
Dulas Brook

[SO 042 552]

Introduction

Dulas Brook is located in the Builth district, central Wales. The geology of this district was commented on by Murchison (1839, 1854), and also De la Beche (1846) and Phillips (1848) in their accounts for the Geological Survey. The area also featured in the work of Lapworth (1880a, 1880b), in the late 19th century, when he divided the Wenlock rocks here by use of different graptolite faunas. A more refined zoning of Wenlock age rocks at Builth and elsewhere was brought about through the graptolite-based research of Elles (1900), and at the same time Wood (1900) showed that the sequence of graptolites in the Ludlow here facilitated the subdivision of rocks of this age. The zonal schemes set up in these two historic papers largely provide the basis of the modern biostratigraphical framework for middle Silurian strata in the UK, and also many regions abroad. Subsequent to the work of Elles and Wood in the Builth area, the Ludlow geology to the south of Builth Wells was investigated by Straw (1937) and the Silurian north and west of the town by Jones (1947). Of late, the Wenlock geology and graptolite succession of Builth have been the subjects of a PhD thesis by Harris (1987) and the British Geological Survey are completing new work there, a century and a half after making their original summary remarks on the area. Both these studies may affect the interpretation and significance given to Dulas Brook, and the other four Builth Wenlock sites, in this JNCC volume, but as yet they are unpublished.

Further discussion on the Builth Silurian research outlined above is provided in the introduction to Trecoed–Castle Crab; this is also an adjunct to the present introduction to Dulas Brook. Elles (1900) and subsequent authors regarded the Builth district as the type area for the sequence of Wenlock graptolite zones. Strata and fossils of the *ellesae* Biozone (= *rigidus* Zone of Elles) are available at Dulas Brook.

Description

Dulas Brook flows in a south-westerly direction on the north-west side of the Carneddau hills to meet the River Wye at Builth Road. The site boundary takes in streamside exposures to the east of where the brook crosses the A483 road, at Brynsadwrn Bridge.

The beds here are hard calcareous shales that strike roughly parallel with the stream course and dip at about 30° to the north-west. They belong to the 'Wenlock Shales' (= Coalbrookdale Formation of the type Wenlock area), which in the Builth region is a unit that requires a new formational name. According to Elles (1900) the strata at Dulas Brook are very near the base of the *ellesae* Biozone and she identified six graptolite species from there: *Monoclimacis vomerina*, *Cyrtograptus ellesae* (= *Cyrtograptus rigidus* Milberg of Elles), *Monograptus basilicus*, *Pristiograptus dubius*, *M. retroflexus*, and two varieties of *Monograptus flemingii*. However of these Rickards (1976) has more recently listed only *dubius*, *flemingii* and *ellesae* as being present in the *ellesae* Biozone, the most important single species for indication of this biozone being *ellesae*, which he gave as being confined to the *ellesae* and basal part of the succeeding *lundgreni* biozones.

Interpretation

Elles (1900) gave three localities where strata of the *ellesae* Biozone crop out. In addition to Dulas Brook there were two exposures in the Nant Prophwyd area about 2 km to the southwest. All these must be considered the type localities for the biozone, though Elles gave priority of description to Dulas Brook.

Palaeogeographically, during the Wenlock Epoch the Builth region was situated in an intermediate position, on the slope area between shelf and basin (Bassett, 1974a; Hurst *et al.*, 1978; Holland, 1992). The graptolitic shale facies of Dulas Brook reflects this offshore location, yet there are other horizons within the Builth Wenlock sequence that are more

carbonate rich and contain shelly fossils, thus giving a mixed faunal aspect, overall, to this region at this time.

There are four other Wenlock sites in the Builth area discussed in this volume: Trecoed–Castle Crab, Pen-cerig, Coed-mawr and the River Irfon. All of these are closely linked in space and time, though Coed-mawr could be regarded as closest to Dulas Brook in terms of facies, as both are essentially graptolitic, whereas the other three sites all have shelly components. Coed-mawr exposes slightly older, *rigidus* Biozone (= *symmetricus* Biozone of Elles) and *linnarssoni* Biozone (= *flexilis* Biozone of some authors) strata, but the strata at Dulas Brook overlap in age with those of the River Irfon, both sites having *ellesae* Biozone rocks. The Long Mountain to the north-east of Builth is also situated on the slope area, and it contains two sites, Buttington Brickworks and Trewern Brook, which can be compared in broad terms to the Builth Wenlock sites including Dulas Brook. Trewern Brook, also, has *ellesae* Biozone strata.

Conclusions

Dulas Brook is an important biostratigraphical site in what has historically been taken as the type area for the Wenlock graptolite sequence —the Builth district. The 'Wenlock Shales' strata here belong to a single graptolite biozone of the upper middle part of the Wenlock Series. Palaeoenvironmentally, the site is set offshore, on the slope area of the Welsh Basin. It is, primarily, a research site for workers concerned with graptolite biostratigraphy.

[References](#)