of Algoma Ore Properties, which has now swung over from pit to underground mining, belt conveyor hoisting is utilized 100%. This will not change with depth, as the company plans very much deeper mining by the same methods. Steep Rock will also utilize conveyor hoisting 100%, with the present layout calling for depths of 2,400 ft. or so. Here too, mining will eventually likely be carried much deeper.

In the matter of underground mining, where the transition to modern methods has been more readily possible, very considerable strides

ONLY A FEW OLDTIMERS WILL REMEMBER



Not many readers of The Northern Miner will recall this scene, for it was photographed 55 years ago. It's Columbia Avenue, the main street of Rossland, B.C., as it looked at the height of the camp's first rush of prosperity. The street was unpaved, unlighted, and had only wooden sidewalks, but in addition to the usual stores it boasted a stock exchange, a bank (The Montreal), an assay office, four hotels, and seven bars.

Cadmium Production Shows Increase

Defense Needs Bring Stronger Demand—Cominco and Hudson Bay Still Lead

Production of cadmium in Canada increased slightly to 848,406 pounds in 1950 compared with 846,541 pounds in 1949 while domestic consumption and exports showed respective increases of four and six per cent. Cadmium advanced in price from $2.00 to $2.55 a pound due largely to expanded production of combat aircraft and other war materials.

Cadmium occurs in close association with zinc and in Canada it is recovered from the high cadmium precipitate obtained in purifying zinc elcctrolyte at the electrolytic zinc plants of The Consolidated Mining and Smelting Co. at Trail B.C., and of Hudson Bay Mining and Smelting Co. a Flin Flon, Man. Consolidated Smelters produced 349 tons at its Cadmium refinery at Trail, which has a rated capacity of 700 tons a year, whole Hudson Bay produced 70 tons at its Flin Flon refinery where the rated capacity is 180 tons. A 99.99% cadmium product can be made at both refineries.

Mostly Cominco

Most of the output of cadmium at Trail comes from zinc concentrates produced from the lead-zinc ores mined at Consolidated Smelters' Sullivan mine at Kimberley, B.C. The remainder originates in the zinc ores of a number of mines in British Columbia and elsewhere which ship zinc concentrate to the Trail smelter for treatment. The more important of these mines in the order of the cadmium content of their shipments in 1950 are: Canadian Exploration, Britannia Mining and Smelting Co., Reeves MacDonald Mines, Kootenay Belle Gold Mines, Silver Standard Mines and Silbak Premier Mines, all in British Columbia; and United Keno Hill Mines in Yukon.

Hudson Bay Mining and Smelting Co.'s cadmium production came largely from its copper-zinc orebody at Flin Flon on the Saskatchewan-Manitoba boundary. The company also treated zinc concentrate containing cadmium from Sherritt Gordon Mines at Sherridon and from Cuprus Mines near Flin Flon, both in Manitoba.

Canadian Cadmium Figures
(in pounds)

	1950	1949
Production:		
B.C. and Yukon	706,950	665,449
Saskatchewan, Manitoba	141,456	181,092
Total	848,406	846,541
Exports:		
To: United Kingdom	367,812	442,664
United States	231,605	64,965
France	19,800	34,749
Sweden	38,080	48,568
Other countries	18,708	42,661
Total	676,005	633,607
Consumption	231,000	222,000
Production by principal countries:		
United States	8,982,950	8,023,616
Canada	834,218	846,541
Australia	499,747	468,852
Great Britain	261,588	221,820

B.C. Mines to Prosper Through Diversity

(Continued from Page 67)

The closing down of many small mines at the end of the 1929 mining boom forced the miners to take to the hills in an effort to make a living. The lower cost of production during the depression years of the 1930's and eventually the appreciation in the value of gold created a gold mining boom of major proportion. Old mining camps were rejuvenated and deposits formerly unworkable were profitably mined. New mining camps, like Zeballos, came into existence and flourished until the war when restriction on labor brought an end to the gold-mining boom. World War II created a demand for strategic minerals resulting in the development and bringing into production of the largest mercury mine in the British Commonwealth, a smaller mercury mine, and two tungsten mines. Gold production declined but base metal production increased.

The recent increases in the prices for base metals has revived interest in many old properties as well as a search for new ones. Base metal mines, uneconomic a few years ago, are now producing, and prospects and partially developed properties formerly unattractive now merit investigation. Some of these properties formerly unattractive are developing into important producers.

And Now, Asbestos

New discoveries are being made in old mining camps as well as in the less prospected areas of the Province. In 1950 an important asbestos discovery was made in the old Cassiar placer-gold camp. Parts of the Province that were thought to have been thoroughly prospected must be re-examined in the light of changing conditions and high metal prices. Most published reports of former years are out of date. Many of them were written at a time when low-grade mineralization was not considered worthy of comment, or, if mentioned, frequently referred to as scattered mineralization. In some instances this low-grade material, barely referred to, may now be of importance.

History has shown that British Columbia has a variety of metals and minerals sufficient to maintain a flourishing mining industry under changing world conditions. With many older mines expanding and many new prospects under development, there is every reason to expect that the industry will continue to grow and prosper.