Fell End Clouds

Leader Sylvia Woodhead 21 August 21

Four hardy souls joined Sylvia and Peter Woodhead at Fell End Quarry (NY 734 006), SSE of Ravenstonedale, in the face of a dire weather forecast (Figure 1). In fact the weather was mild, with only slight showers. The area lies in East Cumbria, in the Yorkshire Dales National Park, east of the Howgill Fells and the Dent Fault. Three types of landscape can be seen; to the west, Harter Fell forms part of the Silurian Windermere Supergroup of rocks, exhibiting rough pasture and bracken covered steep, smooth slopes, with many downslope gullies typical of the Howgill Fells. To the south, the corrie feature of Cautley Crag could be made out, a rare NE facing corrie basin in the Howgills.



Figure 1 The CGS meet in Fell End Quarry (photo Dai Powell)

The low ground has been eroded along the line of the Dent Fault, which here trends SSW-NNE. The Fell End valley has been glaciated, and thin layers of drift deposited. It is thought that the area had little ice thickness in the last Ice Age, being in the 'snow shadow' of the Lake District hills and the Howgills, and being near to an ice divide. There is some uncertainty over the direction in which the ice moved.

To the east of the valley, downfaulted Carboniferous strata, mapped as undifferentiated Great Scar Limestone, forms the NE-SW trending limestone outcrops of Stennerskeugh and Fell End Clouds. The Clouds area is designated as an SSSI for both biological and geological interest, the geology being stated to be varied limestone pavements, with the variety attributed to varying ice flow.

Fell End Quarry was a former Local Geological Site, archived when the quarry was partly infilled. The limestone beds in the quarry show erosional wavy bedding plane surfaces, with many layers and nodules of chert, whose origin from sponges and radiolarians in the Carboniferous seas was discussed. The rocks are here dipping at 5-10° NW.

Walking SE a small exposure of drift and a seepage of water were passed (NY 735 004). Walking over a generally drift-covered hillside, rough boulders of limestone were examined. Apparently not bedrock, these could be erratics; several appeared to be pedestal rocks, other could have slid downslope in periglacial conditions. Many showed solutional features.

Walking past Harry Hope's Land, an enclosed walled area, a side valley termed Dale Slack, (NY 742 002) was entered. This is believed to be a strike slip fault, approximately at right angles to the Dent Fault.

Following the Miners' Track north easterly to another fault guided valley, with mineralisation, the discussion was whether to adapt the route to the expected rainfall. An early lunch was taken at the foot of Stennerskeugh Clouds, where the dip SW. The limestone pavement was briefly examined and seen to be very broken up, with narrow, in some places, knife-edge clints. This was considered to be due to effects of the Dent fault. It was decided not to go to the top of Stennerskeugh Clouds, but instead to follow the route suggested in the leaflet '*A Walk on the Clouds'* by the late Helga Frankland, now updated and produced by Cumbria Wildlife Trust.

We walked south to Fell End Clouds, along the north side of Harry Hope's Land. The walk took us below a limestone scarp, scree slope and huge boulders. The varying dip within the plunging anticline was considered (Figures 2 and 3).



Figure 2 Steeply dipping limestone near the core of the plunging anticline inside Harry Hope's Land SD 737 998

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Figure 3 Unusually large clints on a limestone surface on Fell End Clouds SD 737 997

A mine tip (SD 735 995) had pieces of galena, barite, yellow and colourless fluorite, copper oxides and sulphides and malachite. All specimens examined were left for future groups. Near to here cross sections of a gastropod identified as *Bellerophon phillipsi* were noted, (Figure 4). The Clouds mineralisation is related to the Dent Fault with four or more veins, none wider than about a metre. They were worked centuries ago by trenches and bell pits, but were unlikely to have produced much ore. A Mineral Reconnaissance Report by the then IGS in 1982 concluded that there was no mineralisation of economic significance in the Stennerskeugh Clouds area.



Figure 4 Gastropod *Bellerophon phillipsi* SD 735 998

The group then climbed up the limestone layers of the anticline to the summit of Fell End Clouds (SD738 998), where the conformable succeeding layers of the Stainmore Formation rocks could be seen continuing up to the flat summit of the cloud-free Wild Boar Fell.