

# MARMORATON MINING COMPANY (Bethlehem Mines Corporation) NOW IN PRODUCTION

On June 3rd, 1954, The Marmora Herald published a report of the building program of Marmoraton Mining Company for the treating of ore from the mine. At that time the primary crusher was under construction and the building which contains the hoisting drums and some other equipment was nearly enclosed. The secondary crusher building was not then started. The large ore bins were also under construction. The bins are not enclosed in a building, but a tunnel has been constructed under them, with openings in the top from which the ore feeds on to large conveyor belts which convey it to the secondary crusher. The weightometer conveyor belt weighs the ore as it passes over it.

The big cement ore silos were also nearly completed and the rod and ball mill construction was also well advanced. The large thickening tank was probably about half completed and the building for the pellet mill was well advanced.

On Monday of this week we had the privilege of visiting Marmoraton Mining Company's plant again and there is a wonderful change in the picture. Last June the buildings, which were under construction, appeared as separate units. Now, with the plant in operation, and the buildings connected by great conveyor belts with long inclined buildings for each belt make them appear as one unit. The housing over the conveyor belts is wide enough to have steps or an incline walk along the side of each belt with iron railing between the belt and the walk for the safety of workmen.

The buildings are all of steel and concrete with a heavy asbestos siding. They are immensely strong and completed fire proof. One is impressed by the installations throughout the plant for giving signals of various kinds in case of accident to men or machinery, time for certain operations, etc. The ground around the buildings is levelled and covered with fine crushed rock.

As previously stated the plant is now in operation and one could follow the course of ore throughout the various processes.

Starting with the hoisting of ore from the pit. Two skips are used, each holding 20 tons of ore one goes up as the other goes down. This is a balanced hoist. The cables holding the cars are made up of six cores, each holding 19 strands of wire wound together to form a cable approximately  $1\frac{3}{4}$  inches in diameter. The cable from one hoist winds around a 12 foot drum from the top and the cable from the other winds around another drum from the bottom, so that they are running in opposite directions. They are controlled from a control room at the top of the lift and are so regulated that one skip is in position to be loaded by dumping a truck into it at the ore level, while the other is dumping its load at the top.

The ore falls from the hoist into the top of the primary crusher, which is a huge 60-ton block of steel, shaped something like an inverted top, which fits in a casing and rocks back and forth from side to side crushing the ore, which is dumped into it, from chunks up to four feet in diameter to pieces of a maximum thickness of five inches. The ore falls from the bottom of the crusher onto a conveyor belt, which has a machine for weighing the ore as it passes along the belt. This conveyor carries it to the large outside ore bin.

From the ore bins another belt, in a tunnel under the bins, carries the ore to the secondary crusher, which is similar to the primary crusher except that the ore is crushed to pieces from 1 to 3 inches in diameter.

Here the first separation of rock from the ore is made, the ore going over three sets of screens, which grade it according to size and then passing over electro magnets which separate the iron from the rock. The rock is stored for commercial uses in four sizes.

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The ore again travels by conveyor belts, going through tertiary crushers until it is about the size of buckshot, or a little finer. From these crushers it passes to the rod mills, which are huge drums each containing about 35 tons of steel rods, approximately 4 inches in diameter and 10 feet long. The action of these drums revolving and the rods rolling and falling against each other grinds the ore to a powder. The ball mills into which the ore next goes are drums similar to the ones in which the rods operate, except steel balls, about 2 inches in diameter, are used instead of rods. There are two of each of these mills. In this process water is added to the ore, about 4000 gallons an hour being used. The ore emerges from the ball mills as a black mud, the ore being about the consistency of face powder. From these units the ore passes over a series of 12 magnetic rolls, which draw the iron out of the solution.

The water and residue go into a thickener tanks, where the mud is allowed to settle and is then pumped to the tailings dump, which is a considerable distance away. Most of the water is reclaimed to be used over again in the mill.

The concentrated ore is next mixed with powdered anthracite coal at the rate of between 20 to 30 lbs. per ton of iron and a small amount of bentonite. The quantity of material used is automatically weighed or measured in each case.

The mixture is conveyed to filters at the top of the pellet building. Here the concentrate is rolled into balls or pellets in a large cylinder and then dropped into the furnaces. These furnaces are fired by heated oil and forced air and develop a heat of over 1800 F. The heat at the top of the furnace starts to change the ore from magnetite to hematite ore and the action in itself develops sufficient heat to complete the process. The pellets emerge at the bottom of the furnace as hematite ore at about 200 degrees.

There is a complete boiler room for this part of the plant, containing two large low pressure boilers, 2 double air compressors to supply air for the furnaces, blowers and etc. There is also a smaller boiler for summer use and a single compressor.

At one end of the pellet mill is a laboratory for testing the ore and assuring proper recovery. The laboratory while not as large as in some plants is completely modern and suited for the purpose for which it was constructed and equipped.

From the furnaces the pellets are conveyed by a conveyor belt to a large storage bin over the railway siding, where it is weighed and loaded into the ore cars. The railway cars have three hoppers, but only the ones at each end are loaded. The doors at the bottom of the cars have to be specially wedged with straw and wood for shipment of the ore. At the Picton storage bins the ore is emptied by opening the bottom under the two compartments.

One of the striking features of a trip through the plant is the elaborate system of electric switches and automatic controls. Every unit in the plant appears to have its own system of alarms and safety controls, with lights and sirens to warn of any stoppage or breakdown in the plant. Careful inspection is made at regular intervals to ensure safety of men and equipment.

The company has Three large transformers adjoining one of the buildings to step the power down from 44000 volts, to 2300 volts.

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# FIRST SHIPMENT OF MARMORATON ORE

## GREAT EVENT FOR MARMORA AND PICTON

Federal and Provincial Government Officials, Officials of the C.N.R. and Many Bethlehem Steel Corporation Officials Join In Ceremonies.

Wednesday, May 11th, was a red letter day for Marmora and Picton. After nearly five years of investigation and preparation the first boat load of iron pellets from Marmora Mine of the Marmoraton Mining Company (subsidiary of the Bethlehem Steel Corporation) sailed for Lackawana, near Buffalo, where large smelters of Bethlehem Steel Corporation are situated.

The locating of the ore body, which has made the development possible, was due to a magnetometer survey made by officials of the Ontario Department of Mines in a plane loaned by the Federal Government. Maps showing the result of the survey were published and the Bethlehem Steel Corporation became interested. They secured options on the properties in which the survey indicated an ore body and decided to risk \$200,000 to \$300,000 for diamond drilling and investigation. Over 18 months were devoted to the investigation at the end of which time Bethlehem Steel Corporation decided that the result of the drilling warranted the development of an open pit mine. Most residents of the district have followed the operations since with a great deal of interest and immense satisfaction. From the first officials and the representatives of Bethlehem Steel Corporation have won the friendship and esteem of all who have come to know them.

The official opening of the Marmoraton Mine took place in December, 1952, and Premier Frost, some members of his government and officials of the Ontario Department of Mines were present. Hon C. W. Howe, Minister of Trade and Commerce was also present and it seemed quite an occasion, but the ceremonies were dwarfed by those of May 11th.

The Canadian National Railway and Mayor Harvey McFarland of Picton took the leading part in the days program, but it was Bethlehem Steel Corporation's accomplishments which gave the occasion for the ceremonies and they played an important part in the entertainment of the numerous guests. A pretty complete list of those attending appeared in The Herald two week's ago, but a number of others were also on hand.

### SPECIAL C.N.R. TRAIN

A special Canadian National Train left Toronto Wednesday morning carrying most of the guests who were to attend the ceremonies. It was made up of nine luxurious coaches, including President Gordon's private car, which is fitted up like a modern office, also a big dining car. The cars were all parlor cars, which made travelling comfortable and pleasant. A tempting breakfast was served after the train left Toronto.

After arriving at Trenton the train proceeded to Marmora, where the whole party left the coach for a brief ceremony in which Reeve Irvin McCoy of Marmora Township and Reeve Ritchie Wells of Marmora Village briefly extended a warm welcome to the visitors and best wishes for the success of the days proceedings.

The party then embarked in some special chartered buses, which took them to Marmora Mine by way of Marmora Village.

A bountiful and delicious plate lunch was served during the trip to Picton and the way plates were cleaned up showed hearty appreciation. One feature of the day was the way the train kept to its schedule. To those accustomed to local train service that was a kind of novelty.

Mayor H. J. McFarland officiated as Master of Ceremonies, and each speaker whom he introduced to the large crowd in attendance, numbering well over 1000, emphasized that it was a development which was important, not only locally but nationally. To some of the Marmora residents who live a mile or two from the Marmora Mine with its remarkable development, the emphasis laid on the opening of the Picton dock was rather surprising.

President Donald Gordon pressed the buttons, which emptied the first official carload of ore into the pit. Mr. Homer cut the 250 foot ribbon, extending from the platform at the top of the cliff to the bridge of the S.S. Powell stackhouse. The visitors had an opportunity to see the ore pellets carried from the pit to the ship, one compartment of the boat being filled as they watched. As soon as the ribbon was cut the ship pulled out and started on its first trip to Lackawana, N. Y.

Together the ceremonies were most impressive. There was also considerable humor, most of it was provided unconsciously by Mayor H. J. McFarland.

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**CANADIAN NATIONAL RAILWAYS**  
**A PARTNER IN INDUSTRIAL**  
**DEVELOPMENT**

The Canadian National Railways undertook a large program of new construction and the expansion of established facilities in order to serve the Marmoraton Mining Company plant at Marmora and provide a rail service to the dock site at Picton.

It is expected that the maximum production of the pelletizing plant at Marmora will reach 500,000 tons per year. On the basis of a seven-days-a-week operation it will involve a continuous daily movement by the railway of 20 to 25 ore cars. To handle this volume the C.N.R. will assign 75 hopper cars together with two 1,200 horsepower diesel switching locomotives. One train per day will be operated, making a round trip.

New 130 pound rail was laid to replace the 80 pound rail on 20 miles of the main line between Trenton and Picton. A four-mile spur line was constructed at Picton from the main line to the dock site as well as a private siding at Picton, 7,617 feet in length. A new service track, 2,325 feet long was built at Marmora as well as over 14,000 feet of private sidings and at Trenton a storage track of 2,375 feet was required to handle the ore trains.

Between Marmora and Picton 60,000 new ties were laid and during 1953 and 1954, 52,000 tons of gravel applied. Bridge and trestle work was also an important factor. Steel spans were replaced at four locations and at one of these it was necessary also to replace the abutments with new concrete abutments. In addition, the existing bridge of concrete slabs on stone massing abutments and centre pier was replaced with a new steel span and new concrete abutments at one location and at another point an existing steel truss span was strengthened. New treated timber trestles were built at six different locations and the swing span over the Murray Canal between Trenton and Picton was renewed, as were a number of culverts.

More work will be carried out this year. The present rail will be replaced by heavier 130 pound rail on ten and a half miles of the line and 15,000 new ties will be laid.

This extension of C.N.R. facilities at Marmora and Picton is one more instance of the railway's participation in Canada's industrial expansion, through the construction of new lines.

**MARMORA AND LAKE COUNCIL**

The regular meeting of Marmora and Lake Council was held on Saturday, May 7th, with all members present.

Minutes of previous meeting were confirmed as read.

Correspondence was received and ordered filed.

The following accounts were ordered paid.

Road Vouchers for April . . . . .	\$1597.47
George Osborne Garbage Collection	51.00
Telephone account . . . . .	8.10

Council went into committee on By-laws and By-Law No. 836, being a By-Law to give permission to the C.P.R. to open a right-a-way for a spur line to Bethlehem Mine, was given the usual readings and finally passed dated the 7th day of May, 1955.

A petition was received from cottage owners on the north side of Crowe Lake requesting Marmora and Lake Council to take over the road into the Lake and it was moved and seconded that the Council take it over as a township road.

Time for returning the Collectors roll was extended until next regular meeting.

Council adjourned

Thomas Bateman  
Clerk

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