The Geological Landscape around Low Rigg

Leader: John Rodgers 20 June 2018

This was an evening meeting during which members were asked to consider the geological and environmental features that could be observed on a walk across Low Rigg, and whether it would be worth producing an explanatory pamphlet for visitors to the area.



The Low Rigg microgranite intrusion with the Caldbeck Fells behind, viewed from the north end of High Rigg

The group of 15 met at the road junction on the minor road south of the A66 at NY 305 240 (a safe place to leave several vehicles). We then took the lane to the marked path which traverses south across Low Rigg towards the Youth Residential Centre. Low Rigg is an elongate dome of about 1 km ² composed of Threlkeld microgranite and separated from the main laccolith to the east by St.John's in the Vale. This is a fault-line valley formed by erosion along the major structure of the Coniston Fault that extends in a N-S direction right through the central Lake District. The fault line to the north appears to stop at around the A66 but it was suggested that the deeply eroded valley of Glenderaterra Beck, between Lonscale Fell and Blencathra may be a continuation that has been offset several hundred metres to the west by sinistral strike-slip displacement along the Causey Pike Fault.

From a vantage point near a small disused quarry the view to the north is dominated by the south face of Blencathra with the faceted slopes of Gategill, Hall's and Doddick Fells separated by deeply-incised V-shaped valleys. There was discussion as to whether these triangular faces represent truncated spurs of

Blencathra, sliced off by great easterly moving glacier (s) that originated from a central Lakeland icecap. Looking to the east, the twin rounded hills of Great and Little Mell Fell are erosional remnants of Mell Fell Conglomerate, laid down as thick gravels washed down from the much higher mountains that formed some 400m.y. ago. Immediately to the east is the dome-like mass of Threlkeld Knotts, which is now recognised as a massive landslip from the rock slope failure on the north face of Clough Head. The northern part of the Knotts is composed of microgranite and has been extensively quarried around the lower margins of the intrusion, mainly for aggregate, but some of the local buildings consist of dressed stone which tends to weather to a pale pink on exposed surfaces. (A more detailed account of Threlkeld Knotts appears in a later field trip report from July 2019).

The relatively low-lying ground surrounding the two microgranite outcrops is underlain by dark cleaved mudstones of the Skiddaw Group. However, to the south there is an obvious increase in slope gradient as the basal boundary of the Borrowdale Volcanic Group is crossed and Low Rigg gives way to the ridge of High Rigg. The eastern side of the latter clearly displays stepped (trap) topography in the form of interbedded tuffs and andesite lavas (although some of the layers may be sills).

Other notable landscape features visible from Low Rigg and worthy of discussion are the landslips on the south side of Latrigg to the north-west, an indication of the potential instability of the fellside slope above the River Greta. It was also pointed out that the elevation of the Caldbeck Fells massif to the north, mainly composed of more easily eroded Skiddaw Group, is probably due to the presence of underlying Skiddaw Granite.

A final discussion resulted in general agreement that there was much of geological interest to be seen from the Low Rigg location, but any pamphlet or guide would need illustration with diagrams, pictures and a map and would involve a significant amount of time being spent on its production.