

Berwickshire Coastal Geology Project

www.berwickshirerocks.org.uk

A visit to Borthwick Quarry Friday 20th April



There was a full turnout of 20 people joining members of the Berwickshire Coastal Geology Project team for this walk led by Ian Kille around Borthwick Quarry, near Duns (with permission from the owners).

This huge quarry was worked for road aggregate until fairly recently and exploits a dark steel-grey igneous rock called dolerite. Ian pointed out to the group some of the interesting features, explaining that the curved columnar joints, which dramatically pattern the cliffs, are evidence for the way that the magma cooled and flowed into this

space. Water, vapourised by the magma, drilled pipes of fragmented dolerite up through the rock as it cooled, altering the dolerite minerals and producing veins of pale calcite and quartz. At the top of the quarry, above the dolerite, lie sandstone beds, probably laid down at the very beginning of the Carboniferous period. This led to an interesting discussion about how the dolerite magma was emplaced. Was it a lava flow or was it the magma intruded into the local rocks, or a combination of the two? Ian explained how geologists can assess the relative ages of the dolerite and the sandstone, using fossil evidence as well as cross-cutting relationships.

Afterwards, the group enjoyed refreshments in the Duns Volunteer Hall, as well as a talk by Ian on the nature of igneous activity in the area and its tectonic setting, with an opportunity to look at a display about the rocks and landscapes of the Berwickshire coast and to purchase the associated book, which is also available from the website. www.berwickshirerocks.org.uk