

**Durham Miners Heritage Group  
Information and Activities Package**

# **Teaching Notes**

## **The Age of the Formation of Coal**

**C**oal is mainly fossilized plant remains. Oil, on the other hand, is often formed from a quantity of accompanying fossilised animal remains. As plants grow, they absorb the gas carbon dioxide from the atmosphere and take up water from the ground. Using the energy of the light from the sun they combine these to form the tissues which make up the plant, releasing some of the oxygen from water in the process. Usually, when plants die they are digested by micro organisms utilizing the oxygen released by the plants present in the atmosphere, converting the tissues of the plant back to water and carbon dioxide.

If, however, the plant gets excluded from the oxygen of the air, typically by being buried in waterlogged ground such as a bog or swamp, this process cannot occur. Instead, the plant material becomes first peat, then lignite (sometimes called 'brown coal'), then bituminous coal and finally anthracite. Coal is thereby formed from plant remains fossilised in the

absence of air. Because it could not be recombined with the oxygen released as the plant grew, coal retains much of the energy locked up from the sunlight that the plants absorbed when they were growing. When we burn coal we combine it with oxygen from the air, releasing both carbon dioxide gas and the energy of the sunlight, mostly in the form of heat (and a little light). This is what makes coal useful as a fuel.

When did Coal Form? There is no straightforward answer to this; coal continues to be formed today as peat deposits become buried by deposition of overlaying layers of sand and silt. An easier question to answer is when did Britain's coal form? Almost exclusively, this was during a continuous period when the land which is now Great Britain lay close to the equator, between 350 and 290 million years ago. During this time much of the limestone of Britain also formed, and the first amphibians, reptiles and flies appeared. By way of comparison, dinosaurs and

mammals would not appear until  
about 210 million years ago.