

Historic Places Report: Bell Island Number 2 Mine

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June 20, 2006

Introduction

The Bell Island Number 2 Mine is the site of the first submarine tunnel begun in 1902 by the Nova Scotia Steel Company Limited and which crossed through the shoreline owned by the Dominion Iron and Steel Company. It is an area dug out from beneath the land and sea more than two and a half miles, by men with little more than picks, shovels and dynamite. It follows a type of continuous mining called room and pillar, a well-established pattern set down by the mining companies. It contains rooms, engineering structures such as rail tracks and ties; pipes for steam equipment; telephone lines for communications; it held stables for working horses; and dimly lit passageways and escape routes. It was an engineering feat like no other of its time on the island and it was the first Bell Island mine to go under the ocean following one deposit after another of precious iron ore.

The technicalities of mining ore deep under the sea bed made this mine a distinctive enterprise, yet in the 1950s it became increasingly expensive to mine submarine deposits and attention was turned to cheaper ore in Labrador. In places such as Labrador City and Wabush iron ore mining continues today as land-based surface mining operations.

The Bell Island Number 2 Mine: room and pillar construction

The Number 2 Mine was mined by the room and pillar method as it is the most common type of underground mining. This method was popularly used by the Dominion Iron and Steel Company in Nova Scotia to access the submarine coal deposits that run under the Atlantic. The room and pillar process involves cutting rooms into the ore bed leaving a series of pillars or ribs of ore to help support the mine roof and control the flow of air. The Bell Island Mine had pillars cut much larger than land-based underground mining because they had to support not only the weight of the rock overhead, but also the ocean overhead. A concern of submarine mining is the risk of water intake which the pillars help prevent by supporting the overburden. The Number 2 Mine reaches 2 ½ miles out into Conception Bay and since active operations ceased and pumps have been turned off the mine shaft is flooded to level 23, leaving only a portion of the original shaft exposed.

The Bell Island Number 2 Mine: Features

The Main Shaft: 1.8 ton ore cars were used to increase production results because the slope grade made efficient hauling up of ore difficult. A rail system was implemented for the cars to travel on, of which the wooden ties remain in place today. As each car was loaded with ore, a steam driven engine pulled it to the surface. The main slope was the central nerve system of the operation, being the primary area for ore transport. In this shaft one enters a man-made tunnel with a smooth ceiling, the “back” and very wide pillars, the “ribs” on both sides punctuated with openings that lead to more “rooms”. The mine extends for a distance of 2 ½ miles underground and under Conception Bay. Also

at the head of the shaft on the west wall are the original metal rebar ladder rungs which lead to the above ground opening.

Additional Shafts: Running parallel along the sides of the main shaft are two shafts used for the comings and goings of the miners and their horses that pulled empty ore cars to the base of the hoisting slope. The miners travelled down to the mines in empty ore cars locally called mantrams. As they descended the candles in their hats, or the seal oil lamps lit their way. Along the walls of the main slope and the utility slopes are carved out notches in the iron ore pillars about one foot square. These may have been used to hold small lamps or they may have been used to hold large round timber from the rib to the edge of the track to help derail the cars if one broke loose or if a cable itself snapped. Their purpose has been a question of some debate recently.

Through the west utility slope are two cast iron pipes which fed air to the lower levels to help operate the compressed air mining tools. These pipes lay side by side along the floor, while a unique telephone wire system hangs from the ceiling directly above. At different points along the mine levels telephones were located which the miners could use by attaching them to the suspended telephone wire. This allowed two way communications at different levels of the mine. The escape route is also along this shaft and various signs point the way.

Along the eastern utility slope was the access route, which miners used for going above ground and where the horses and their stables were kept. The original stables are still in place and would have held about 10 horses at one time. Large tarpaulins would have been hung from ceiling to floor to enclose the stables for warmth. Also scattered along the walls and floor of this slope are years worth of carbon knocked from miner's candle-lit helmets as they extinguished the flames, before the ascent via the lit slope.

A Modern Example: Submarine Mining and the Cape Breton Coal Fields

The Bell Island Number 2 Mine can be compared to the coal fields of Cape Breton in its mining methods. The coal fields of Cape Breton lie close to the coastline, and a large percentage of the field extends under the ocean. As a result, the mines of Cape Breton's east coast, among the most extensive mining operations in the world, face problems that are different from those encountered in other fields.

The biggest problem in undersea mining is the possibility that the sea will break into the workings. Until a certain depth of cover is reached, pillars of a sufficient size to support the sea bottom must be left intact. In Nova Scotia, removal of coal is prohibited by mining laws at a depth of less than 180 feet of solid cover under the sea. The cover line for most Cape Breton workings is 700 feet, and until this level is reached, the width of the rooms is restricted and no pillar extraction is carried out. After this level is reached, the longwall method is usually used for complete removal of the coal as long as 100 feet of solid cover remains for each foot of thickness of the coal removed.

An advantage of an underground mine working under land rather than under the ocean is that when the working area is a long distance from the surface entrance, another shaft can be sunk to the working face. Obviously this is not an option with submarine mining and the shaft must continue out under the sea until a distance has been reached that is not economically feasible to mine the coal. How far the mine extends under the sea

depends on a number of factors: the nature and thickness of the seam, the character of the roof and floor, the rate of dip, which determines depth, and the amount of coal which can be economically removed from the mine.

The Bell Island Number 2 Mine followed similar techniques in its mining process. In 1930 Wabana was considered the largest single deposit of iron ore in the world. During its most productive phases the Wabana mine was owned by the same interests as dominated the manufacture of steel in Sydney. And it was the Bell Island ores which made possible the development of Nova Scotia's iron and steel industry. Under the joint ownership for seven decades the fortunes of Wabana ores and Cape Breton steel were tightly linked until the production of cheaper, richer and purer ores from northern Quebec and Labrador in the 1950s.

Other Mines on the Canadian Register

When searching for similar sites on the Canadian Register of Historic Places there are no underground mines, shafts or engineering works listed to date. There are two oil wells listed for Western Canada, one townscape, an abandoned and closed mine in St. Lawrence, NL, designated municipally and one mine in New Brunswick which has yet to be listed as a provincial historic site. The following is a brief descriptor for each record:

Barkerville, British Columbia

- designated an historic townscape because of its associations with the Cariboo Gold Rush of the 1860s. The town drew people from around the world and directly led to the creation of the British Colony and eventually the province of British Columbia.

First Oil Well in Western Canada National Historic Site, Alberta

- designated a National Historic Site because it was the first oil well in Western Canada. Though it went dry just two years after encountering oil, it signalled the presence of much larger fields.

Leduc No. 1 Discovery Well, Alberta

- designated because it signalled the promise of more oil after 133 dry attempts. The well blew in 1947 and triggered extensive exploration across Alberta. It also marked a watershed in Alberta's economic and social life, drawing in massive capital investments as well as altering the province's demographics and social structures.

Iron Springs Mine, Newfoundland and Labrador

- designated because it marked the rebirth of the area after the 1929 Tidal Wave and the Great Depression. It once ranked 5th in world fluorspar production and at the time of its discovery was a source unparalleled in the world. It was the source of employment for the area, but the contributor of industrial disease for hundreds of men. It is also valued because of its associations with the USS Truxton and Pollux wrecks; survivors were first cared for in the mine buildings while miners were the first on the scene of the rescue.

Albert Mines, Albert County, New Brunswick

- designated because it is the site of the first commercial extraction of petroleum products anywhere in the world.

Conclusion

The Bell Island Number 2 Mine played a distinctive role in the economic development of the Avalon region. Development of the mine in the 1890s created for the people of Conception Bay an important alternative to emigration or to the other difficult adjustments facing a growing population, at a time when local resource industries were declining. Bell Island is noteworthy for having supported, at the time of Confederation, a community of ten thousand people. The Bell Island Number 2 Mine is noteworthy because it is the site of the first submarine mining tunnel in Newfoundland - an extraordinary feat for its time and for the processes it took to make it a realization. The room and pillar construction visible from the Number 2 Mine today provides a good visual example of the extent to which mining expanded under Conception Bay and inside the very fabric of Bell Island itself. It remains today one of the few mines open to the public in Newfoundland and Labrador.



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