

Field Trip to "GREENLOANING" West Compton March 25th 2019.

Once again it was yet another glorious day from start to finish.

Stop #1.

This took place outside the conservatory at Steve's home where he laid on a demonstration of the Variscan Orogeny which took place about 300 million years ago. He used tea towels to show the folding of the Mendips, first as a simple fold with pressure from one direction, then as a more complex folding with pressure coming from a rotating source. This second folding style could explain the 4 periclinal folds that form the Mendips and explain the extraordinary rock formations between the periclinal folds.

Steve explained there were a mixture of rocks all within a short distance of his home and he showed examples of each.

1/ Black Rock Limestone, the predominant rock of Knowle Hill.

2/ A series of Jurassic deposits including Silt/Mudstones, Clays, White Lias and poorly- formed Limestones as well as some beach deposits and Barytes.

3/ Dolomitic Conglomerates including our favourite gate posts.



Left- Jurassic mudstone/silt stone

Right- poorly formed limestone



The dolomitic conglomerate -above left- is infilled with sands, muds and calcites. The hot water percolating through results in the calcite being replaced with magnesium.



Above from left to right:

- Dolomitic Conglomerate
- Barytes and also two photos below on next page
- Jurassic beach deposits

Left- Black rock limestone with coral fossil

Right- White Lias from the railway cutting with fossil echinoid trails

Below Barytes from dried up sea bed





From the house Stephen showed that his back garden hedge hid the Unconformity between the BRL and the Jurassic and using photographs we could trace the large extent of the Outcrop of BRL.

An interesting observation was that the soils on either side of the valley were different. The soil on Steve's side was fairly silty and easy to work regarding digging and gardening. The soil on the opposite side of his valley was very grey, clay-rich and much harder to work.

Stop #2.



Above view looking down West Compton Valley towards North Wootton and Launcherley Hill

- Ancient gullies full of BRL fragments surrounded by Jurassic infill.
- Underlying much more homogenous grey BRL. The BRL here has a more crystalline structure than usual indicating it had undergone heat and/or pressure processes, similar to those we met at Deer Leap. The vertical lines on the rock have been formed by some unknown process (photo to the left)

We trundled towards Knowle Hill the BRL hill above his land. We found the path was firm because of barytes (see photo above) deposits due to salt deposition from an old, dried-up seabed underneath.

At the site of a quarry, which had been abandoned for decades until it was re-used recently, we saw two distinct types of rock:



Stop #3.



We climbed past the wood above Stephen's property and walked up a smooth round hilltop towards the main top called "Friar's Oven". Photo above. This may be a corruption of the Anglo-Saxon name of "Fryass" used on the tithe maps).

At this point Stephen surmised that many millions of years ago we would be standing under water except for the upper reaches of Friars Oven which we could see 100 metres away. The west face of the hilltop was very craggy which he explained was a sea cliff in the early Jurassic period. Once on the top of the hill, Stephen pointed out all the main locations and said that from this position we had a different perspective of the Mendips and could see the complex folding that had taken place, including why was this huge chunk of BRL out here 2 miles from the rest of that rock type.

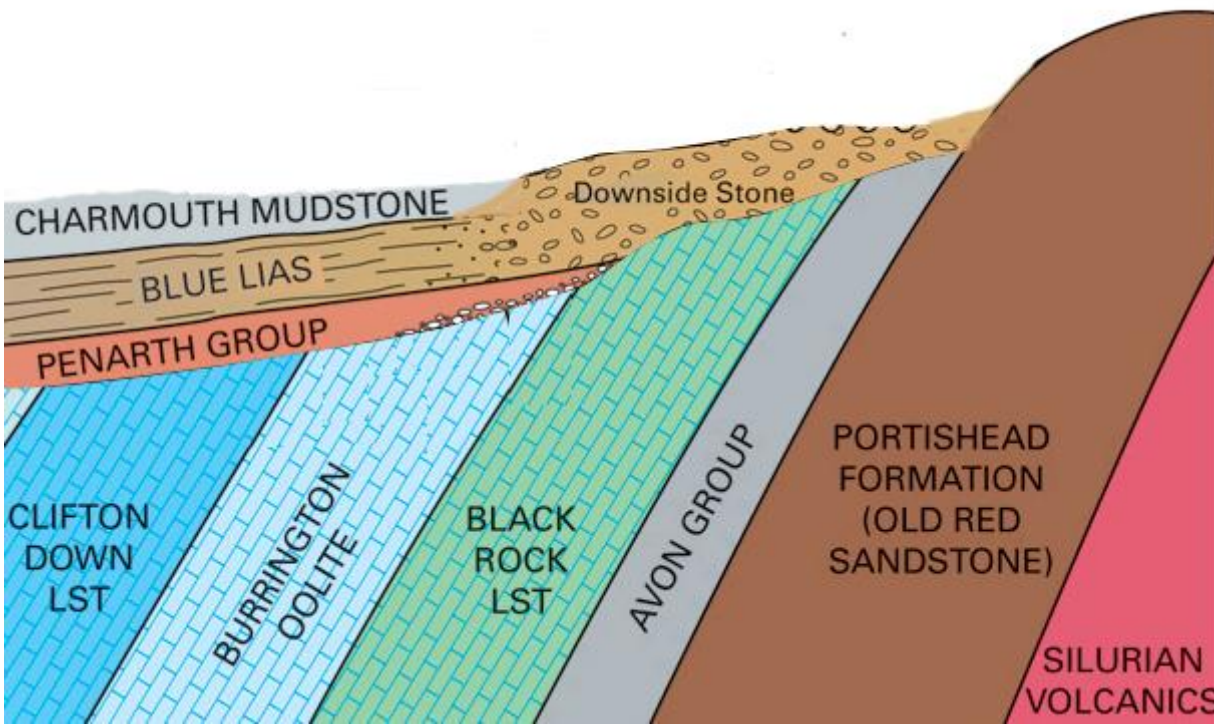
The views were fantastic. We could see Wells Cathedral, the high television mast of Penn Hill, the large bump called the Roundabout hiding Dulcote quarry, Worminster Sleight and Launcherley Hill. Further south we saw the Somerset Levels over to the Quantocks and what Stephen called "other chunks scattered around in the wrong place".

At some stage (50 MA) and finally after the last Ice Age massive quantities of water poured down the Mendips and valleys around, eroding huge amounts of the Jurassic deposits. This produced the landscape we have today. The Mendips were originally about four thousand feet high. Erosion gradually reduced this to its present top height of about a thousand feet.

Steve went on to demonstrate how we can determine the guesstimated height of the Mendips. This can be easy to see from this offset position. We could also see that the depth of Limestone deposits would have been 12 to 15 kilometres thick when horizontal.

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At this stage we studied this diagram showing the erosion of the Mendips, which demonstrated where the hidden limestone beds lie under more recent sedimentary deposits.

In contrast the limestones were

eventually covered over by the later arrival of Jurassic deposits rather than the superficial layers in the diagram above.

Here the angle of the rock layers might be about 30 degrees and the coverage by Jurassic deposits would have spread from the Polden Hills to the top of Beacon Hill, a distance of approximately 12 miles.

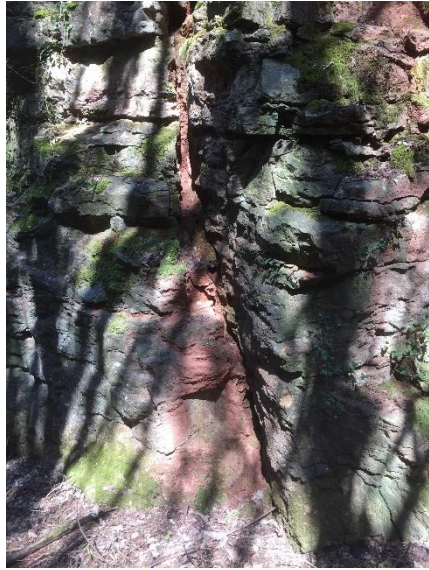
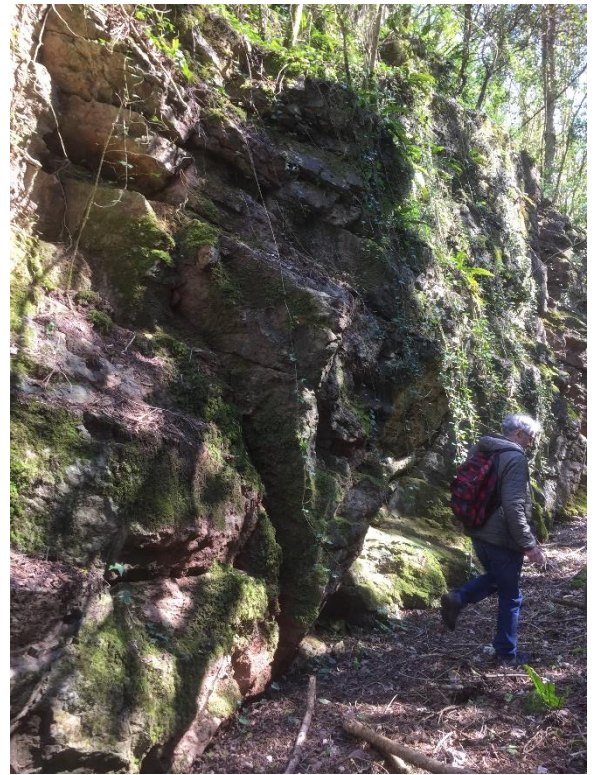


Coming down the side of the Friar's Oven we came across a broad patch of free-lying rocks where we saw Bi-valve and Crinoid fossils and fleetingly one Carboniferous "Rugose" fossil!

Stop # 4.



We changed direction to look at an old railway cutting where there was an unconformity between BRL and Jurassic limestone at each end!



What was a further fascination to us came when we saw several high fissures along a North-to-South axis showing the tremendous fracturing caused by the separation of the Laurussian tectonic plate from the Gondwana plate with the continents pulling apart (distractive forces) from each other when the Atlantic Ocean began to be formed. This force might well have extended from as far as west of the Irish coast. Another treat was the formations of Calcite Crystals in the cracks, some of which were quite large.



There was also some imported sandstone from the Temple Cloud quarries along the cuttings retaining wall.



Stop # 5.



On walking back, over several fields, we stepped through a gateway guarded by two 'plague' stones marking the route to Stump Cross. We walked along a retaining wall in Steve's garden where we encountered more familiar fossils in the BRL used to build his wall to his drive including a magnificent opened Dulcote potato! These are also called Bristol Diamonds and are found quite regularly in the valley. They used to be found in large numbers over towards Dulcote, but were heavily collected in the 1980's.

It was a splendid day and many thanks to Steve for talking us around his "neck of the woods."

Text by Walford with a lot of help with editing from Stephen.

