Great Elm and Vallis Vale

Parking is available at Hapsford [ST 760 494], with limited roadside parking at Great Elm [ST 748 491].

The deeply incised valleys between Great Elm and Hapsford are not only delightful places for a stroll, but are also excellent places to see the local geology. The valley sides here have been extensively quarried, creating some superb exposures of the underlying rock. In particular, the magnificent exposures in Vallis Vale display one of the best examples of an unconformity to be seen in Britain. Vallis Vale is owned by Hanson Aggregates who allow access to the site. The footpath along the valley is the route of an old tramway built to transport stone from the many old quarries.

The quarry sections around Hapsford Bridge show evidence of the progressive burial of a Carboniferous Limestone ‘island’ which formed part of the Mendip archipelago in Late Triassic and Early Jurassic times as the sea level gradually rose. At the car park in Hapsford, a small quarry [1] [ST 76145 49506] shows thin limestones, conglomerates and dark clay belonging to the upper Triassic Penarth Group resting on the Carboniferous Black Rock Limestone. These rocks were deposited on the shoreline of the Carboniferous Limestone landmass. Rare plant fossils, including fossil mosses, have been found here.

A short distance up the vale, in an old quarry at the confluence of the Mells Stream and Egford Brook, is the famous ‘De La Beche’ unconformity [2] [ST 75559 49192]. This superb geological section was first described by Conybeare and Buckland in the 19th century and illustrated by De La Beche in the first memoir of the Geological Survey in 1846. Thesection clearly shows the unconformity between the yellow- coloured, horizontally bedded Jurassic Inferior Oolite limestone (known locally as Doulting Stone) and the underlying Carboniferous Vallis Limestone, which is grey, massively bedded and steeply dipping. Notice here that there are no intervening Triassic or Lower Jurassic rocks: this area was a landmass when the Penarth Group was being deposited just 300 m farther east at Hapsford.

The basal bed of the Inferior Oolite is a very fossil-rich limestone conglomerate, which rests upon an uneven unconformity surface. The unconformity is encrusted with oysters and has many burrows and borings made by worms and bivalves. These borings, infilled with yellow sediment, penetrate several centimeters into the underlying Vallis Limestone. The unconformity is also well exposed in the nearby Tedbury Camp Quarry, [15] [ST 74700 48967], where it is possible to examine the unconformity surface in more detail.

From the confluence, following the Egford Brook south, the path leads through a delightful area of ancient woodland. Several small overgrown quarries line the east side of the valley, where the Inferior Oolite unconformity can be seen high above the valley floor [3][ST 75437 49070]. The main quarry is clearly visible on the eastern side of the valley [4] [ST 75758 48706]. This provides an excellent section through steeply dipping Carboniferous Black Rock Limestone. The regularly spaced bedding planes are clearly visible. Within the limestone are beds and nodules of chert, a hard, dark and in places pinkish, splintery rock, like flint. Fossil corals, crinoids and brachiopods can also be seen standing proud of the rock surface. The Carboniferous Limestone is overlain unconformably by the Jurassic Inferior Oolite but here, unlike at Vallis Vale, the unconformity surface is uneven.

Back at the confluence, following the old quarry tram road towards Mells, a short walk passes some recently restored limekilns [5] [ST 75420 49197]. The steep valley sides support a diverse, and nationally rare, ancient woodland that is at least 400 years old. The woodland is at its best in springtime. Ash, pedunculate oak and the local small-leaved lime dominate the canopy, with hazel and other typical limestone under- storey shrubs beneath. The steep and rocky valley sides are notable for their abundance of ferns, especially hart’s-tongue and ancient woodland herbs include wood spurge, yellow archangel and Solomon’s-seal.

The valleys are now rich havens for wildlife. The fast-flowing, clean calcareous waters of the Mells Stream and the Egford Brook support many river-side species. Some, like the dipper are uncommon in east Somerset, and a keen-eyed visitor may also spot a kingfisher, which also breeds nearby. It is also one of the few sites in Mendip where the american signal crayfish are found. The area also supports important populations of several species of damselfly, including banded demoiselle and beautiful demoiselle.

From here it is possible to walk up the valley to Mells, and the unconformity section at Tedbury Camp Quarry (see Mells) or along the footpath to Whatley (see Whatley Chapter).

Figures

(Figure 14) Aerial phototograph of the Great Elm and Vallis Vale area area.

(Figure 15) Disused quarry tramway, Bedlam.

(Figure 16) Recently restored limekiln, Vallis Vale.

(Figure 17) The classic De la Beche unconformity at Vallis Vale. Here the horizontal yellow Inferior Oolite rests upon dipping grey Carboniferous Limestone.

(Figure 18) Dipping Black Rock Limestone with chert nodules, Egford Quarry.

(Figure 19) Clumps of hart's-tongue fern thrive in the damp shady woodland.

(Figure 20) Formation of an unconformity.

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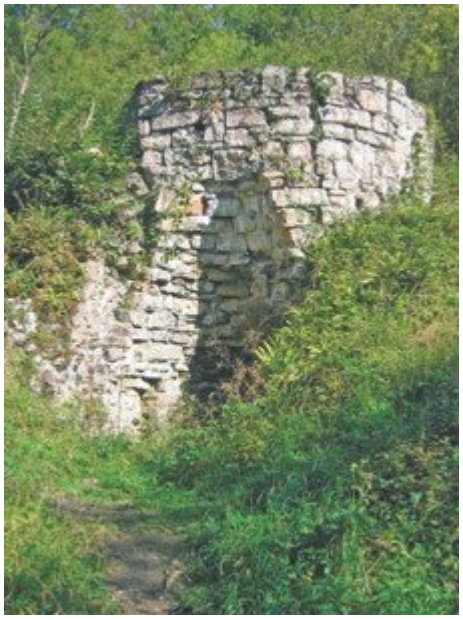

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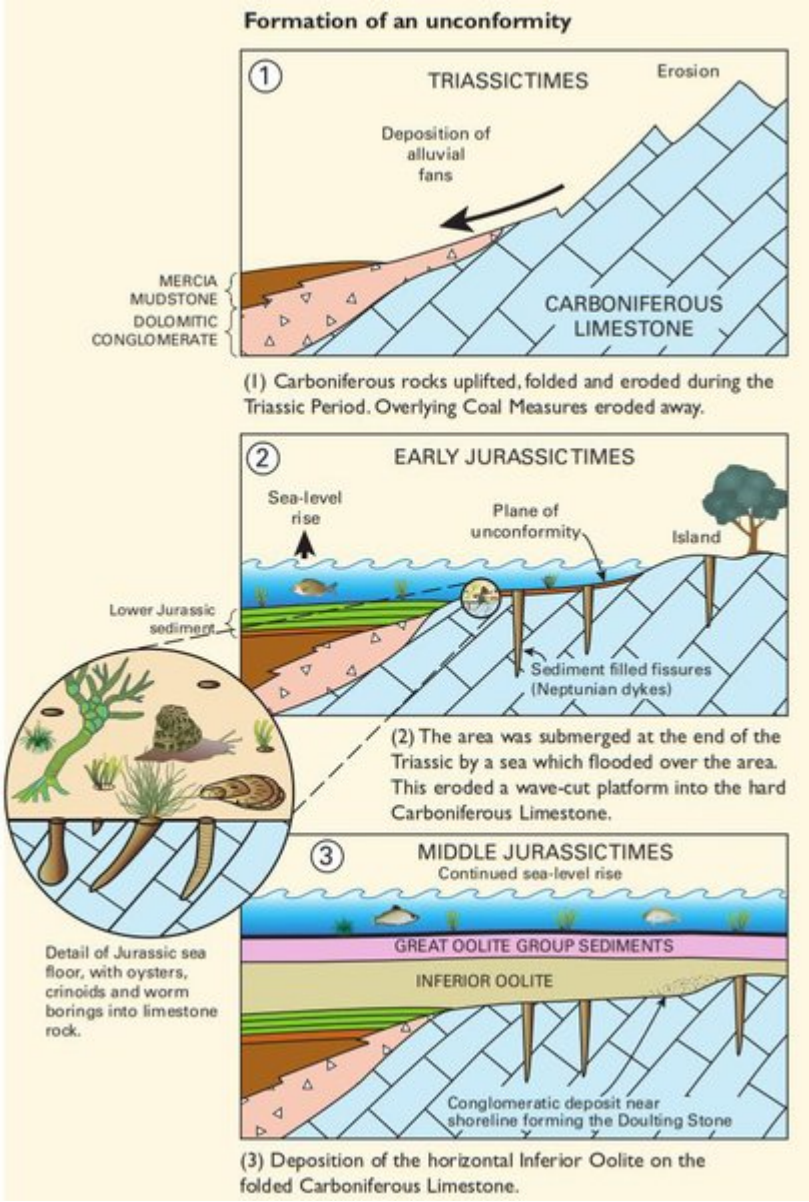

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