
Pen-cerig

[SO 042 541]

Introduction

The Pen-cerig site is situated in the Builth district, an area that has attracted the attention of geologists from the early part of the 19th century, when it figured in the accounts of Murchison (1839, 1854) and in the early memoirs of the Geological Survey (De la Beche, 1846; Phillips, 1848). The area was also drawn attention to by Lapworth (1880a, b), in his papers on the stratigraphical distribution of graptolites. It was the turn of the 19th century work of Elles (1900) and Wood (1900), however, both of whom zoned the Silurian strata at Builth on the basis of graptolites, that led to this area being pre-eminent for the biostratigraphy of Wenlock age rocks. Elles investigated solely Wenlock strata and faunas, whilst Wood's study concentrated on the Ludlow of the area though it also embraced *ludensis* (= *vulgaris*) Biozone rocks and fossils, this biozone being now known to fall within the Wenlock (not Ludlow) Series. Since then, regional surveys of the Ludlow strata in the south of the district and Silurian strata north and west of Builth were accomplished, respectively, by Straw (1937) and by Jones (1947). More recently there has been a PhD thesis on the Builth Wenlock (Harris, 1987), and the British Geological Survey are presently finishing new research there. Both these studies may yield important data that will affect our understanding of the area, and our assessment of Pen-cerig and the other Builth Wenlock sites in this JNCC volume.

A fuller account of the contribution and significance of the above works to the geology of the Builth district, and to Wenlock biostratigraphy in general, is given in the introduction to the Trecoed–Castle Crab site, to which reference should be made. Pen-cerig has fossiliferous, *murchisoni* Biozone age strata that form the local base of the Wenlock in the district which, following the research of Elles, became the accepted type area in the UK for the Wenlock graptolite zones.

Description

The Pen-cerig site is located 3 km north of Builth Wells, at the western end of the lake of the same name. Uppermost Llandovery as well as basal Wenlock strata are included within the site boundary. Just below water level near the stream outlet, and at the stream outlet, the Llandovery is present; Wenlock strata are exposed immediately to the west (Elles, 1900; Jones, 1947).

The Llandovery beds just below water level comprise grey-blue 'fucoidal' mudstones; those near the point where the stream leaves the lake are massive green mudstones, with some harder horizons showing trace fossils, and also with two thin bentonite horizons.

The basal Wenlock consists of a 30–60 cm nodular, greenish, calcareous and ferruginous grit containing shelly debris. Above this are dark shales of the Wenlock Shales' (= Coalbrookdale Formation of the type Wenlock area) which dip north-west at about 30° and reportedly belong to the *murchisoni* Biozone. In addition to the eponymous biozone fossil, Elles (1900) listed another eight graptolite species from this horizon at Pen-cerig, including *Monograptus priodon*, *Monoclimacis vomerina*, and *Retiolites geinitzianus*. Some of these species records may not stand up to modern scrutiny and this faunal list as a whole needs revision. *R. geinitzianus*, for example, apparently does not anywhere range upwards into the *murchisoni* Biozone (Rickards, 1976); however it does occur in the *centrifugus* Biozone and if Elles' species identification is correct this may instead indicate an earlier Wenlock age for the shales at Pen-cerig (Bassett, 1974a). Shelly fossils, including an odontopleurid trilobite, orthoconic nautiloids, a cardiolid bivalve and small brachiopods are also recorded from these graptolite-bearing shales at this locality (Elles, 1900). Thomas (1981) has identified the odontopleurid from here, on the basis of over 1800 disarticulated exoskeletal parts, as *Odontopleura ovata*, this representing the earliest occurrence of the species.

Interpretation

Pen-cerig was one of four localities at Builth used by Elles (1900) in her account of the *murchisoni* Biozone, the others being Trecoed, an old quarry north of Llanelwedd Hall, and the River Wye. This zone was originally set up in this district by Lapworth (1880a, 1880b; Rickards, 1976).

Throughout the Wenlock the Builth area was in an intermediate, slope position between the shelf to the east and basin to the west (Bassett, 1974a; Hurst *et al.*, 1978; Holland, 1992). The mixed nature of the Wenlock sediments and fauna of this area — shales/carbonate muds, graptolites and shelly fossils — is testimony to this position, and the low Wenlock of Pen-cerig demonstrates clearly such combined aspects.

Pen-cerig is one of five sites of Wenlock age in the Builth area described in this volume, the others being Trecoed–Castle Crab, Coed-mawr, Dulas Brook and the River Irfon. Of these the Trecoed–Castle Crab section is most closely linked to Pen-cerig. Both display mixed facies and both have (upper Llandovery and) low Wenlock *murchisoni* Biozone rocks, though the Trecoed–Castle Crab section includes, in addition, at least *riccartonensis* and *rigidus* Biozone strata. Elles thought that the strata at Pen-cerig were lower in the *murchisoni* Biozone than the strata of this biozone at Trecoed, but this claim has not been independently confirmed. Also similar to Pen-cerig is the Buffington Brickworks site in the Long Mountain area, which has an offshore (upper Llandovery to) low Wenlock sequence. The Long Mountain, too, formed part of the palaeoslope in Wenlock times.

Conclusions

Pen-cerig is a very useful site for biostratigraphy in the Builth district, which historically has been taken as the type area for the sequence of Wenlock graptolite biozones. The site exposes shales belonging to a single, lower Wenlock graptolite biozone. These shales have also yielded trilobite and brachiopod material, thus demonstrating the mixed graptolitic–shelly nature of Wenlock age rocks at Builth. This mixed fauna is indicative of the intermediate palaeogeographical position of the Builth area during this time, between shelf and basin. The site is used mainly by research workers.

[References](#)