Hergest Ridge field trip

Wednesday 20th September

On Wednesday 20th September 8 people travelled to Kington, near the Herefordshire / Powys border, for a walk along the Hergest Ridge between Gladestry and Kington. Richard Edwards gave a short introduction to the area which is located on the Welsh Borderland Fault System, an ancient subduction zone associated with the late Precambrian Cadomian island arc. Richard emphasised the long history of the fault complex ranging from late Precambrian to Paleogene and with both wrench and normal senses of movement. Hergest Ridge is located adjacent to the southern extension of the Church Stretton Fault, and the main rocks in the area are the Ludlow and Wenlock beds of the Silurian period. Richard introduced Geoff Steele, a knowledgeable and enthousiastic amateur geologist who lives in the area. Geoff took over as the leader of the field trip.

After a short, steep climb up the south-west end of the ridge it was possible to look to the north-west and see that the Church Stretton Fault is in fact divided into 4 separate faults in this location. The vales lie along the faults where the rocks are softer, clay-based Wenlock beds, and the hills are of Ludlow beds, mostly calcareous siltstones and limestones, of the same age as the Woolhope beds.

View back down to Gladestry

The fault defines the western boundary of Hergest ridge. Geoff demonstrated how by measuring variation of strike and dip the sense of movement of the fault could be determined. At three points on the ascent there were steeply dipping layers of the siltstone exposed, and the strike and dip were measured. The strike changed from 60˚ to 90˚ and finally 100˚, and Geoff suggested that this shows sinistral strike-slip movement on the Church Stretton fault, which has deformed the rocks near the junction. Further along the ridge we were taken to see small folds and a plunging anticline in the siltstones on a footpath leading down to the south.

As we walked along the ridge the views of the landscape improved with height. We could see as far as the Brecon Beacons, Hay Bluff, May Hill and the Forest of Dean, the Malverns, the Clee Hills, the Shropshire Hills and the nearby hills of Radnor Forest. Close to the ridge on the north side were Hanter Hill, Worsell Wood and Stanner Rocks, all three being inliers of Precambrian gabbro and dolerite.

Walking along Hergest Ridge

Geoff used two pieces of cardboard to explain the different types of movement on faults which have a localised jagged component. Under extensional forces a small basin is formed and the Bovey Basin in Devon provides a fine example. Here the forces were transpressional and these forces led to the emergence of the Precambrian igneous rocks as part of an upward-moving flower structure.

Further along the ridge the first gabbro erratic boulder was encountered. This was carried by ice from Hanter Hill during the last Ice Age, the Devensian, and large

crystals of grey plagioclase and black augite could be seen in the rock. Soon afterwards we left the bracken covered hill and crossed from Wales to England. The vegetation immediately changed to rough grass, gorse and no bracken, and many more erratics were seen. The reason for the change was that the English side of the ridge was ploughed during World War II in the “Dig for Victory” campaign. Where the hills were not ploughed, the erratics are likely to be present but mostly buried in the soil.

The gabbro erratics are found in ridges and mounds, and there are various theories for this. Some archaeologists say that they are evidence for Bronze Age settlements. Local historical records suggest that when the land was ploughed, the boulders had to be removed and were placed in mounds or banks for convenience. Most of the boulders are of gabbro but a few rocks have been transported from further afield. The glaciers moved from the Plynlimon area to Hergest Ridge, and a few pieces of sandstone and rocks with quartz veins were found which are not from the local area. Geoff pointed out that whilst Hanter, Worsell Wood and Stanner Rocks are composed predominantly of dolerite and gabbro there are no dolerite erratics. This may be related to the selective plucking action of the ice or the less robust nature of the dolerite during transport.

Looking at gabbro erratics

Walking further east, we crossed back onto an area of bracken where the largest boulder, the Whet Stone was examined. Here the almost horizontal country rock, the Ludlow siltstones, could be seen under the boulder. A red stripe around the boulder

showed that sheep had rubbed themselves against it, removing some dye from their fleeces.

The Whet Stone erratic

From different points along the ridge we had a clear view of the three large quarries to the north-west. Those at Dolyhir are Silurian limestone, quarried for making concrete, and at Gore is Precambrian gritstone, quarried for roadstone. The gritstone was originally an island round which a coral reef formed, turning into limestone.

The two quarries

At the end of the walk Geoff left us with a mystery. In the gabbro of Hanter Hill is found the mineral tourmaline, not in veins but in globules, some of them showing crystal growth outwards into the gabbro. Since tourmaline is acid in composition, and gabbro is basic, it is not known how they got into the rock. They have not been found in the erratics on Hergest Ridge. Another question was why almost no dolerite is found on the ridge, when it can be found on the northwest side of Hanter Hill. It was felt that these questions could be interesting areas of research in the future.

For additional information read the Landscape sub-group report in 2016. Click here.

Cynthia Merriman (plus Richard Edwards)