Gurney Slade and Emborough

Limited parking is available in Gurney Slade and around Emborough.

The region around Gurney Slade and Emborough is geologically quite complex, being located at the eastern end of the Pen Hill Pericline, one of the four major up-folds on Mendip. To the east this pericline dies away and the Carboniferous Limestone plunges downwards to the east, disappearing beneath the upper Carboniferous Quartzitic Sandstone and the Coal Measures.

South of Gurney Slade, the Carboniferous Limestone is folded into a down-fold known as the Binegar Syncline. To the north, the Emborough area is located on another syncline, sandwiched between the North Hill Pericline and the Pen Hill Pericline. However, here, the Carboniferous Limestone has also been thrust northwards over the younger Coal Measures along the Emborough Thrust. This major fault can be traced west as far as Cheddar where it is known as the South-western Overthurst.

To the east, the Carboniferous rocks are partially covered by the Triassic Dolomitic Conglomerate, which infills deep palaeovalleys (or wadis) cut into the limestone when the area was a mountain range over 200 million years ago. The best of these infilled wadis can be traced by the outcrop of Dolomitic Conglomerate from Slab House Inn [ST 592 482] through Binegar Bottom to T'other Side the Hill [ST 638 492], where there are some impressive coal mining remains [44] [ST 63817 49187]. Here the wadi has been cut by recent incision of the Nettlebridge Valley, but the spread of Dolomitic Conglomerate continues on the other side of the valley where it widens out to form an extensive fan covering much of the Chilcompton area.

This is, in turn, overlain by marine strata — the Penarth and Lias groups north of Chilcompton and Emborough, which form a distinctive plateau around Ston Easton criss-crossed by drystone walls. Locally the Jurassic rocks have been silicified, especially where they lap onto the Carboniferous Limestone. Silicification occurs where the parent rocks are replaced by silica (quartz), creating a buff-brown rock known as chert. This local development of cherty rocks is known as the Harptree Beds. These are best seen on Smitham Hill, near Harptree (see the western Mendip Guidebook). The outcrop of the Harptree Beds is pockmarked with sinkholes formed by dissolution and collapse of the underlying Carboniferous Limestone.

The Gurney Slade area has been a major centre for quarrying since the mid 1800s. Several limestone quarries dot the area, the largest being the active Gurney Slade Quarry [53] [ST 62657 49441]. This started in the 1800s, but was purchased in 1962 by Sidney Morris, and the site is still run as a family business today. The company operates a single large pit and adjacent old workings covering about 43 hectares. The quarry produces aggregate and concrete products for the building and construction industries, employing 26 staff at the quarry and around three contract hauliers. About half a million tonnes of crushed rock is produced annually, mostly for the local market. The site is a working quarry, so permission to visit should be obtained in advance.

Located on the north-western limb of the Binegar Syncline, the quarry works the Clifton Down Limestone and the Oxwich Head Limestone, which here dip gently to the south-east at around 30º. The Clifton Down Limestone is generally well bedded, mid to dark grey, fine- grained and bioclastic. The overlying Oxwich Head Limestone comprises typically well-bedded, grey, fine-grained, crinoidal limestone with some chert bands.

Numerous fissures or Neptunian dykes infilled with Jurassic sediments cut the quarry face. In the south-east corner of the quarry, a small exposure of the horizontally bedded Jurassic Downside Stone can be seen. This rock rests with a marked angular unconformity on the underlying Carboniferous Limestone. The Downside Stone is a highly variable very pale cream conglomerate with large fragments of Carboniferous limestone in a finer-grained matrix.

The upper Carboniferous Quartzitic Sandstone was quarried a short distance away in Gurney Slade Bottom [54] [ST 63090 49505]; the quarries are now overgrown and are on private land. There used to be an old iron works here, powered by three water wheels. Part of the Fussell's iron working empire, the works employed 13 men, mostly making

shears, but little now remains.

On the west side of the A37 is Binegar Quarry [55] [ST 62019 49357] which has been partially infilled with coal waste and has been revegetated naturally. To the south-east, the road up Binegar Bottom passes the dormant Highcroft Quarry, which worked the Clifton Down Limestone.

North of Gurney Slade are the Emborough quarries [56] [ST 62014 50639]. These are a collection of dormant aggregate quarries straddling the disused Somerset and Dorset Railway, which runs through the site. Like Gurney Slade, the quarry worked the Clifton Down and the Oxwich Head Limestones, which here dip to the north-east. The site is currently used for the manufacture of concrete products, while part of the quarry is used by a recycling company.

Within the limestone in the south-east corner of the quarry are relict caves and fissures infilled with Triassic and Jurassic sediments. During the Late Triassic, sediments were swept into these fissures from the surrounding area. Animal remains were also swept into these deposits and have now been exhumed by recent quarrying. These fissure infills have yielded a wide variety of vertebrate fossil remains, particularly the early reptiles *Variodens* and *Kuehneotherium.*

Of special note is the remarkable *Kuehneosaurus,* a very early flying lizard (not a dinosaur) with wing-like membranes between the front and rear legs with which it could glide through the air.

A short distance to the east is Emborough Pond [57] [ST 61448 50953]. Created by Capability Brown on the site of an earlier fishpond, this is now a popular fishing venue. The lake is on the impermeable Coal Measures, which are exposed in the woods nearby. The rocks here form the lowest part of the Coal Measures and the coal seams were relatively unproductive, although attempts were made to mine the coal. Small outcrops of thinly bedded, silty, rusty-grey mudstone occur on the north side of the lake close to the road.

Downstream, the water from the lake crosses over the Emborough Thrust and onto the Carboniferous Limestone. Shortly after, the stream disappears underground with sinkholes at several places depending on flow, probably to resurge at Gurney Slade Risings, the source of the River Mells [58] [ST 63023 49413]. East of the A37, the valley is cut into the Triassic Dolomitic Conglomerate. In places, the steep hillsides have begun to landslip, creating fissures behind known as gull caves. One such fissure opened up on the promontory south of Blackers Hill Fort [59] [ST 63646 50041].

Known as Fairy Slatts, it has now been filled in with mining waste, but other fissures probably occur in the area.

Figures

(Figure 59) Aerial photograph of the Gurney Slade and Emborough area.

(Figure 60) Dipping Carboniferous Limestone, Gurney Slade Quarry. Courtesy Somerset Geodiversity Audit.

(Figure 61) Generalised schematic geological cross-section across the northern flank of the Beacon Hill Pericline.

(Figure 62) Unconformity (dotted line) between the dipping Carboniferous Limestone and the overlying Jurassic Downside Stone, Gurney Slade Quarry. Courtesy Somerset Geodiversity Audit.

(Figure 63) Gurney Slade Forge, with tilt hammer. Dr P R Reid, 1933. Courtesy of the John Cornwell collection.

(Figure 64) Kuehneosaurus, a Triassic flying reptile.

(Figure 65) Crags of Clifton Down Limestone exposed in Binegar Quarry.

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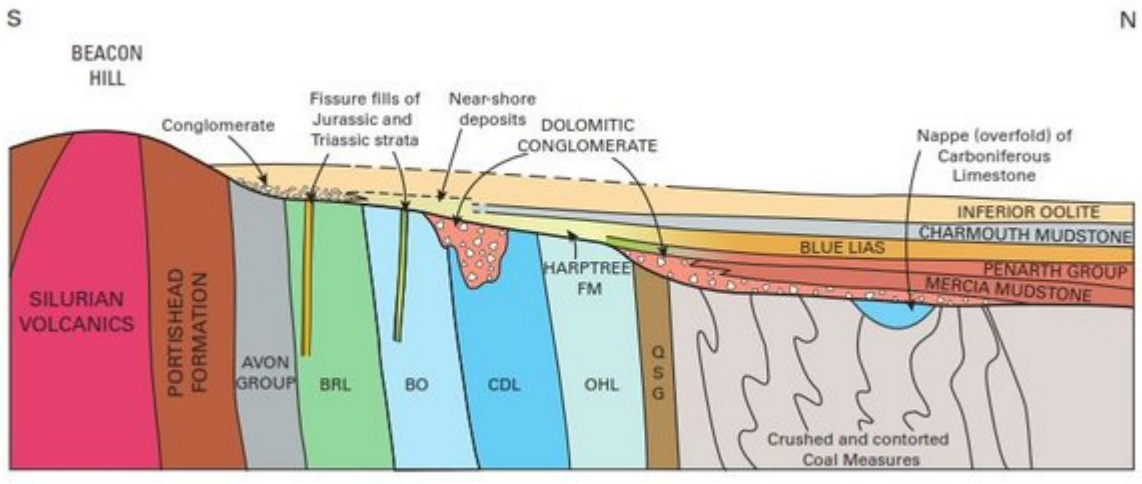

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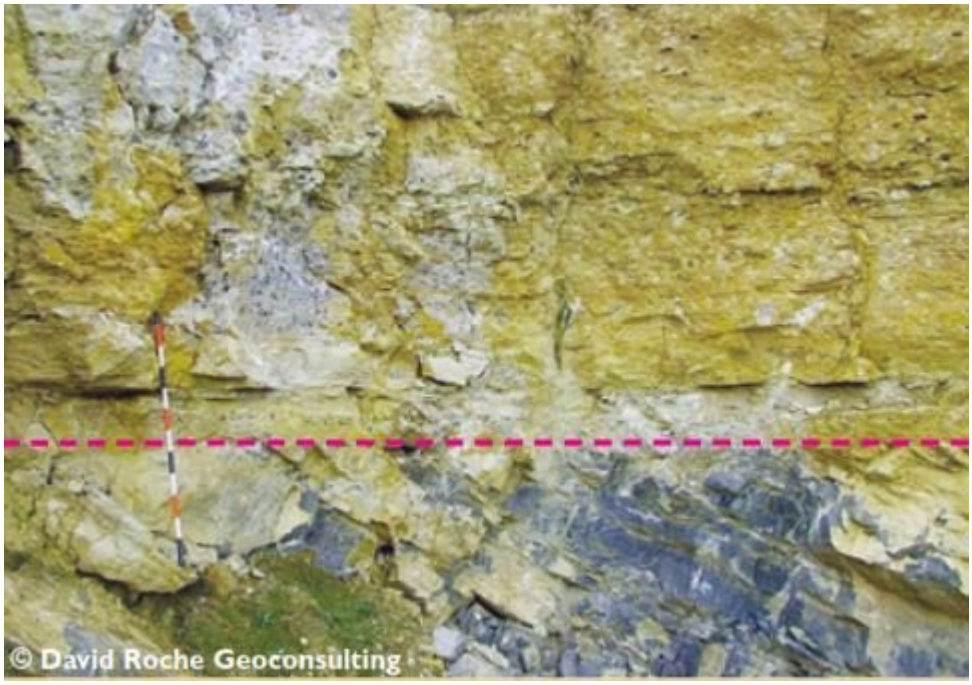

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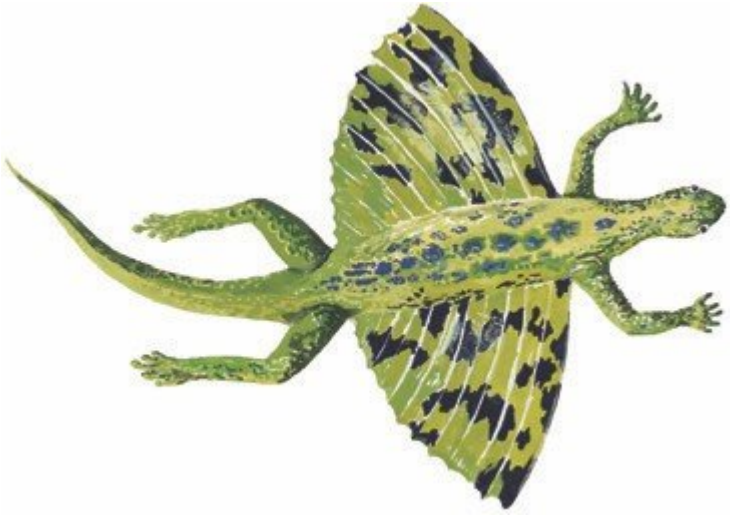

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