

The Slars, enigmatic channels from the Sandstone Ridge

On the western facing slope of Bickerton Hill, above Brown Knowl, an unusual collection of linear channels set into Triassic sandstone bedrock has attracted much speculation as to their origins. In many publications, they are considered likely to be the product of wear through the abrasion of ropes as part of the historic local quarrying process; the view that they may have a glacial origin typically gets only passing reference. This article attempts to turn this focus around!

On a large area of smoothed Triassic sandstone, sloping at about 45 degrees, are incised a number of channels and scallop-shaped depressions, mostly aligned parallel to the slope. They are locally called The Slars.

In detail, the channels are around 10cm across and 15 – 20cm deep. There is a group of 5 channels, mostly 3m long, with the left hand channel of 4m length.



About 15m to the left of this group is another 3m single channel (photo below). Between this isolated channel and the main group, a much larger indent runs diagonally down the slope (black arrow), it initially looks like the simple weathering of a joint or fault, but on clearing out the leaf litter, two channels can be seen.



Between two channels a series of several scallop-shaped depressions are aligned parallel to the grooves (these have typically been referred to as footholds or steps). They may have been small plunge pools as a result of active ice sheet melting causing turbulence that scoured out these the scalloped depressions.

The causes of these channels has two very polarised explanations. One is by human intervention, described above, the other is by natural causes. This relates to glacial activity, where a channel is cut into bedrock by subglacial meltwater underneath the glacier or ice sheet, sometimes under high pressure. These meltwater channels can have different sizes, ranging from very small-scale channels to big valleys which can be up to a kilometre wide.



During the last glacial period, which peaked around 21 thousand years ago, when the Sandstone Ridge and much of Cheshire was covered by an ice sheet, many steep-sided valleys along the mid Cheshire ridge (such as Urchin's Kitchen) were scoured out as a result of the erosive power of sediment-laden subglacial meltwater. By the same process, but on a different scale, small channels, called Nye channels, have also been cut into rock.

Example of Nye channels eroded into limestone, Switzerland. Ice has since retreated and the channels are now in front of the glacier.

Unfortunately no scale on the photo is given, but the channels are less than 1m wide.

Taken from www.swisseduc.ch/glaciers/



Nye channels are exceptionally rare in lowland Britain, and the only two published examples have been described from Thurstaston on the Wirral, and Lymm, both in Cheshire. The channels from these other locations are much deeper, over a metre deep, but still quite narrow. There has been much disagreement as to the cause of these channels, with one scientific publication attributing the cause of both the Thurstaston and Lymm channels to the activities of children climbing over these surfaces. But within the scientific community, the notion of a glacial origin is favoured.

Anyone visiting the Thurstaston and Lymm sites are likely to see the attraction for children (and adults!) to clamber over these distinctive rocks. So some modification and erosion by many feet to these glacially-formed structures will undoubtedly have occurred. Such activity has fortunately not affected the Bickerton Slars, although a human factor has typically been given as to their cause. Namely, the wear from ropes as described above.

The channels at Bickerton are exceptionally well preserved in comparison to those elsewhere in Cheshire, and are perhaps the best example in lowland Britain. They have been assigned as a Regionally Important Geological and Geomorphological Site (RIGS). RIGS are designed to assist in the national conservation of significant geological and landform sites.

The Slars at Bickerton make a significant contribution to the rich geological heritage of the Sandstone Ridge.

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