Marginal and fissure facies of South Mendip

The Mendip Massif clearly exerted an enormous influence on early Jurassic sedimentation, with its flanks supporting a range of distinctive palaeoenvironments and facies unrepresented in the basinal settings to the north and south. However, the nature of this depositional influence was far from uniform across the Mendip Massif, with particularly striking differences between those on the north and south flanks. Sedimentation on the northern flank was exemplified by the highly condensed successions of the Radstock area, with the entire Sinemurian Stage represented by 1 m or less of sediment, and individual ammonite zones locally by no more than a few centimetres. Even within the Radstock area the Lower Jurassic succession shows considerable thickness variations over short distances, with the three GCR sites of Bowldish Quarry, Kilmersdon Road Quarry and Huish Colliery Quarry, being selected to show the style of lateral variation characteristic of this area.

In contrast to the succession at Radstock, sections through the Lower Lias in the Shepton Mallet area, on the south side of the massif; are developed in a richly bioclastic limestone facies with subordinate bands of quartzose conglomerate. Unlike the highly condensed Radstock Lias, this 'marginal' facies is slightly thicker than correlative offshore units farther into the Wessex Basin. The contact of the marginal facies with the underlying Carboniferous Limestone is clearly displayed at Hobbs Quarry, whereas a thicker sequence with hardgrounds and pebble beds is exposed at Viaduct Quarry.

A third distinctive facies type is developed on slightly higher parts of the massif where Middle Jurassic rocks typically rest unconformably on the planed-off surface of the Carboniferous Limestone with no intervening Lower Jurassic strata. The Lower Jurassic facies found here are predominantly a fine, yellowish or pinkish micritic limestone which usually is confined to fissures within the Carboniferous Limestone. Excellent examples are seen at Cloford Quarry and Holwell Quarries. Exceptionally, this same facies is seen as part of a normal-bedded sequence, exposed at Leighton Road Cutting.

The precise controls on these strikingly different facies remain unclear. The highly condensed Radstock succession suggests considerable stability of the massif, exceptionally low subsidence rates, and prolonged sediment starvation. However, the evidence from the fissure deposits and the marginal facies indicates that the area was far from tectonically quiet. This apparent conflict has yet to be resolved and much work still needs to be undertaken on the remarkable Lower Jurassic deposits of the Mendip Hills.

References