Cilwrgi Quarry

[ST 3394 9836]

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Introduction

This old quarry (Figure 4.14), also known in the literature as the Borstal Institute Quarry, exposes a typical section within the Much Wenlock Limestone Formation of the Usk Inlier (see Walmsley, 1959). There has been some controversy regarding the precise stratigraphical position of this limestone, with Hurst (1975b) regarding it as a local carbonate development of early Ludlow age and giving it a separate name, the 'Usk Limestone'. Other authors, particularly Bassett (1976), have rejected Hurst's argument that the limestone post-dates a postulated synchronous end-Wenlock transgressive event, and have equated it faunally and chronologically with other late Wenlock limestones of the Welsh Borderland (see discussion of the GCR sites in the Cwm Ton area). Barclay (1989) continued to use the name Usk Limestone Formation, but considered it contiguous with the Much Wenlock Limestone Formation of the Wenlock area; other recent authors (e.g. Cocks *et al.,* 1992) have used the latter name in the Usk Inlier.

Description

The lower 2.5 m of limestone in the quarry belong to the lower, massive division of the Much Wenlock Limestone Formation recognized by Walmsley (1959). This unit comprises hard bioclastic, crystalline limestones in which a bio-hermal build-up approximately 2.5 m wide and 1.25 m thick is developed (Squirrel! and Downing, 1969). Above this, 1.25 m of nodular limestones interbedded with buff silty mudstones represent the upper, nodular division of Walmsley (1959). Squirrel and Downing (1969) recorded a diverse macrofauna from the quarry, including the corals *Favosites gothlandicus, Halysites catenularius, Microplasma lovenianum, Syringopora fascicularia,* and *Thecia hisingeri.* Brachiopods are numerous and varied, including *Amphistrophia funiculata, Atrypa reticularis, Dolerorthis rustica, Leptaena* spp., *Leptostrophia filosa, Resserella* cf *elegantula,* and *Sphaerirhynchia davidsoni.* Gastropods, bivalves, tentaculitids, crinoid columnals and the trilobites *Acaste downingiae, Dalmanites caudatus,* and *D.* cf. *myops* also occur, and bryozoan material, which includes species of *Fenestella,* is particularly abundant. Dissolution of samples of limestone from both divisions has yielded to the present author a small number of conodont elements, including representatives of the species *Ozarkodina bohemica* and *Ozarkodina excavata.*

Interpretation

The limestones in the Usk Inlier represent the southernmost extension of carbonate deposition on the ESE margin of the Welsh Basin (see Bassett, 1974a; Hurst *et al.,* 1978; Holland, 1992). The exposures at Cilwrgi Quarry contain a typical late Wenlock invertebrate and conodont fauna, and there is no biostratigraphical evidence to suggest that they should be regarded as part of a localized early Ludlow carbonate development (cf. Hurst, 1975b). The depositional environment was in shallow water with little detrital input, allowing the establishment of small bioherms.

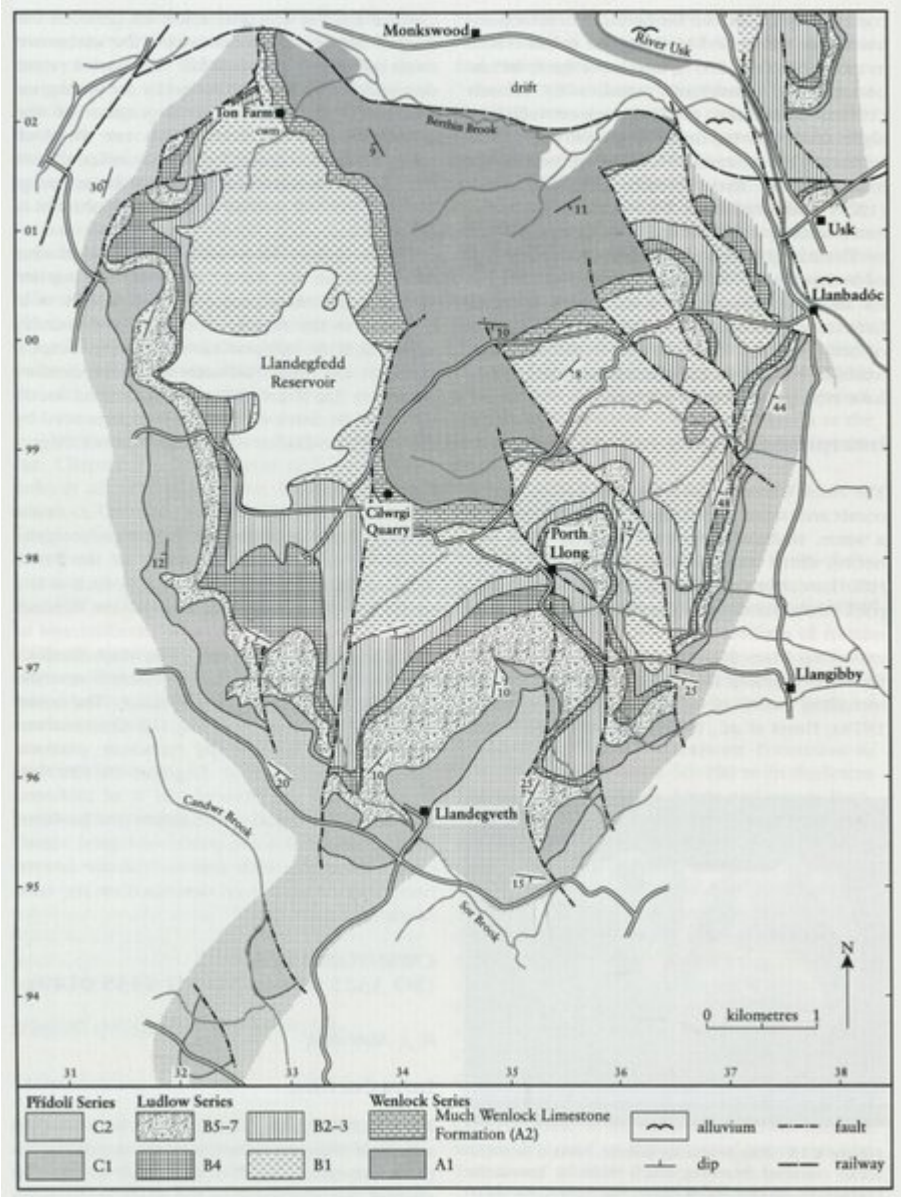
This site is most closely networked to the nearby Cwm-Ton, Usk site which, too, displays strata of the same local formation. It is also closely linked to other sites in the southern Welsh Borderland that demonstrate the nature of the late Wenlock carbonate platform, such as Hobbs and Little Hill quarries in the May Hill and Woolhope inliers, respectively.

Conclusions

Together with the exposures in the Cwm-Ton area, Cilwrgi Quarry provides a representative example of late Wenlock carbonate environments in the southernmost part of the eastern shelf of the Welsh Basin. In particular, it exemplifies the development of small bioherms in this area, and the limestones in the quarry are especially fossiliferous, with a diverse

invertebrate and conodont fauna recorded. Historically, there has been some controversy regarding the precise age of the Usk Limestone, but the known fauna is consistent with a late Wenlock age, contiguous with the Much Wenlock Limestone Formation throughout the Welsh Borderland.

References



(Figure 4.14) Location of Cwm-Ton area and Cilwrgi Quarry, and geology of the central and southern parts of the Usk Inlier, southern Wales (after Walmsley, 1959).