

Background Information:

How is Coal Mined?



Coal is a sedimentary rock that was originally deposited over 300 million years ago. It is found in layers called seams. Because of their age, these seams are often found deep underground, but earth movements or erosion may bring them close to the surface.

Drift Mining

Coal seams may lie horizontally, or lie at an angle. In places the seam might meet the surface. Drift mines reach the coal by driving a roadway at a slope from the surface, rather than using a shaft. There is a modern drift mine only a few miles from the Museum site.



A modern drift mine.

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Open Cast Mining

Thick coal seams that lie not too far beneath the surface can be mined by removing the layers of rock above. These mines are called opencast or surface mines. In Britain, surface mines often mine the coal remaining from earlier, less efficient mining methods. This method of mining is widely used in other countries such as Australia, China, South Africa and the USA. It is less costly than deep mining, and requires fewer miners, but the environmental impact can be high.



A modern open-cast mine.

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Deep Mining

At one time most coal mines in the UK were deep mines, but now there are more surface mines. Deep mines use a vertical tunnel called a shaft to get to the layers of coal beneath the surface. In advance mining, the coal closest to the shaft (excluding the shaft pillar) is removed first. As a mine is developed, the coal further from the shaft will be removed. Miners, equipment and coal are transported underground along horizontal tunnels called roadways. In retreat mining roadways are driven out to the furthest reach of the mine, and then coal is mined out on the return to the shaft.

Modern deep mining in the UK uses the longwall method. Large, coal-cutting machines remove coal from a long coal face. The coal face is the section of the seam that is being worked. Coal is sliced away from the face, drops onto a metal conveyor (panzer) and is transferred to a belt conveyor to be carried back to the shaft or surface.



A modern long-wall coal face in a deep mine.
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As coal is removed from the face, the face advances and at the same time all the equipment has to move forward also. When the roof supports at the face move forward, the unsupported rock behind is allowed to drop down. Only the stone above the face and in the roadways is kept supported. Advancing faces need roadways at either end to allow men, equipment and coal to be transported, and to provide a free flow of air.

Once a face has been worked as far as it can go, the equipment is removed. This equipment is then taken to be used elsewhere. At big coal mines, there may be several faces open at one time, with a system of new faces being set-up as those that have finished are closing down.



further reading

UK Coal website: <http://www.ukcoal.com/businesses/deep-mining/dm-overview>

Wikipedia website, long-wall mining: http://en.wikipedia.org/wiki/Longwall_mining

Please note, the Museum can not take responsibility for the content of external websites.



museum links

Find out more about the way that coal is mined on site at the Museum, in the Coal Interface Gallery and on the underground tour.

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