

# Methods of Mining

For many years, underground mining in Cape Breton has taken place under the ocean. In order to get there, miners either take a small trolley called a rake down a slope to the mine, and eventually their work place, or they go down in an elevator called a cage, and then travel out. These are two methods of mining coal that were used in Cape Breton.

## Room and Pillar

In earlier days, the accepted method of mining coal was called room and pillar. A modern version of this still is used today. However, many years ago, this meant that coal was taken from small sections at a time (rooms). There were many of these rooms operating in the mine. Two miners work as a team in each room, blasting and loading coal into tubs or boxes, sometimes railway cars. They cut coal at the bottom of the seam, and then coal is handpicked or blasted, after drilling a borehole, and placing a charge. In these early days, the tubs or boxes would be hauled out, on wheels by horses. Large blocks (pillars) of coal were left behind to support the work area for the safety of the miners. Very often, miners were paid according to how much they loaded.

## Longwall

Modern longwall mining takes place usually where mines advance deep underground. It is more modern than room and pillar. Levels, or tunnels, are driven to the coal face, or wall of coal. It is mined its whole length, up to over 200 meters. A coal cutting machine, called a shearer, runs the whole length of the face, cuts the coal, and it lands on a "pan line", a succession of large trays, where it is taken to a series of conveyor belts to the surface. Water is sprayed on the wall to prevent sparks and gas monitors are placed along the wall to warn of methane gas levels could cause an explosion. Stone dust is used to keep down coal dust, which could be ignited to cause a major explosion also. In advance longwall mining, as the shearer advances, so do roof supports, called jacks, as well as the pan line. The area behind can fall in safely, as the miners work under the roof jacks. The shearer can cut hundreds of tons in each 8 hour shift. Coal miners are usually paid according to how many hours they worked, not how much they loaded. Sometimes, they are given extra money for producing more coal.

1. Compare how a work day would be different for a room and pillar miner, as opposed to a longwall miner. Consider lighting, equipment and coal transportation. Would you rather be paid by the amount you loaded, or by the amount of hours you worked?
2. Compare the safety of mining now and many years ago. What dangers are there in each? What safety equipment do you think that miners would have at all times, then and now, and why.
3. Hydraulics, or the moving of machinery by fluids under pressure in hoses, is widely used in longwall mining, as is electricity. Tell under what conditions you think they would be used. Tell why gasoline powered engines are not used, and why miners are very careful with anything that operates electrically in the mine.
4. Why is it very important to have proper ventilation (moving of air) in the mine?

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1. Describe the many jobs Mr. Tutty had in his long career as a coal miner.
2. Describe how coal was mined in Mr. Tutty's earlier years. Use the following terms: sprag, auger, thread bar, stemming, driver, stableman, miner's lamp.
3. Describe the accidents he experienced or described in the mine.
4. Despite all he'd been through, Mr. Tutty continued to work for the coal company. If you lived during his time, would you have continued to work as he did? Consider life at this time, including mobility (ability to go to other places to get work), family responsibilities, personal resources (skills, education, money etc.)

## Challenge Questions

1. Draw a diagram of each type of coal mining, starting with the surface. Include all of the equipment necessary to perform mining tasks with each method. Show safety features, as well as which direction you think the air would travel.
2. In essay form, describe what you see is the future of coal mining. Include as many technological changes that you could imagine as part of your idea of the future in coal production, as well as possible future uses for coal. Use illustrations to present your ideas to the class.
3. Visit the Ocean Deeps Colliery at the Miners Museum and tell which method(s) of mining is (are) demonstrated. Give characteristics of which method(s) of mining you saw.