
Leighton Road Cutting, Somerset

[ST 702 437]

Introduction

The Leighton Road Cutting GCR site is a small road cutting on the north side of the A361, about 8 km south-west of Frome (Figure 3.20), which was excavated during road improvements in the 1970s. It exposes the only section through a normally bedded Lower Jurassic sequence in facies analogous to those encountered more widely in fissure fills across the Mendip Hills. As such it is fundamental to understanding the nature of these fissure fills and their relationship to the early Jurassic palaeosurface in this area. The section was investigated by Charles Copp and was also visited by Hugh Jenkyns, some of whose notes and sketches were published subsequently (Jenkyns and Senior, 1991). These remain the only published account of this crucial site.

Description

In 1999 the section at Leighton Road Cutting was largely obscured by soil and vegetation, but in 1977 Jenkyns made a sketch of the exposure (Jenkyns and Senior, 1991, fig. 12). This showed a knoll-like outcrop of moderately dipping Carboniferous Limestone overlain unconformably by Jurassic sediments (Figure 3.24). The unconformity surface was penetrated by '*Lithophaga* and other borings' and, on its lower flanks, by small cavities filled with laminated sediment. The main body of the limestone was cut by several small clastic dykes orientated roughly north-east-south-west and filled with red crinoidal limestone. These yielded a brachiopod fauna including *Quadratirhynchia*, *Prionorhynchia* and juvenile *Cirpa*. Above the unconformity surface, and overlapping onto the lower part of the 'knoll', was up to 0.75 m of red crinoidal limestones capped by an oyster-encrusted planar unconformity surface and overlain by Upper Bajocian (Parkinsoni Zone) limestones. The latter overlapped directly onto the upper part of the 'knoll'. Copp (unpublished) reported a more complex sequence below the Upper Bajocian limestone, passing from pale limestone, through pink crinoidal limestone with *Cirpa*, to a yellowish crinoidal limestone some distance above. Jenkyns and Senior (1991) reported that these normally bedded sediments were themselves cut by clastic dykes and bed-parallel fissures filled with fine-grained laminated carbonates.

Interpretation

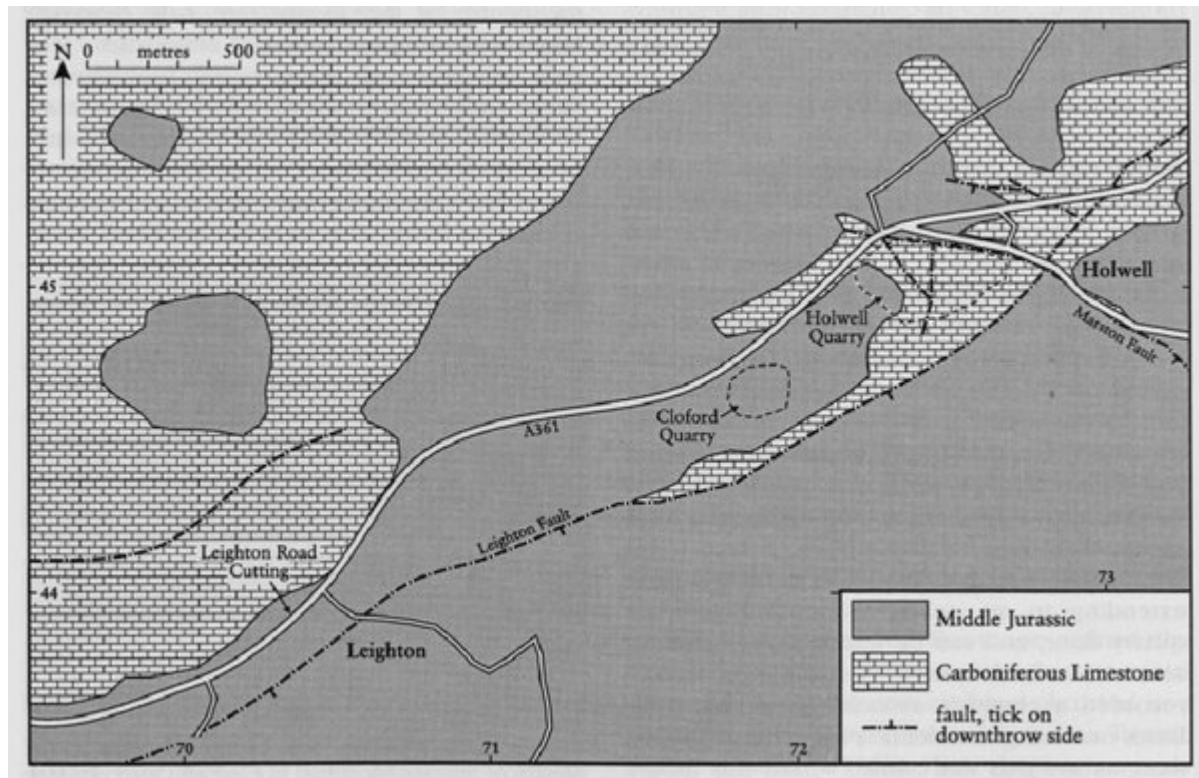
The various facies, and the sequence in which they occur here, show similarities to the successions which have been observed in some of the fissures at sites such as Cloford Quarry and Holwell Quarries. The ages of these facies, as deduced from the biota, are broadly comparable between the two settings, being of Upper Sinemurian to Upper Pliensbachian age. Of significance is the fact that these normally bedded sediments are indistinguishable from their correlatives in the fissure fills, indicating that they were deposited in similar environments. The presence of an intensely bored surface on the Carboniferous Limestone beneath the Lower Jurassic sediments indicates that there was a period of marine erosion and non-deposition before the earliest Jurassic sediments represented here. Similarly, the oyster-encrusted surface immediately below the Upper Bajocian limestone indicates that higher parts of the Lower Jurassic succession may have been removed by erosion in Middle Jurassic times. Indeed it suggests that the prevalence of these Lower Jurassic sediments in fissures, and their rarity in normally bedded sequences on the southern flanks of the Mendip Massif may be attributable largely to Middle Jurassic erosion. Jenkyns and Senior (1991) noted the parallel orientation of most of the clastic dykes here with the trend of the Leighton Fault just to the south (Figure 3.20), and suggested that they may have developed in association with movement on this fault.

Conclusions

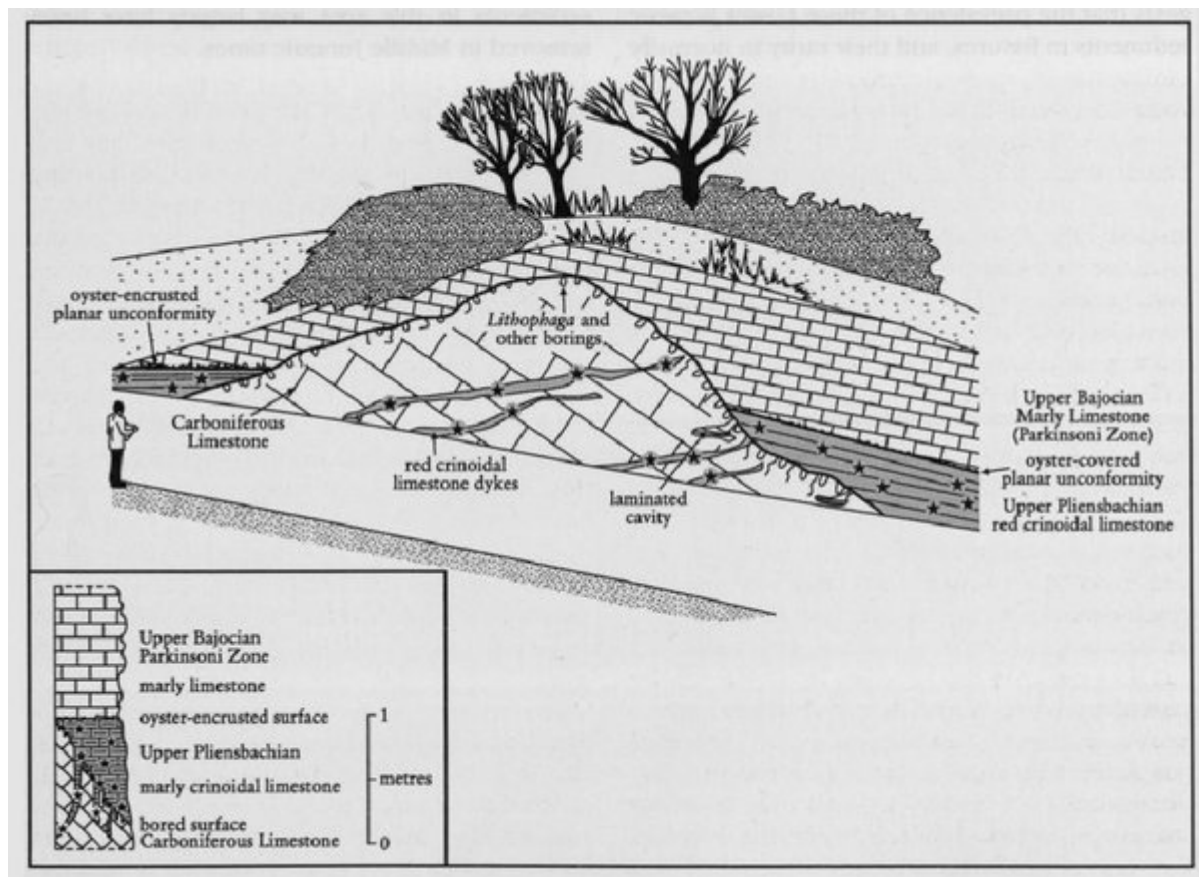
The facies and ages of the Lower Jurassic normally bedded succession at the Leighton Road Cutting GCR site are similar to those recorded from fissure fills at other sites in the area, such as at Cloford Quarry and Holwell Quarries. The

presence of these sediments here demonstrates that those contained within the fissures do not represent a distinct and unique 'fissure facies' but are marine shelf sediments that have collapsed into the fissures. Their relationship to the Carboniferous Limestone below and the Upper Bajocian limestones above suggest that outcrops of these sediments in this area may largely have been removed in Middle Jurassic times.

References



(Figure 3.20) Sketch map of the geology in the Cloford and Holwell area of the eastern Mendip Hills.



(Figure 3.24) Sketch of exposure at Leighton Road Cutting, as seen in 1977, and detail of succession. After Jenkyns and Senior (1991).