
Burrington

[SO 433 723] and [SO 443 726]

Introduction

At the south-west end of Wenlock Edge, near Craven Arms, the Silurian outcrop takes a slightly sinuous, S-shaped course, firstly as the Downton Syncline and then as the complementary Ludlow Anticline, thereafter continuing to the south-west into central Wales. The Ludlow Anticline plunges to the ENE under Ludlow town and is formed mainly of Ludlow strata for which it represents the type area; it also has an outer envelope of PM^oli age sediments and an inner core of Wenlock rocks. The hamlet of Burrington is located on the southern side of the northern limb of the anticline, close to the anticlinal axis where the oldest (Wenlock) sediments crop out (Figure 4.39).

The geology of the Ludlow area has been commented on from the time of Wright (1832) and Murchison (1839, 1854) in the mid-19th century. Many subsequent authors (e.g. Lightbody, 1869; Wood, 1900; Elles and Slater, 1906; Alexander, 1936) added to our knowledge of the Silurian rocks of this area, but these were exclusively concerned with the dominant, Ludlow age strata. It was not until Holland *et al.* (1963) published their benchmark revision of the geology and faunas of the Ludlow Anticline, followed by the graptolite work in the area of Warren *et al.* (1966), and Holland *et al.* (1969), that the strata and fossils of Wenlock age from here received specific attention.

Wenlock rocks are not well exposed in the Ludlow Anticline. Even so in the 1960s they yielded, from the Burrington localities described below (see also Siveter *et al.*, 1989), graptolites that were critical in providing for the first time a precise (*ludensis* Biozone) age for the Much Wenlock Limestone Formation. This also led to a revision of where the re-defined (Holland *et al.*, 1963; see Pitch Coppice site) base of the Ludlow Series lay (*nilssoni* Biozone) with respect to the graptolite sequence.

Description

The Burrington site consists of two separate areas which are along strike (roughly E–W) and 0.75 km apart from each other. Both areas include ground underlain by beds at the top of the Coalbrookdale Formation and the bottom of the Much Wenlock Limestone Formation, which here have a general dip to the NNW of between about 20–40°. One area comprises the lane section which runs to the north-west from Burrington hamlet. The second area, to the west, comprises the western part of the bank that overlooks the flood plain of the River Teme.

The lane section at Burrington has reasonably continuous exposure and the site boundary here includes localities 60–64 of Holland *et al.* (1963). Locality 60 is a bank with soft, grey, thinly bedded silty shales and mudstones of the Coalbrookdale Formation. It is on the eastern side of a N–S trending fault that downthrows to the east and offsets beds on the west side to the north. Locality 61 is a steep cutting slightly higher in the same formation. In both exposures the sparse fauna includes graptolites, nautiloids and the trilobite *Dalmanites*. Of the graptolites, locality 60 has yielded *Gothograptus nassa*, and locality 61 *Monograptus ludensis* and *Pristiograptus jaegeri* (Holland *et al.*, 1969). Locality 62, farther up the lane, straddles the boundary between the Coalbrookdale and Much Wenlock Limestone formations, the base of the latter being taken at the point of sudden increase in the occurrence of limestone ribs. The Coalbrookdale Formation here has yielded *M. ludensis*, *P. jaegeri?* and *Holoretiolites (Balticograptus) lawsoni*. Locality 63 is a small quarry showing flaggy limestone beds typical of the Much Wenlock Limestone Formation. Fossils are uncommon, but fragments of *M. ludensis* and small brachiopods have been found. Locality 64, at a sharp bend in the lane, is also in the lower, flaggy Much Wenlock Limestone Formation, but slightly higher in the sequence. *M. ludensis* has been recorded from here (Holland *et al.*, 1969), and it is the youngest horizon in this lithostratigraphical unit from the Ludlow Anticline to have produced graptolites.

The second area, hillside exposures above the River Teme, includes localities 40 and 41 of Holland *et al.* (1963). Locality 40 is a trackside cutting near the top of the Coalbrookdale Formation, from which *Pristiograptus dubius*, *G. nassa*, *M.*

ludensis and *P. jaegeri* have been obtained. Locality 41 is a poor exposure of the basal part of the Much Wenlock Limestone Formation, above the wooded bank, which has yielded *M. ludensis* and *P. jaegeri*.

Interpretation

Only comparatively recently have the highest Wenlock strata of the Ludlow Anticline been known with confidence in terms of the standard graptolite biozonation. At the turn of the 20th century Elles (1900) and Wood (1900), who worked largely in the more offshore, graptolitic facies, took the base there of the *vulgaris* Biozone as the base of the Ludlow Series. Thereafter, in the graptolitic facies at least, the base of the *vulgaris* Biozone became the internationally accepted horizon for the Wenlock–Ludlow boundary. However, although Wood (1900) also assigned the lower Ludlow shales of the Ludlow district on the shelf to this biozone, she recorded these beds as lacking graptolites. Additionally, the precise relationship of the *vulgaris* Biozone with the latest Wenlock Much Wenlock Limestone Formation of the shelf region, which immediately underlies the Ludlow Rocks *sensu* Murchison (1834, 1835, 1839), was still uncertain (see Pocock *et al.*, 1938).

Holland *et al.* (1963) failed to find graptolites in the Much Wenlock Limestone Formation of the Ludlow Anticline and so the position of the base of the *vulgaris* Biozone with regard to this unit, and indeed also with regard to their newly defined standard section for the base of the Ludlow Series at Pitch Coppice, remained an open question. Shortly afterwards however, *M. vulgaris* was shown to be a junior synonym of *M. ludensis* and, based on graptolites from the Burrington localities of Holland *et al.* (1963), the upper part of the Coalbrookdale Formation and at least the bottom one-third of the Much Wenlock Limestone Formation in the Ludlow Anticline were shown to belong to the *ludensis* Biozone (Warren *et al.*, 1966; Holland *et al.*, 1969).

The Ludlow Series as recognized historically in the graptolitic facies, beginning with the base of the *ludensis* (= *vulgaris*) Biozone, would thus include the Wenlock Limestone, a situation that was clearly unsatisfactory. Therefore it was recommended (Warren *et al.*, 1966; Holland *et al.*, 1969) that in the graptolitic facies the base of the *nilssoni* Biozone be accepted as the base of the Ludlow Series, and that in any event it was probable that the base of this biozone lay at or close to the base of the Ludlow Series in Pitch Coppice. Subsequently, this has proved to be the case (see White 1974, 1981; Lawson and White, 1989).

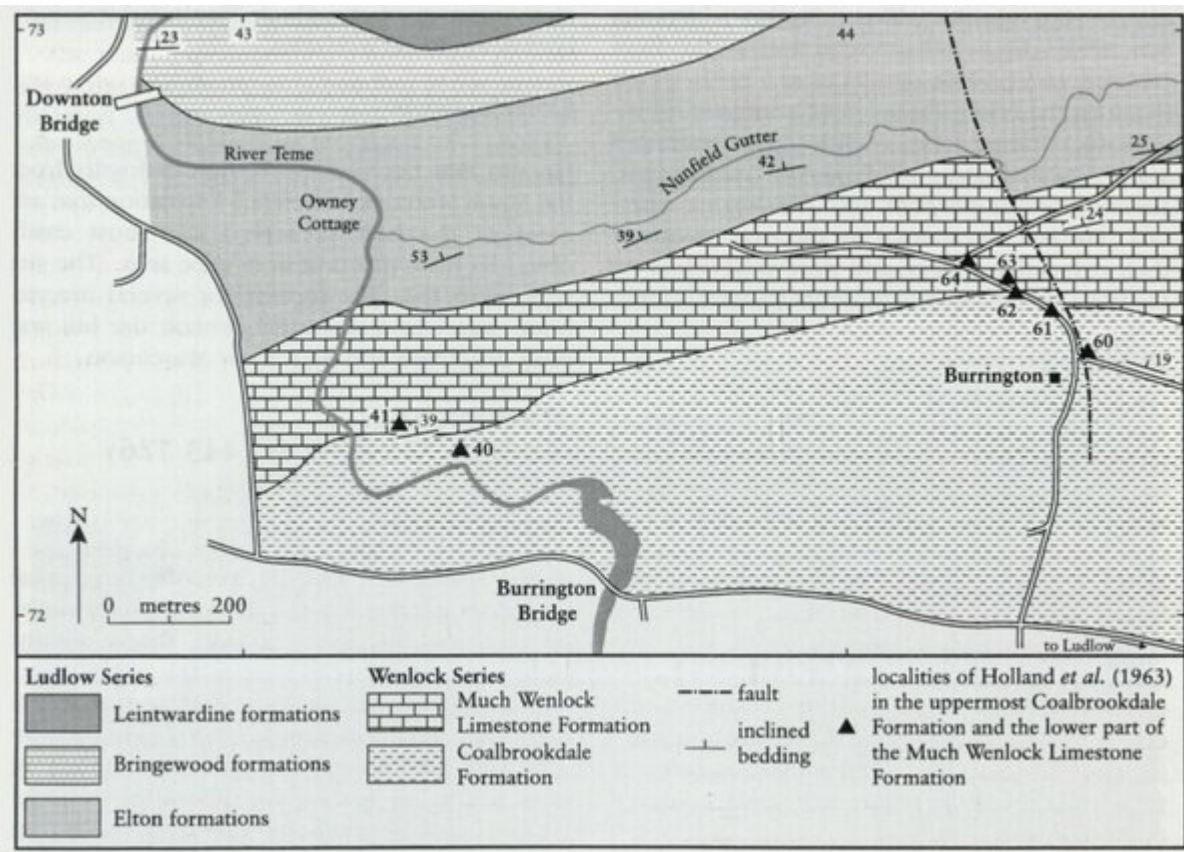
The Burrington site, then, stratigraphically precedes and has relevance to the nearby Pitch Coppice (Ludlow Series) site. It also links with the Longville–Stanway Road Section GCR site on Wenlock Edge, this being the other locality in the type Wenlock and Ludlow areas where dating of the Much Wenlock Limestone Formation in terms of graptolites (also *ludensis* Biozone) has been achieved.

In terms of palaeogeography and facies, the Much Wenlock Limestone Formation exposed at Burrington represents the most north-westerly expression of the carbonate platform present in the English Midlands and adjoining areas to the west and south-west in latest Wenlock times. This platform is more typically, strongly manifest in such sites as Wren's Nest in the West Midlands and Easthope–Harley Hill on Wenlock Edge.

Conclusions

This is a site of prime biostratigraphical importance. It is where, for the first time, a firm assignment (*ludensis* Biozone) was determined for the Much Wenlock Limestone Formation in terms of the graptolite sequence. This allowed correlation between this carbonate facies on the shelf (margin) region and the graptolite-rich facies of the offshore, slope and basinal areas. The determination of a reliable graptolite biozonal assignment for the Much Wenlock Limestone Formation here also underpinned that for strata of the Ludlow Series in their type area.

[References](#)



(Figure 4.39) Geology of the Burrington area, Ludlow Anticline (after Lawson and White, 1989).