



APES TOR & ECTON HILL FIELD MEETING APRIL 21 2012



Two exposures at Apes Tor. The folding is very apparent.

After a hearty English breakfast at Ilam Hall (a restored manor house - donated by the McDougall family to the National Trust, and now run by the YHA), we set off at around 10 am to the Ecton Field Study Centre at Ecton Hill. The twenty minute drive to Ecton Hill followed a meandering route along the vale of the River Manifold.

Apes Tor

We met up with Owen Crawford, who was to be our guide for the day. During the morning we were to engage in some practical field geology, and after a few minutes' walk, we arrived at Apes Tor, where we were presented with an exposure with a north-facing aspect. The rock face showed clear syncline and anticline structures in the bedded, dark grey and reddish rocks.





Rugose Coral.

After brief, but comprehensive, instruction from Owen on how to take dip and strike measurements, we were left to sketch the formation in our field notebooks, and encouraged to discuss and hypothesise as to the potential geological processes and histories involved. After over an hour on this initial exercise, we then wandered down past other nearby similar formations, (during which Phil Powell found a new vocation in life as a human yardstick) further sketching, photographing or simply discussing points of interest.

Ecton Hill

We returned to the Ecton Field Study Centre for a packed lunch provided by the hostel, which was considerably enhanced by some surprise additions provided by Kate Vandersteen, who had evidently spent a substantial time in the kitchen! She had baked some excellent shortbread, as well as three delicious cakes: chocolate and almond, an orange/almond cake with strawberries, and a Victoria Sandwich, all leaving us well sated and happy!

Setting off again at around 1.30 pm, Owen took us up the hill which had contained the Ecton copper seams, explaining various points of interest along the way - providing a very interesting and well-balanced mix of the geological with the historical background surrounding the mine, which was at its most productive in the approximate 50 year period 1760 to 1810.

Owen gave wide-ranging explanations of various historical and technological points of significance, ranging from sorting of the mined ores, through to the not inconsiderable engineering feats e.g. building water channels to precise tolerances of a 1.83 m vertical drop over a 2.4 km distance, and the economic considerations concerning the replacement of horse/gin technology by rented steam engines produced by such as James Watt, to raise the ores. Ecton Mine was essentially a copper-producing mine, though - as is often the case - there were also economic quantities of lead and zinc in the ore, some of which had initially been unrecognised and discarded as waste, subsequently being reworked from the deads.

Of geological interest also were fossils; we saw examples of brachiopods, crinoids and corals in a stone wall, at which point your correspondent nearly succumbed to a rather vicious and unprovoked attack by an electric fence. If any claims that "he shrieked like a girl" are heard they should be regarded as spurious rumours totally without foundation. (Messrs' Sue, Grabitt and Runne have been advised, and await my instructions...)

A little further on from the electric fence, we were presented with one beautiful example of a very fine rugose contained in an old stone gatepost. (See photograph on previous page).

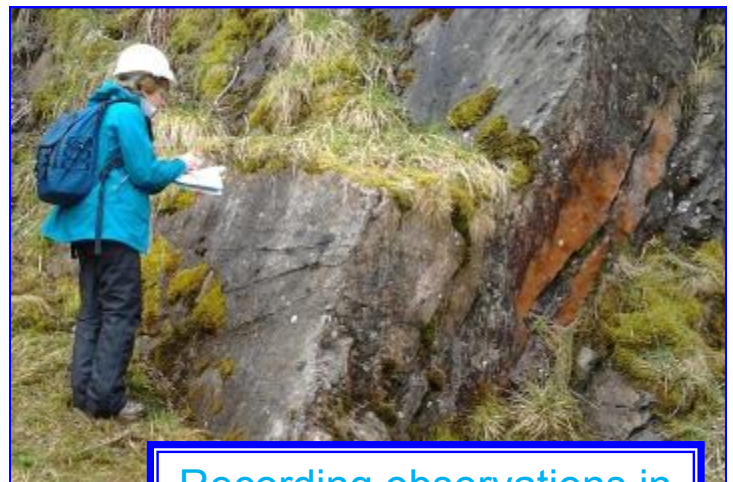
Finally on the way back down, we passed the engine-house, and a small powder. The powder hut was built of thick stone walls and originally had a turf roof, designed so that the force from any explosion would be directed vertically upwards, with any fall-out being relatively harmless sod.

Returning to the centre at about 3.30 pm and following a short safety talk, Owen led us into the mine via an adit about 130 m long. Some 15 m in, he encouragingly informed us that we had reached a point of no return, where any tunnel collapse was most likely to occur (due to the reach of the frosts and associated freeze-thaw processes), and beyond which we would be trapped! Once again Owen provided an interesting mix of anecdote, history and geology, explaining the significance of the technology of the time as well as the dangers and health hazards involved. From a geological point of view, he prompted us to consider features of the rocks (of which we were privileged to see some fine and unusual examples), the dips of the bedding, and analysis of various fault structures with the possible processes involved, in particular interpreting the underground geology relation to what we had previously seen at Apes Tor and on Ecton Hill.

We emerged from the mine a couple of hours

later than when we entered. We were fortunate to have the opportunity to witness a demonstration of the mixing of saltpeter (Potassium nitrate: KNO_3), charcoal and sulfur to make black powder. We were even lucky enough to see a demonstration of the powder burning (in a non-confined space). The black powder was used as an explosive to aid the excavation of the network of adits, soughs and shafts in the mine. Ecton was the first mining location in the UK at which black powder was used. Whilst the quantities involved were very small, it was a very effective slow burning explosive, expanding volumetrically, as it does, >2000 times within a split second.

We returned after a very full and enjoyable day to Ilam Hall, where we were served another excellent meal, and after a couple of hours' visit to a pub a few miles away, we returned to fall - exhausted but well satisfied - into bed.



Recording observations in
a field notebook.

filed by

Michael Leaver