
Turner's Hill

[SO 910 919]

Introduction

This locality is about 2 km north-west of Dudley in the West Midlands (Figure 5.42). It once afforded exposures of Ludlow through into Pídolí beds (Figure 5.43).

Turner's Hill is one of several faulted, N–S to NNE–SSW aligned, anticlinal Silurian inliers arranged en echelon between Dudley, Sedgley and nearby Wolverhampton to the north. Though Murchison originally discussed this locality as early as 1839 (p. 482), its rocks were not studied in earnest until the early 20th century (King and Lewis, 1912). Later investigations owe much to the mapping programmes of the British Geological Survey (e.g. Whitehead and Eastwood, 1927; Whitehead and Pocock, 1947). Ball's (1951) revised geological map and interpretation remains the most recent first-hand account of the Silurian of the site.

Cocks *et al.* (1971, 1992) correlated the local Silurian with other Welsh Basin sequences. Cherns (1988) has considered aspects of local mid-Ludlow sedimentation within the context of regional facies patterns. Rhodes (1953) and Turner (1973) have described some of the microfaunas of Turner's Hill.

This GCR site contains a sequence across the Silurian–Devonian (Ludlow–Downton) boundary of traditional, now outmoded, usage.

Description

The following account principally follows the succession and localities noted as available by Ball in 1951.

The asymmetrical fold controls the topography of the NNE–SSW elongate hill, which has a steep western and a gentle eastern slope. The Sedgley Limestone (about 8 m thick) was once poorly exposed at the foot of the western slope, in an old quarry and in a small outcrop 50 m farther south. In the older literature this limestone is referred to as the 'Aymestry limestone', as it was long considered a correlative of that middle Ludlow stratigraphical unit of Shropshire. Based principally on its Shelly faunas, such as brachiopods, bivalves, trilobites, gastropods, crinoids, stromatoporoids and nautiloids, together with a large number of conodont species (Rhodes, 1953), recent opinion correlates the Sedgley Limestone with the top of the Bringewood and the whole of the Leintwardine groups (latest Gorstian to early Ludfordian; Cocks *et al.*, 1992).

The rocks in the quarry are recorded as blue-grey, nodular and argillaceous limestones with thin shale partings, dipping 15° to the southwest. The upper part of the smaller outcrop was observed as more flaggy and argillaceous (probably representing a transitional sequence into the overlying 'Upper Ludlow Shales' = Whitcliffe Group) and exposed a thin bone bed consisting of tiny phosphatic grains and nodules with fragments of *Lingula* and fish scales and spines. The top of the Sedgley Limestone at Turner's Hill has yielded thelodont (e.g. *Thelodus*, *Logania*) and acanthodian fish remains (Turner, 1973).

Fossiliferous 'Whitcliffe Group' strata (about 9 m) were exposed along the western flanks of the hill north of the Sedgley Limestone outcrops. In general they have an upward transition from westerly dipping, argillaceous flaggy limestones through olive-buff shales, to horizontal and south-easterly dipping silty sandstones at the top of the Ludlow Series succession at the crest of the hill.

The Ludlow Bone Bed, at the base of the Pídolí Series Downton Castle Sandstone Formation, was once well exposed at the crest of the hill. In some places it consists of two or three thin lenses; elsewhere it is a coalesced, 38 cm thick, friable bed containing inarticulate brachiopods, fish and plant (*Pachythea*) remains. The overlying sandstones and

siltstones of the basal part of the Downton Castle Sandstone Formation — the 5 m thick Turner's Hill Beds of Ball (1951) — have yielded the same fossil taxa, together with gastropods, bivalves, several types of eurypterid arthropods and fragments of the plant *Cooksonia*. The latter beds were exposed in a hill crest road section, where they are faulted against yellow, flaggy sandstones of the succeeding part of the Downton Castle Sandstone Formation, the Gornal Sandstone of Ball (1951). Locally the latter unit has yielded a complete specimen of the ostracoderm *Hemicyclaspis murchisoni*. The Silurian sequence is completed in the overlying Temeside Shale Formation and 'Red Downton Beds' of Pridoli age, both once seen in temporary exposures.

Interpretation

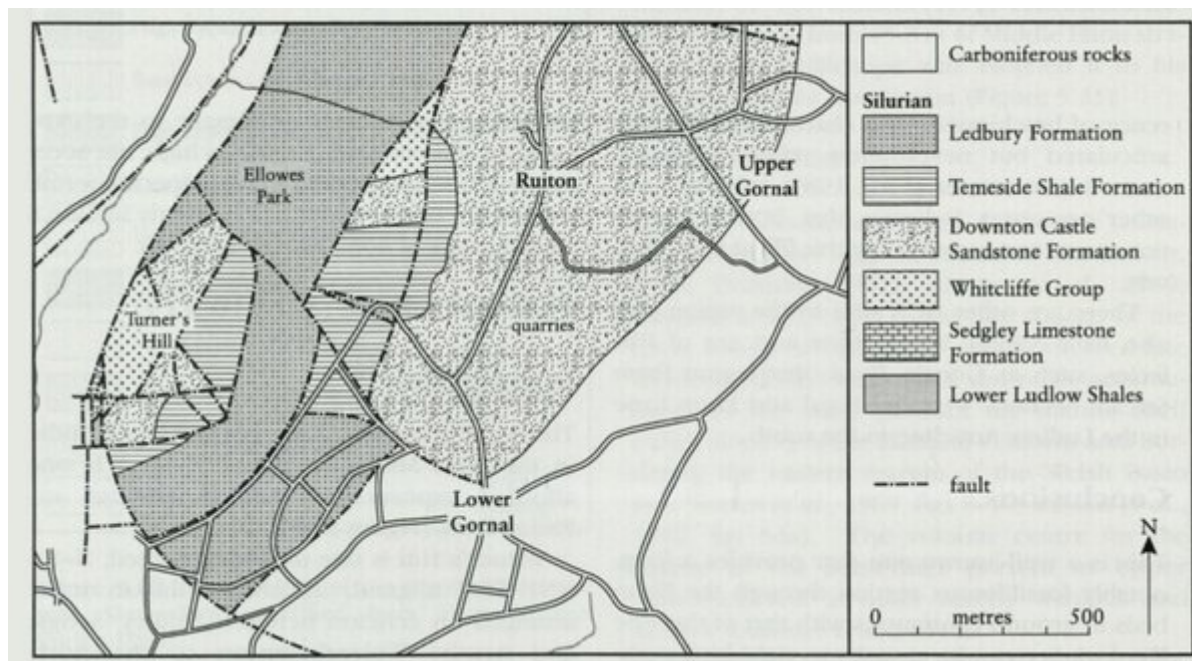
This sequence was deposited in the central parts of the Midland Platform shelf area on the eastern flank of the Welsh Basin (Siveter *et al.*, 1989, fig. 11; Bassett *et al.*, 1992, figs S5a, S5b, S8b). The sediments and faunas and floras reflect a transition marking the demise of the Welsh Basin, from fully marine, shallow-water conditions in the Ludlow to shallower, more marginal marine and, ultimately, terrestrial conditions in the late Pridoli (Allen and Tarlo, 1963; Allen, 1974, 1985; Bassett *et al.*, 1982; Miller, 1995). Land was never very far away from this locality.

The many GCR sites that display a Ludlow through to Pridoli sequence (see list under Ludford Lane and Ludford Corner) all reflect similar changes in palaeoenvironments. Of these Turner's Hill and the nearby locality at Brewin's Canal, just south of Dudley, are the most eastern, proximal shelf sites.

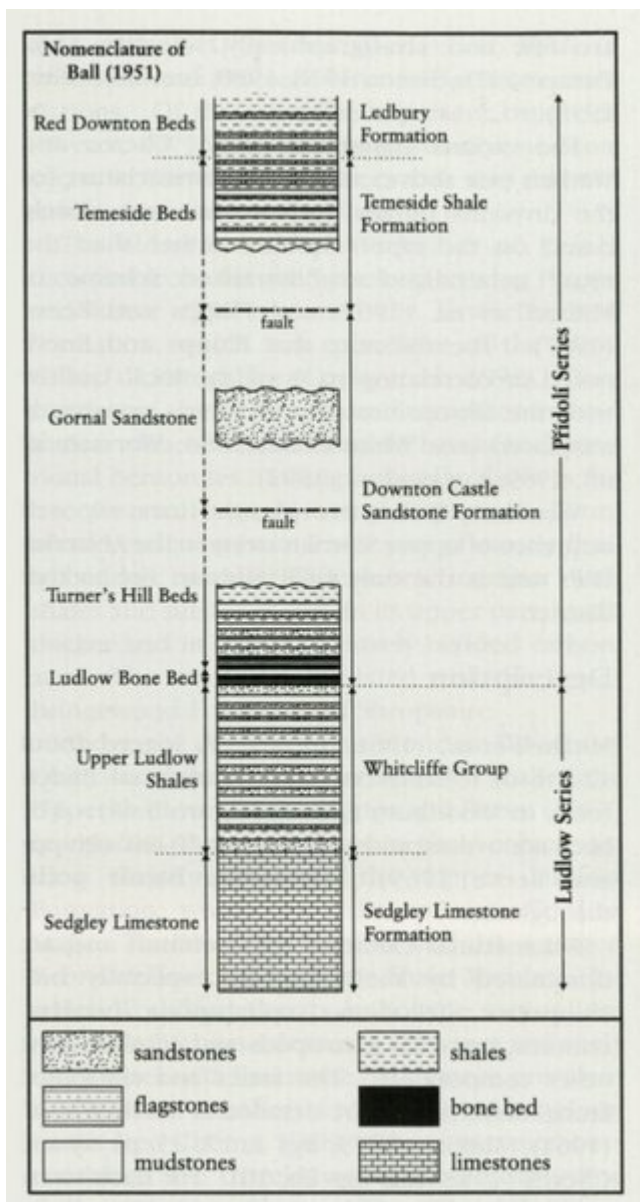
Conclusions

This site has the local equivalent of the former, unofficial Silurian–Devonian boundary level. It has palaeontological, palaeoenvironmental and palaeogeographical significance in containing several bone beds, including one in the Ludlow Series. It is also the type locality of several species of fossils. In addition it has historical value, featuring in *The Silurian System* of Murchison (1839). Unfortunately, because of natural degradation and building development many of the former outcrops are no longer available.

References



(Figure 5.42) The geology in the vicinity of Turner's Hill, West Midlands (modified from Ball, 1951). Location of roads, buildings and quarries are shown as in 1951.



(Figure 5.43) The Silurian succession at Turner's Hill, West Midlands (modified from Ball, 1951).