

# Cumbria RIGS Group

Cumbria RIGS Group is a voluntary geological conservation group working to record and look after important geological sites.



**THE SEDGWICK TRAIL** The trail is 2.5 miles east of Sedbergh on the A684 at Grid Reference SD 694913.



Overall view of the Sedgwick Trail

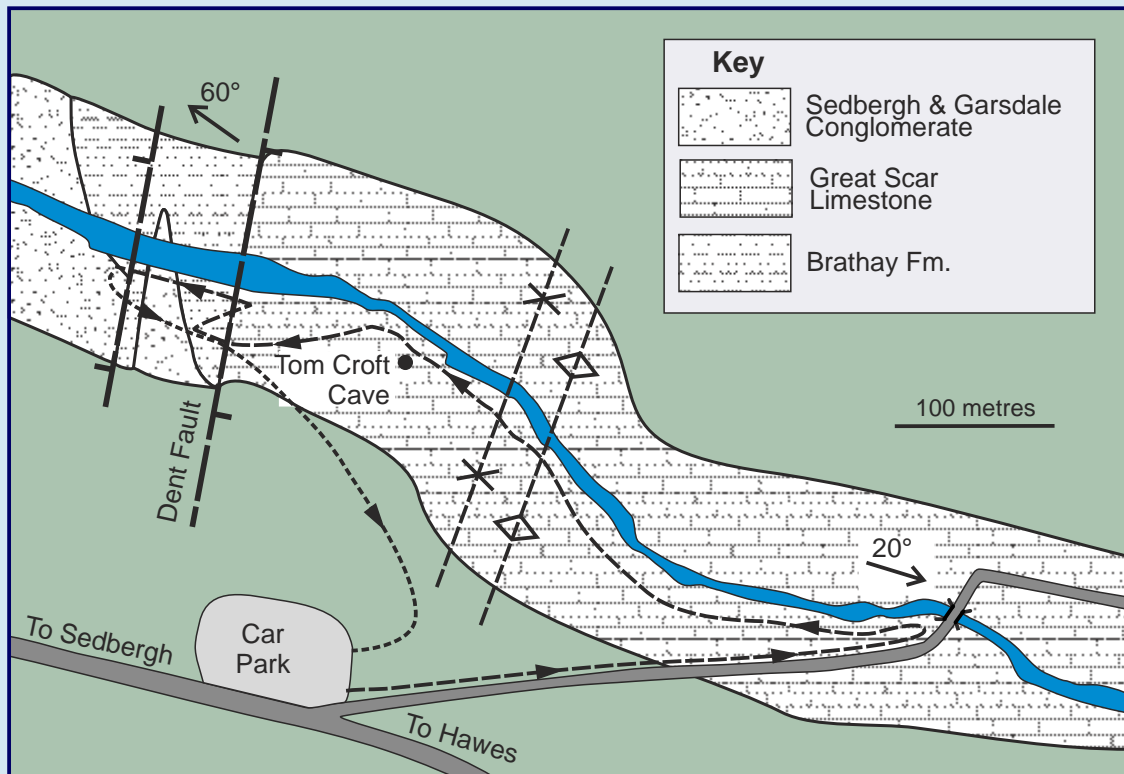
A section of the Dent Fault is admirably exposed, with downthrown Carboniferous strata (the Great Scar Limestone) generally on the right bank of the River Clough and Silurian rocks (Brathay Formation) on the left. Folding, faulting, brecciation, mineralization and unconformities can readily be demonstrated to the, along with evidence for changes in depositional conditions. Thus the site provides a valuable introduction to geological processes generally, as well as to aspects of the regional geology.



Steeply dipping Great Scar Limestone at Point 2



Conglomerate produced by forces from the Dent Fault at Point 11



The Sedgwick Geological Trail has twelve exposures marked by numbered wooden posts.

Sites 1 to 4 expose Great Scar Limestone of Asbian age (338 Ma) and is the uppermost formation of the Orton Group, they dip about 60 degrees southeast.

Site 2: At this location Rugose corals and Brachiopods are common.

Site 3: There had been short periods when muddy sediments were deposited and gullies have eroded into thick shale beds,

Site 4: There are several deposits of black Chert in the limestone possibly resulting from silicates being deposited onto the sea bed.

Moving westwards between sites 4 and 7 there is an anticline followed by a syncline with the beds at site 7 dipping vertically. This is evidence of folding of the beds due to the closure of the lapetus Ocean during the Acadian phase of the Caledonian Orogeny 400Ma.

In Tom Croft cave at site 7 calcite has crystallised out on the surface. This is thought to be caused by heating of the rock, during the early Devonian about 400 Ma.

Between sites 7 and 10 there is a marked change in lithology. The Dent Fault is located here, where the bedded limestone has been replaced by breccia. There is some mineralisation is further evidence of intense heating.

Site 10: At this location the limestone has been replaced by a fine-grained mudstone of the Brathay Formation, which was deposited in the late Silurian 425 Ma. This formation dips downstream at 62 degrees. At this site one can also see an unconformity where the Brathay Formation rocks are overlain by the red Sedbergh and Garsdale Conglomerate.

Sedgwick was the first person to observe and explain these features. He attributed them to an orogeny that raised the Lake district hills to the west by as much as 2.5 km relative to the Yorkshire Dales to the east. This is now known as "The Dent Fault".