

# Field Excursion

## Lydney Cliffs and the Forest of Dean

Led by John Moseley  
(Gloucestershire Geoconservation Trust)  
Saturday 15/6/19



Field Notes: Ray Pratt

## Lydney Harbour - Part 1

Harbour Rd, Lydney GL15 4ER

Park at end of Harbour Road



**This trip must only be taken on a low and falling tide. It explores the exposures on the north east side of the foreshore from Lydney Harbour**

Free parking at the end of Harbour Road and in the Car Park. Proceed east on the north side of the harbour towards the harbour mouth. Proceed up a flight of steps up the cliff. At the top we see a flat field, a terrace of the River Severn. Pebbles in the soil very rounded.

Go Right along the field for a short way then turn right along a footpath through the thicket leading to the foreshore and the first exposure.



*River terrace overlying Raglan Mudstone - boundary marked by the pebbles*



*Raglan Mudstone with fault and Calcretes / Caliche / cornstones / duracrust growth to the right.*

The fault movement has probably caused slippage within the claystones enabling fluids to move along these planes of weakness . This has led to the change in iron composition (red to green) and the growth of calcretes, (white).

Red brown mudstones is the Raglan Mudstone Formation. BGS reclassifying this Silurian Pridolian strata to the Moor Cliffs Formation.. Originally the division between the Devonian & Silurian was taken as the Ludlow bone bed, (where marine gave way to continental deposits, but this is now no longer. The boundary was moved up to incorporate the Pridoli into the Silurian. This was due to the discovery of monograptolids - graptolites in Bohemia

which indicated that the boundary in the UK should be higher. Consequently, these red mudstones which were once categorised as Devonian are now Silurian.

At the time of deposition the Iapetus seaway was now closed with rivers from the north draining onto low lying intertidal ? mudflats. Spasmodic flooding and drying out and plant growth. During wet season ca and mg leached down to a lower level where picked up by the clays and a calcrete develops.. Start as nodules but can develop into beds. Takes about 5-10000 years to get calcretes forming with mature calcretes taking up to 1000000 years.. At time the cacretes forming the muds not fully lithified therefore absorption of the positive valance ions (CA & MG) by the clays vey possible.



*Walking around the corner we see a cliff face with massive cacrete development.*



*Continuing along the River Severn foreshore initially the cliffs are entirely Raglan Mudstone.*



*A little further along beds of sandstone can be seen in the upper parts of the cliff face in the upper part of the Raglan mudstone*



*These same rocks can be examined at beach level a short distance further.*



*This sandstone bed lies above a green grey claystone and below the red brown claystone. Calcrete formation can be seen in the upper part of the cliff. These sandstone beds appear to be within the Raglan Formation.*

The sandstones are part of cyclothems which have been identified here and at Ross on Wye. Repeats of Sandstone, Siltstone, Mudstone, within are calcrete horizons. The sandstones stand out being a more resistant lithology. See a number of structures within the sandstones, e.g. soft sediment deformation, convolute laminations, dewatering structures, cross bedding.. Sandstones are moderately coarse grained and contain fish scales and muscovite flakes. These sandstones are fluvial and were deposited in wetter conditions where there was more water in the rivers. It is possible that the sandstones at the base of the sequence (not visible at this location) could be similar to the Downton Castle Fm which has been recognised to be deposited under conditions of tidal influx.

A distinct anticline fold can be seen. Folding likely to be Variscan, but could also be attributed to Middle Devonian earth movements.



Sandstone forms a pavement at the base of the cliff. Towards the river the incision is very abrupt with a very steep drop.



## Mallards Pike - Part 2

Go Ape Forest of Dean Mallards Pike Lake Park End, Lydney GL15 4HD



Park close to the facilities at Mallards Pike Lake. Parking charges apply.

Take the path away from the coffee shop with the lake on the left side. At the end of the lake turn left over the river and along the end of the lake. After a short way turn right along a forest track up the hill which leads onto a larger track. Go right. A little way along take the turning to the left. Walking along the track there are remnants of industrial archaeology here and there. This was a coal mining area and stone was quarried locally for building purposes. Tracks today often follow lod railway line routes used by the colliery.

The Forest of Dean Coalfields are restricted to the Upper Coal Measures. (Westphalian), which is split into lowest A, B, C & D highest. (The Barren Measures, composed of coarse sandstones with thin uneconomic coals, overly the coal measures, possibly seen in the NE



part of the forest and are recognised as red beds due to presence of haematite). In this area only have Westphalian D with a possible sliver of C. All operations now finished with the exception of a couple of drift mines which are operated by by 1 or 2 people those with a birth right to do so and 1 building stones quarry, called the Pennant stone works. All old mines filled in and made safe..Nature has taken over so spoil tips and exposures are few and far between. Railway cuttings exist but are deemed unsafe. Consequently there are no coal seams that are accessible.

The Geology of this area is contained within the Trenchard Group and above this is the Pennant Group. The sandstones to be examined are from the Pennant Group. Exposures of old quarry faces can be seen through the trees. Need to keep eyes open as could easily miss.



*Old Quarry of the Trenchard Group Sandstone. Cross bedding noticeable*



The beds are gently dipping (10-15 degrees) in a NW direction, part of the synclinal coal measure basin which forms the Forest of Dean. Some of the sands are thinly bedded, some more massive.



*Load structures on the base of a sandstone bed*

All are fluvial deposited on a low lying plain covering South Wales, Somerset and The Forest of Dean. Rivers flowed from South to North into and through the coal swamps and mires. These Westphalian deposits don't have the marine bands that can be found in the South Wales area.

Coming into the Forest of Dean is a climb in elevation from all directions. It comprises a ring of Carboniferous Limestone and some of the more resistant Devonian sandstones. Over the rim is a descent into the middle of the forest which constitutes the Coal Measure Basin.

Series of minor unconformities that punctuate the Carboniferous succession within the Forest of Dean. We will be unable to see the unconformity but it can be demonstrated. Intra Carboniferous earth movements caused this with the consequence that at the next expose we see steeply dipping Carboniferous Limestones (but we don't see the more gently dipping Coal Measures above). The Limestones were of marine origin, with subsequent emergence possible due to earth movements prior to deposition of the fluvial Coal Measures.

Walk quite a distance further along the track until a metal gate with a wire fence. On the left of which a quarry can be seen behind the thicket growth. Here the strata is seen to be more steeply dipping than seen in the previous quarry.

Delf = Coal Seam