Cwm-Ton Area

[SO 3322 0184] and [SO 3335 0149]

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Introduction

The Usk Inlier is a pericline with a N–S trending axis, and exposes Silurian strata deposited on the south-eastern shelf of the Welsh Basin. The disused quarries south of Ton Farm in the inlier (Figure 4.14) display the upper part of the 'Usk Limestone Formation'. There has been some debate regarding the precise stratigraphical position of this unit, even though the limestone is clearly a local lithological correlative of the Much Wenlock Limestone Formation of Shropshire. This equivalence was first recognized by Murchison (1839), although he referred the sandy beds below the limestone to the Caradoc Sandstone; Phillips (1848) later correctly identified these lower strata as a sandy facies of the Wenlock Shale. In his mapping and revision of the Usk area, Walmsley (1959) used the term 'Wenlock Limestone' for the limestone formation, and noted that there is a considerable variation in thickness across the area, with a maximum of 13.5 m in the west reducing to less than 1 m in the east. In the thicker developments he recognized a lower, massive division and an upper, nodular division, succeeded by 1–2 m of buff decalcified sandy mudstones that on faunal grounds he also included in the Wenlock Limestone. Squirrel and Downing (1969), in the third edition of the Newport Memoir, also referred to the limestone as the Wenlock Limestone, but mapped the overlying decalcified mudstones as basal Elton Beds, thus referable to the Ludlow Series. Bassett (1974a), however, in his review of the stratigraphy of the Wenlock Series in the Welsh Borderland and southern Wales, noted that these beds contain a typically Wenlock fauna.

The discussion was further complicated by the contention published by Hurst (1975b), on the basis of a study of brachiopod ecology, that the limestone at Usk post-dated a widely recognizable end-Wenlock transgressive event recognizable throughout the Welsh Borderland. Hurst (1975b), therefore, considered that the entire limestone unit represented an early Ludlow carbonate deposit unrelated to the Wenlock Limestone of the Wenlock type area. He proposed that the name 'Usk Limestone' should be used for this formation. This suggestion was severely criticized by Bassett (1976), who considered that all the sedimentological, faunal and palaeogeographical data indicated that the limestone at Usk is contiguous with the Much Wenlock Limestone of other areas in the Welsh Borderland. This equivalence has been generally accepted by subsequent workers (e.g. Cocks *et al.,* 1992). Barclay (1989), in the third edition of the Abergavenny Memoir, retained the name Usk Limestone Formation, but correlated it directly with the Much Wenlock Limestone Formation of the type area; he also introduced the name 'Ton Siltstone Formation' for the sandy beds underlying the limestone.

The Cwm sections provide good exposures of the limestone and there are nearby exposures of the overlying silts; they are thus important in illustrating the stratigraphical and faunal relationships in this controversial part of the succession.

Description

These old quarries display both the lower and upper lithological divisions of the Much Wenlock Limestone Formation as developed in the Usk area (Walmsley 1959, 1967). The lower division comprises massive bioclastic limestone, in which galleries have been opened by pillar and stall mining. The overlying division consists of nodular limestones and interbedded calcareous mudstones. These are very fossiliferous, with brachiopods, especially *Atrypa reticularis* and *Leptaena depressa,* dominant, and corals, crinoids and the trilobite *Dalmanites* common. Barclay (1989) measured the following section in one of the quarries, extending below and above ground:

Lithology	Thickness (m)
Nodular limestone, deeply weathered	0.75
Nodular limestone, well-bedded, with green calcareous silty mudstone interbeds with *A. reticularis*	4.05

Crinoidal limestone, nodular at top	0.55
Coarse-grained, crinoidal, bioclastic limestone, lenticular bedded with green clay partings seen to	3.25

Interpretation

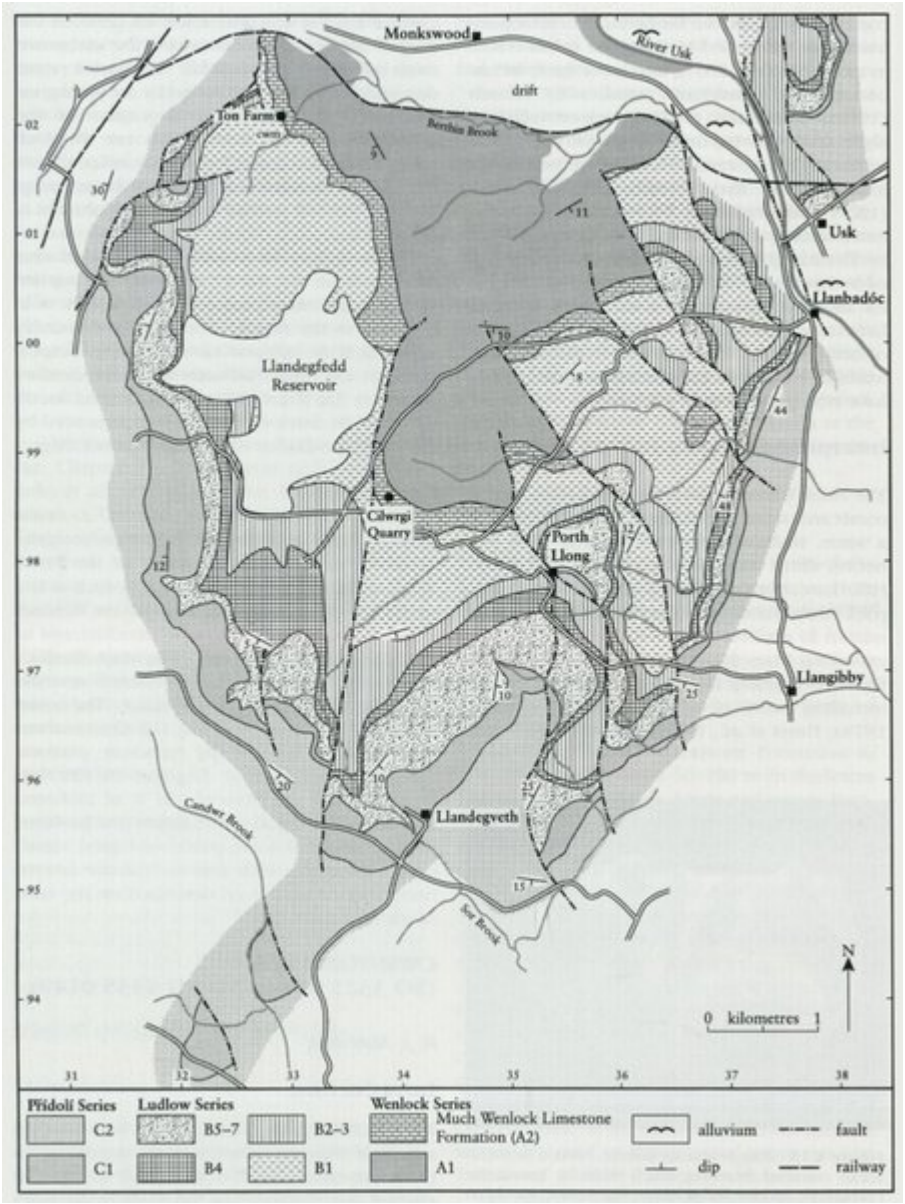
The late Wenlock limestone of the Usk Inlier was deposited close to the southern limit of limestone deposition across the Welsh Borderland at this time (see Bassett, 1974a; Hurst *et al.,* 1978; Holland, 1992). The beds contain a characteristic late Wenlock fauna, and there is no biostratigraphical evidence to support the proposal made by Hurst (1975b) that they are of early Ludlow age.

Strata of the same local formation are also exposed at the related GCR site of Cilwrgi Quarry, where Wenlock conodonts have been recovered. Slightly farther afield, this site is also linked to others in the southern Welsh Borderland that show evidence of the late Wenlock carbonate platform, for example Hobbs Quarry in the May Hill Inlier and Little Hill quarries in the Woolhope area.

Conclusions

The old quarries around Ton Farm in the Usk Inlier provide typical exposures of the nature of late Wenlock limestone deposition in the southernmost part of the Welsh Borderland. Historically, the age of the limestone has been the subject of some debate, but the lithological and faunal evidence indicates that it correlates with the Much Wenlock Limestone Formation of the type Wenlock area.

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).