

BRADNOR HILL QUARRY

OS Grid Reference: SO291578

Highlights

The quarries on Bradnor Hill, near Kington, Herefordshire, have produced fish faunas from the latest Silurian, younger than those from the Ludlow Bone Bed Member and its equivalents elsewhere in the Welsh Borders region. The faunas are rich, including heterostracans, thelodonts, osteostracans and acanthodians.

Introduction

At Bradnor Hill, various exposures of the upper Ludlow to upper Píídolí succession can be seen. Once there were many highly fossiliferous quarries here, but today only Bradnor Hill and a lane section remain. When Symonds (1856) visited the quarries with Melville, Banks and Lightbody, they collected fish plates described as being abundant, though poorly preserved. The geology of the site has been described by Banks (1856), Symonds (1859a), Richardson (1905) and Stamp (1923) and the fish fauna by Banks (1856), Huxley and Salter (1856), Symonds (1859a), Denison (1964), and Turner (1973).

Description

Banks' (1856) work was summarized by Stamp (1923). (Symonds (1859a) described several quarries showing upper Ludlow Bone Beds, overlain by *Chonetes* beds, which are in turn overlain by sandstones containing fish remains.) More recent accounts of the stratigraphy of the Late Silurian of the Presteigne–Knighton area of Wales (Kirk, 1951; Holland, 1959, 1962; Bassett *et al.*, 1982; White and Lawson, 1989; Cocks *et al.*, 1992) indicate the following general succession for the upper part of the Ludlow Series and the Píídolí Series:

	Thickness (m)
Píídolí Series	
Red Downton Formation	> 610
Green Downton Formation	15–91
Yellow Downton Formation	8–11
<i>Platyschisma helicit</i> es Formation	6–10
Ludlow Series	
Ludford Stage	
Llan-Wen Hill Formation	152
Wern Quarry Formation	37–52
Knucklas Castle Formation	457

The quarries on Bradnor Hill expose the lower parts of the yellow Downton Formation.

The quarries of Bradnor Hill (SO 291578) and at Ivy Chimney (SO 293572), now obscured by farm buildings and the 'Iron Foundry Quarry', which can no longer be located, have provided most of the specimens found in collections of eurypterids and fishes from the Píídolí (Downton) of 'Bradnor' or 'Kington'. The 'Iron Foundry Quarry' was described by Richardson (1905) as being slightly lower down the hill than Ivy Chimney Quarry, but on old maps of the area, the Iron Foundry is situated by the river in the town of Kington. Ivy Chimney Quarry is now only a 3–4 m exposure behind a group of farm buildings. Access is no longer feasible (1995). All that is exposed in Bradnor Hill Quarry is 1.5 m of flaggy sandstones overlying 5 m of cross-bedded yellow sandstone dipping 20° to the south-east. By reference to the Banks (1856) section, it appears that the most fossiliferous horizon lay above this, possibly hidden under the soil at the top of the western edge of the quarry, but only excavation will show whether this is the case, or whether the 'fish bed' was in fact a lens that has been worked out. There are several further

overgrown old quarries higher up the hill (and within the golf links). Debris suggests that the rocks here are also of typical (lower) Downton Castle Sandstone lithology.

Few fossils recorded from this area are assigned a specific provenance, so the faunal account is combined from all the quarries which once exposed the Red Downton Formation on Bradnor Hill.

Fauna

AGNATHA Osteostraci: Sclerodontiformes: Sclerodontidae

Sclerodus pustuliferus Agassiz, 1839

Osteostraci: Ateleaspidiformes: Ateleaspididae

Hemicyclaspis murchisoni Egerton, 1859

Osteostraci *incertae sedis*

Cephalaspis sp.

Thelodonti: Phlebolepidiformes: Loganellidae

Katoporodus grossi Karatajute-Talimaa, 1978 *Loganellia kummerowi* Gross, 1967 *L. cuneata* (Gross, 1947) *Goniporus alatus* (Gross, 1947)

GNATHOSTOMATA

Acanthodii: Climaatiiformes: Climaatiidae *incertae sedis*

Climatius sp.

Onchus sp.

Ivy Chimney Quarry was probably the type locality of *Cyathaspis banksi* (Huxley and Salter, 1856), type species of a genus which is found in the Welsh Borders, New Brunswick, Siberia, and the southern Urals. It is a primitive heterostracan, with a broad dorsal shield and a central arched epitegum. On the central part of the ventral shield there are a few coarse longitudinal dentine ridges separated by one to five finer ridges (Denison, 1964). *Cyathaspis banksi* occurs in the late Ludlow to early Píldol of Shropshire, Herefordshire, Worcestershire, Gwent, and Gloucestershire, where it is found only rarely. The type locality is given as 'Kington' but the type specimen is not designated. The original specimens came either from Bradnor Hill Quarry or more probably from Ivy Chimney Quarry.

Osteostracans from Bradnor Hill include *Sclerodus pustuliferus* Agassiz, 1839, *Cephalaspis* sp. and *Hemicyclaspis murchisoni* Egerton, 1857.

Turner (1973) recorded the thelodont taxa *Goniporus alatus*, ?*Katoporodus grossi*, *Loganellia kummerowi* and *L. cuneata*, and acanthodian scales from Bradnor Hill Quarry. The acanthodians *Climatius* sp. and *Onchus* sp. have been identified.

Interpretation

The thelodont fauna from the Upper Downtonian of Bradnor Hill (Turner, 1973) is characteristic of the upper Píldol, and typical of various sites in the Welsh Borderland. It is also found in whole or in part association in some Beyrichienkalk erratics of north Germany and Poland, and can also be correlated with that of the Jura Beds of Lithuania and the Downtonian beds below the Eptarma horizon of North Timan (Turner, 1973). This is puzzling as the main Bradnor Hill Quarry is clearly very low in the Downtonian and yields no trace today of any bed from which thelodonts may be expected. The quarry and the disturbed hill slopes above on Bradnor Hill could be cleared and re-excavated relatively easily. However, they all appear on present field evidence to be low in the Downtonian succession. This makes Turner's record of an Upper

Píldolí (Downtonian) Devonian fauna surprising.

Conclusions

The conservation value of the Bradnor Hill localities lies in their having characteristic late Píldolí faunas, including the *Katoporodus*–*Loganellia kummerowi* thelodont assemblage. This provides a useful biostratigraphical marker for the final part of Silurian time, and the Bradnor Hill localities have potential for further finds of fish faunas. Confirmation of the age of the site would be valuable.

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