

The rocks of the Dewsbury area are **Upper Carboniferous** in age, so they are about 310 million years old.

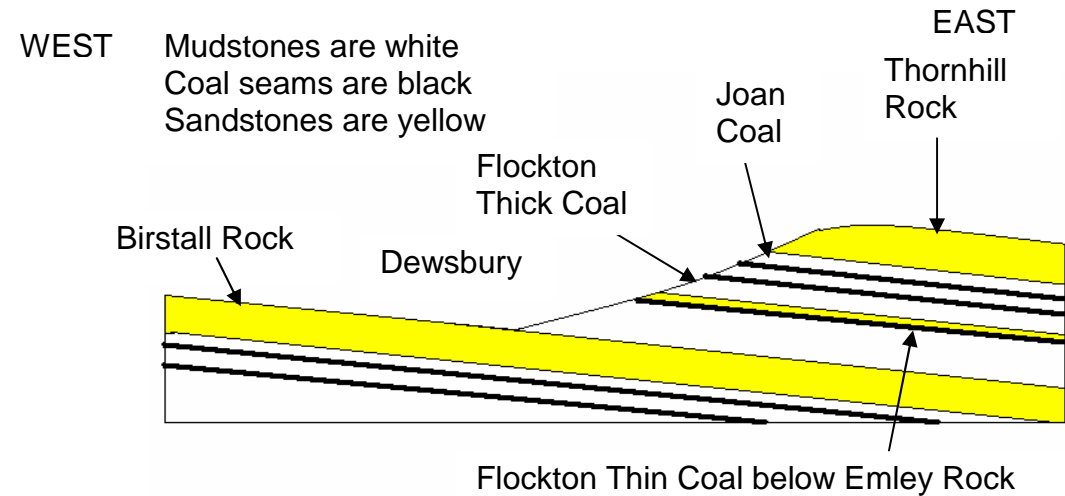
These rocks were laid down in **deltas** on the edge of a large continent, with mountains to the north and south. Sands and muds were deposited by rivers in shallow water. Because the continent was close to the equator, the climate was warm and wet so that tropical rain forest flourished. Dead plant material became trapped in stagnant swamps between river channels. Over geological time it was buried by muds and sands as the rivers in the delta changed position and built up more deposits. The water, oxygen and hydrogen were driven out of the plant remains, leaving only the carbon in **coal seams**.

After the sediments were formed close to sea-level, they were buried by hundreds of metres of sediment and **compressed**. As the sea water moved upwards it carried minerals which **cemented** the sand and mud grains together to make **sandstones** and **mudstones**.

Crackenedge is the ridge that forms the east side of the Batley Beck valley and the top of it is formed by the **Thornhill Rock**, which forms the prominent slope at Thornhill Edge, to the south of Dewsbury and which is exposed in Caulms Wood Quarry. The quarry was sizeable by 1892, so the stone was probably quarried for major buildings in Dewsbury. Below the Thornhill Rock is a thin sandstone, the **Emley Rock**, which is of poor quality and was only used for walling stone.

Most of Dewsbury is built on sandstone called the **Birstall Rock**, which was also widely quarried in Dewsbury. Above the Birstall Rock lie mudstones which contain three coal seams, of variable thicknesses. The Flockton Thin seam

was only about 2ft thick, but was very pure, so was mined widely, whereas the Joan Coal was a similar thickness but of only medium quality. In *The Geology of the Yorkshire Coalfield 1878*, a colliery at 'Caalms Wood' is mentioned, commenting that the Joan Coal was exploited, but 'not to any great extent'.



Cross section to show the geology of the Dewsbury area

The landscape of West Yorkshire is largely controlled by underlying geology. The Thornhill and Birstall Rocks are thick, resistant beds of sandstone which form gently sloping surfaces in the Dewsbury area. The mudstones are less resistant and are weathered and eroded more easily, so form the valleys.

This pattern of erosion on the sandstones and mudstones is common and gives West Yorkshire its characteristic landscapes of flatter moorlands and uplands, formed by sandstones, and steeper slopes, formed by mudstones.