
Chapter 3 The Mendip and South Wales massifs

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Introduction

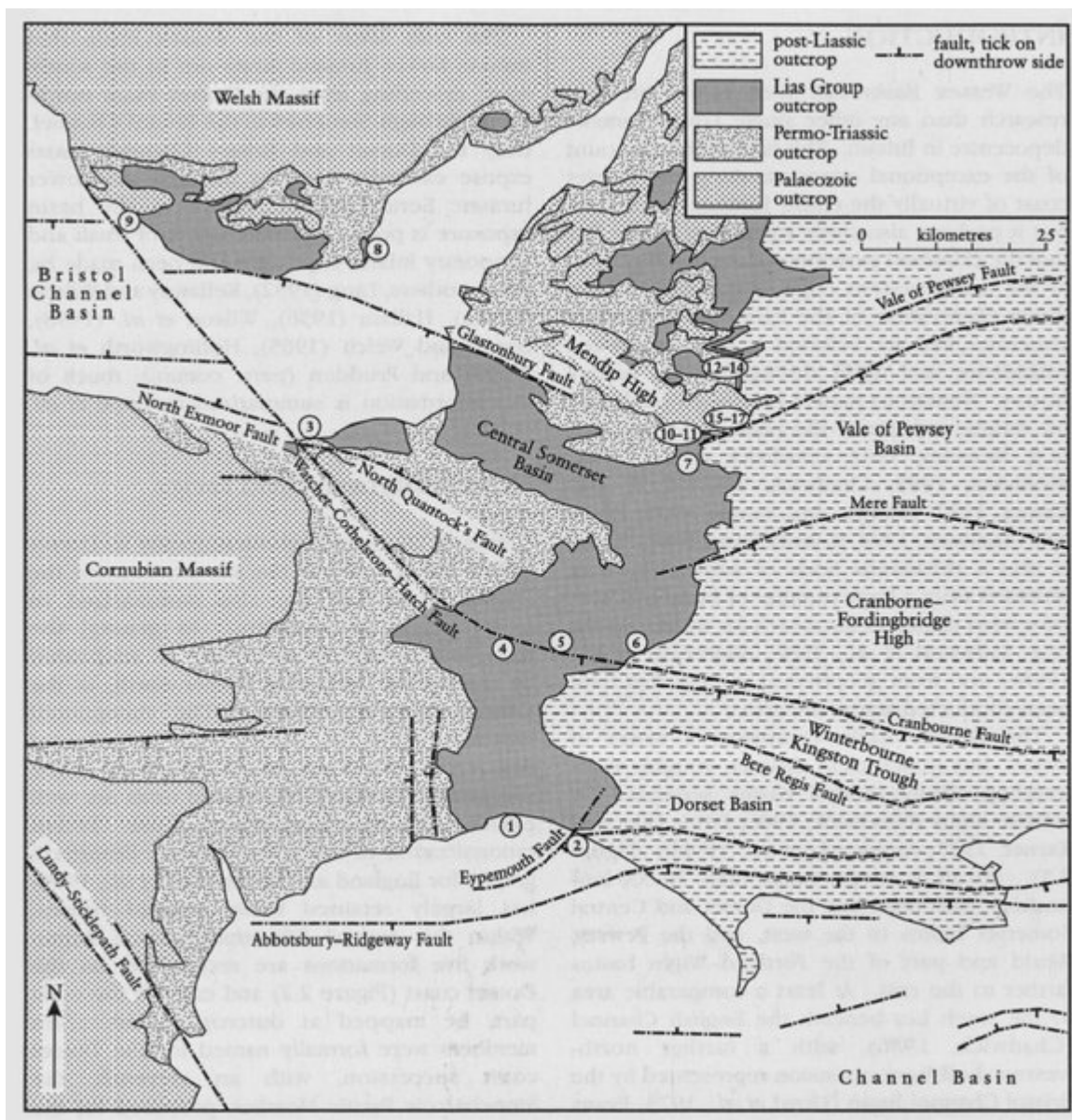
The Mendip Hills of Somerset form a major Palaeozoic inlier separating the predominantly Mesozoic rocks of the Severn Basin to the north and the Wessex Basin to the south. They comprise an en-echelon series of four asymmetric periclinal folds developed in Carboniferous and older rocks, these periclinal folds being markedly steeper, or even overturned, on their northern flanks and in several instances underlain by low-angle thrust planes (Williams and Chapman, 1986). Intensive subaerial erosion in Permo–Triassic times stripped away the Upper Carboniferous, and in places the Lower Carboniferous and underlying Devonian, rocks across the fold crests. Rising sea level during the Jurassic Period then saw the progressive submergence of the Palaeozoic inlier and its complete burial by late Jurassic times (Simms, 1997). Roughly along-strike to the WNW Triassic and Lias Group strata similarly onlap onto the Carboniferous basement of the Welsh Massif and thicken southwards into the Bristol Channel Basin, a north-westward extension of the Wessex Basin ((Figure 2.1), Chapter 2). The precise effect of proximity to these Palaeozoic massifs varies from locality to locality. The most widely observed effect is the development of carbonate-dominated, often bioclastic, marginal facies such as are seen at the Pant y Slade to Witches Point and Viaduct Quarry GCR sites of south Wales and the southern Mendips respectively. In contrast the sequence to the north-east of the Mendips, on the Radstock Shelf is highly condensed but not necessarily of marginal facies. It is clear that, just as for the main Wessex Basin, the Palaeozoic rocks of the Mendip Hills experienced significant extension during the Mesozoic Era. The most graphic and spectacular evidence for this is the late Triassic and early Jurassic sediment-filled fissures that cut through the Carboniferous Limestone at the GCR sites of Cloford Quarry and Holwell Quarries.

The general lithostratigraphy of the sites discussed in this chapter is summarized in (Figure 2.3) (Chapter 2).

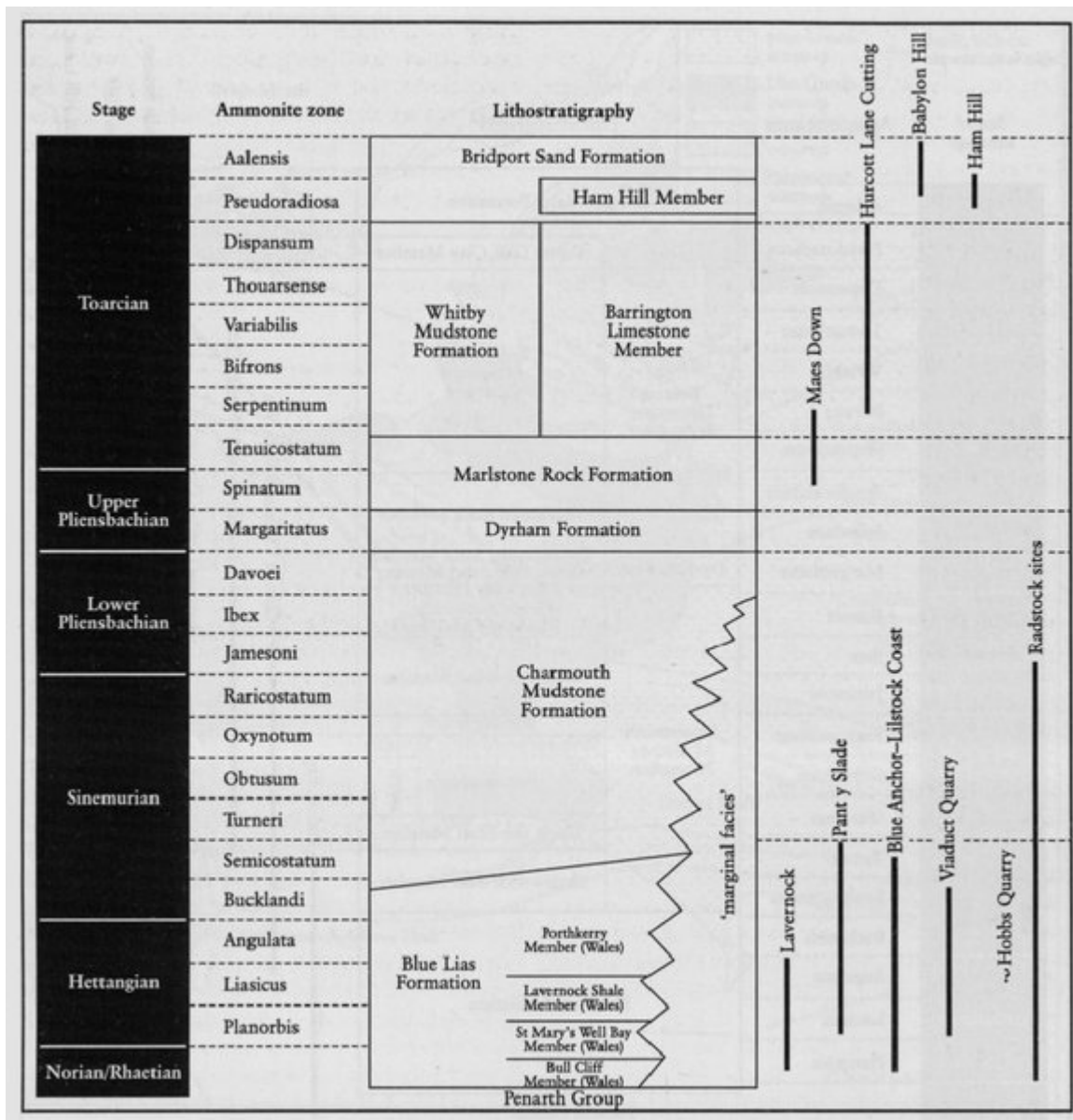
The Lias Group of South Wales

The Lias Group successions exposed at the two GCR sites in south Wales exemplify the relationship between facies and proximity to Palaeozoic basement rocks. The succession at the Pant y Slade to Witches Point GCR site shows clear lateral and vertical facies changes close to the underlying basement, whereas the succession at the Lavernock to St Mary's Well Bay GCR site is typical of more distal facies farther into the Bristol Channel Basin. The Welsh succession was documented by Trueman (1920, 1922b, 1930), who provided the basis for later sedimentological and palaeoecological investigations by Hallam (1960a, 1964a) and by Wobber (1965, 1966, 1968a,b). More recent accounts covering these sites are those of Waters and Lawrence (1987), Wilson *et al.* (1990) and Warrington and Ivimey Cook (1995).

[References](#)



(Figure 2.1) The major structural elements and sub-basins of the Wessex Basin and its margins. Numbers correspond to the locations of the GCR sites: 1— Pinhay Bay to Fault Corner and East Cliff; 2 — Cliff Hill Road Section; 3 — Blue Anchor—Lilstock Coast; 4 — Hurcott Lane Cutting; 5 — Babylon Hill; 6 — Ham Hill; 7 — Maes Down; 8 — Lavernock to St Mary's Well Bay; 9 — Pant y Slade to Witches Point; 10 — Viaduct Quarry; 11 — Hobbs Quarry; 12 — Bowldish Quarry; 13 — Kilmersdon Road Quarry; 14 — Huish Colliery Quarry; 15 — Cloford Quarry; 16 — Holwell Quarry; 17 — Leighton Road Cutting. After Lake and Karner (1987).



(Figure 2.3) Lithostratigraphical subdivisions and stratigraphical ranges of GCR sites for the Lias Group in the northern part of the Wessex Basin (Central Somerset and Bristol Channel basins) and the Mendip High and Welsh Massif.