
Longhope Hill

[SO 693 186]–[SO 694 184]

Introduction

These Ludlow and Pridoli series exposures occur along the A4136 road, about 0.3 to 0.6 km southeast of the village of Longhope, Gloucestershire, in the southern part of the Welsh Borderland (Figure 5.48). The site, often termed 'The Longhope by-pass' in the more recent geological literature, lies in the west central part of the Silurian inlier of May Hill.

The geology of the May Hill area was first described by Murchison (1839), who discussed the Longhope area, and it was later studied by Phillips (1848) and Gardiner (1920, 1927, 1934, 1937). Lawson (1955; see also 1967, 1982) provided the most recent geological map and overall account of the inlier, including details of Longhope Hill. The British Geological Survey has also summarized the Silurian stratigraphy of the inlier (Worssam *et al.*, 1989).

Many of the bedding planes at Longhope Hill are richly fossiliferous. Dorning (1981b), Richardson and Rasul (1990) and Miller (1995) recorded selected microfossils from the site and Cherns (1988, fig. 7b) has logged its faunas of Leintwardine Group age. The nomenclature of the units that Lawson (1955) established for the May Hill Inlier has been used unchanged in almost all of the standard papers on British Silurian correlation (Holland *et al.*, 1963; Cocks *et al.*, 1971, 1992). An exception is Lawson's field excursion guide to the area (1967, 1982), in which the names of the type Ludlow stratigraphical units were used in tandem with the original names of the units.

Longhope Hill contains good reference sections of the Ludfordian to basal Pridoli stratigraphical divisions of the inlier.

Description

The beds dip between 20° and 30° to the southwest and young to the north-west down Longhope hill (Figure 5.48). The Lower Blaisdon Beds consist of less than 1 m of conglomeratic limestone bands containing shelly faunas and evidence of hardgrounds (Lawson, 1955; Cherns, 1980). Fossils chiefly include brachiopods such as *Atrypa reticularis*, *Microsphaeridiorhynchus nucula*, *Protochonetes ludloviensis* and *Sphaerirhynchia wilsoni*, and also bivalves (e.g. *Fuchsella amygdalina*), bryozoa and rarer rugose corals, gastropods and nautiloids (Lawson, 1955; Cherns, 1988). The Upper Blaisdon Beds (c. 8 m thick; Lawson 1955) are shaly calcareous siltstones with thin bands of shelly limestone. Their fauna is essentially similar to that of the underlying Lower Blaisdon Beds, with *Dayia navicula* being more common.

The succeeding Lower Longhope Beds (3 m thick) are lithologically similar to the Upper Blaisdon Beds and also have macrofaunal faunal elements in common. Additionally, the Lower Longhope Beds have, in particular, the ostracod *Neobeyrichia lauensis*, the acme of the trilobite *Alcymene puellaris* and of the strophomenid brachiopod *Shaleria ornatella* and a selection of more typically late Ludfordian forms such as the brachiopod *Salopina lunata*, the bivalves *Pteronitella retroflexa*, *Nuculites antiquus* and *Goniophora cymbaeformis*, the nautiloid *Michelinoceras bullatum*, the ostracod *Calcaribeyrichia torosa* and the annelid *Serpuloides longissimus* (Lawson, 1955). Collectively the Blaisdon and Lower Longhope beds are correlated with the type lower Ludfordian Leintwardine Group strata of the Ludlow area, Shropshire. Indeed, Cherns (1988) recorded the biozonal graptolite *Saetograptus leintwardinensis* from Lower Leintwardine correlatives at Longhope.

The Upper Longhope Beds (3–15 m thick in the inlier) comprise flaggy and shaly calcareous siltstones with thin limestone bands. This unit, with its brachiopod-dominated shelly fauna in which the common elements are reduced to *S. lunata*, *M. nucula* and *P. ludloviensis* (Figure 5.49), is correlated with the late Ludfordian Lower and Upper Whitcliffe formations of the type Ludlow sequence. Conodonts, for example *Coryssognathus dubius*, *Ozarkodina confluens*, *Ozarkodina excavata* and *Panderodus serratus* are also recorded from the Upper Longhope Beds of Longhope Hill (Miller, 1995) and its Ludfordian sequence is known to yield well-preserved marine microfloral assemblages (Dorning, 1981b, and unpublished information; Richardson and Rasul, 1990). Minor unconformities occur at the base of both the Lower

Blaisdon Beds and the Upper Longhope Beds of the May Hill Inlier (Lawson, 1955).

In the Longhope Hill road section the Ludlow Series gives way, north-west of a fault, to massive greyish-yellow, micaceous silts, shales and sandstones that comprise the Clifford's Mesne Sandstone (Figure 5.48). At its base a thin (< 0.2 m), poorly exposed phosphatized pebble bed is developed. Compared with the underlying deposits this sandstone has a restricted fauna, which nevertheless includes a substantial increase in land-derived spores (Richardson and Rasul, 1990), together with inarticulate brachiopods, ostracods, bivalves, gastropods and eurypterid and plant fragments. The Clifford's Mesne Sandstone is correlated with the basal Plidoli Downton Castle Sandstone Formation of Shropshire (see Bassett *et al.*, 1982), the Pebble Bed being the local equivalent of the Ludlow Bone Bed. The occurrence of the latter, containing thelodont scales, was recorded from the Blaisdon area, 2 km to the south, as early as the mid-19th century (Strickland, 1853).

Interpretation

The Ludlow Series in the May Hill Inlier is only a quarter of the thickness of that at the nearby Woolhope and Malverns areas to the north and is more than ten times the thickness of the extremely condensed Ludlow sequence at the neighbouring Gorsley Inlier (Lawson, 1955). Both successions are believed to have formed on a topographical rise of the Midland Platform (Holland and Lawson, 1963; Cherns, 1988) of the Welsh Basin (see Siveter *et al.*, 1989, figs 10, 11; Bassett *et al.*, 1992, figs S4a, S4b, S5a).

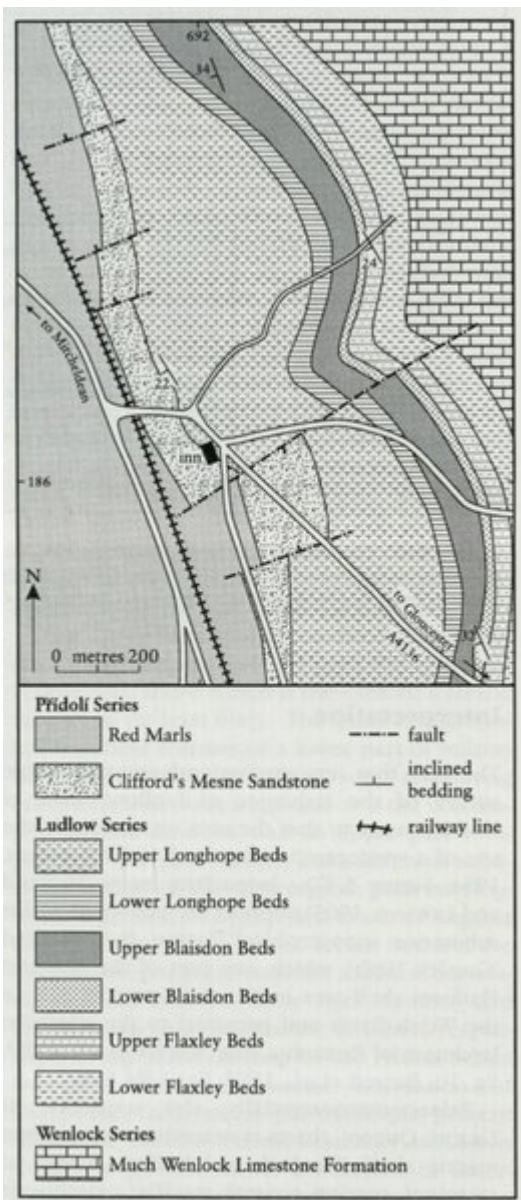
The Ludfordian rocks at Longhope Hill represent deposition on a shallow marine shelf, with the Li nconformities in the sequence at May Hill marking periods of local relative uplift and, or, non-deposition. As the Welsh Basin gradually silted up, the Clifford's Mesne Sandstone accumulated under shallower, more restricted marine conditions that preceded the onset of non-marine red bed deposition in latest Silurian–Devonian times.

Together with the Wood Green GCR site, Longhope Hill is a prime locality at which to demonstrate shelf deposits characteristic of the Ludlow Series of the May Hill Inlier. Furthermore, like the Tites Point, Brook House and Linton Quarry sites, of the nearby Tortworth, Usk and Gorsley inliers respectively, that at Longhope Hill contains a sequence across the Ludlow–Plidoli series boundary. The only other GCR site in the May Hill Inlier is that of late Wenlock age at Hobbs Quarry.

Conclusions

This is one of the best localities at which to examine all of the Ludfordian stratigraphical units within the May Hill Inlier. It is in the type area of the Lower and the Upper Longhope beds and it also contains the junction between the Ludlow and the Plidoli series. Though, in recent years, its potentially relative ease of access and fossil-rich reputation has led to some overuse by geological visitors, undeniably its outcrops still have high value for both both teaching and research purposes.

[References](#)



(Figure 5.48) The geology of the A4136 road section and adjacent area, near Longhope, Gloucestershire (after Lawson, 1955).



(Figure 5.49) Calcareous siltstones with shelly fauna dominated by brachiopods (e.g. *S. lunata*, *M. nucula* and *P. ludloviensis*), Upper Longhope Beds, Longhope Hill (A4136 road), Gloucestershire. (Photo: David J. Siveter.)