



A WALK AROUND HEPTONSTALL TO LOOK AT THE ROCKS, BUILDING STONES AND LANDSCAPES OF THE CALDER VALLEY

Contact details:

If you want to find out more about the West Yorkshire Geology Trust contact team@wyorksgeologytrust or look at our website www.wyorksgeologytrust.org



View of the Upper Calder Valley from above Hell Hole quarry, Heptonstall

The rocks of the Heptonstall area are **Upper Carboniferous** (Namurian) in age, so they are about 320 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. Sometimes plant branches and roots were washed into rivers during floods and became stranded in sandbanks. Their fossils can sometimes be found in sandstone walls or in quarries.

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 a rock.

In Hell Hole Quarry a massive exposure of Lower Kinderscout Grit is seen in a 20m high quarry face. The site shows **cross bedding** on an enormous scale, containing beds dipping at approximately 30° within the nearly horizontal **bedding planes**. These cross-bedded sets represent the sandbanks in an enormous river channel, probably equivalent to those of the Mississippi or the Nile rivers, as they flow across a delta into the sea.



The quarry would have been used to extract **building stone** for local use. The bedding planes and joints provide natural weaknesses which allowed the quarrymen to take off blocks of stone without needing any blasting with dynamite, which would have damaged the stone. The blocks would have been very large and were probably cut into smaller sections, using **plugs and feathers**. They would have been transported down to the valley in carts along the track at the base of the quarry.

Heptonstall shows the use of the building stones very well, although we can't be sure that the stone here came from Hell Hole Quarry, as there are other smaller quarries nearby. The biggest blocks could be sawn into lintels and mullions for doors or windows, while more finely bedded blocks were used for flag stones or roofs for outhouses. The thinnest flags were split for roofing. Broken stone was used for field walls and any spare stone could be crushed to be put on field tracks or lanes.



Heptonstall churchyard to show the use of local sandstones