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# Lincoln Hill

[SJ 669 038]

## Introduction

Lincoln Hill is situated on the north side of the River Severn, at the north-east extremity of the resistant outcrop of the Much Wenlock Limestone Formation, which forms Wenlock Edge and its continuation, Benthall Edge (Figure 4.27). The south-westerly spur of the hill, around which the site boundary runs, forms the high ground above the river and separates the town of Ironbridge from Coalbrookdale.

The Much Wenlock Limestone Formation in its type area is very rich in fossils though it is hard and specimens are often somewhat intractable and difficult to recover from it. Lincoln Hill is noteworthy because of the abundance and in particular the excellent preservation of its fossils; many of them were obtained from exposures originally created by limestone mining in the 18th and 19th centuries.

## Description

About 0.5 km to the north-east of Benthall Edge, north of the river, the Silurian disappears under the Carboniferous cover (Bassett *et al.*, 1975). The Brosely Fault, which crosses the Severn between Lincoln Hill and Benthall Edge, has a downthrow to the north-east and causes misalignment of these two elevated features so that the Wenlock rocks of Lincoln Hill are offset slightly to the north-west.

Three informal stratigraphical divisions were formerly recognized in the 'Wenlock Limestone' of Lincoln Hill, upper and lower units of concretionary and flaggy beds separated by a central mass of thick-bedded limestone (Murchison, 1839; Prestwich, 1840; Whitehead *et al.*, 1928; Pocock *et al.*, 1938). The central mass of limestone contained bioherms ('ballstones'; see Easthope–Harley Hill site report), and as it was purer than the beds above and below, it was thus the main objective of the former quarrying operations. On Lincoln Hill just to the north-east of the site boundary, in the vicinity of the main limestone quarry ([SJ 6721 0407]; long since infilled), the 'Wenlock Limestone' is reported to dip south-east at about 30°; in the south-west above the River Severn, within the site confines, it dips at nearly 60° (see Whitehead *et al.*, 1928; Hamblin and Coppack, 1995).

The main exposure of the limestone present day is the steeply dipping bedding plane surface (located south-east of Dale Coppice; [SJ 6695 0380]) that faces towards Ironbridge (Figure 4.37). Exposures in the old workings immediately south-east of and stratigraphically higher than this face are no longer available, but they can in places be recognized as overgrown scars. Probably some, at least, of these were the sites of bioherms. The geology of Lincoln Hill is summarized graphically as a wood-cut in Murchison's *Silurian System* (1839) and *Siluria* (1854). This shows the face of a steeply dipping bedding plane of limestone that lies stratigraphically beneath limestones that form knolls and from which bioherms have been extracted; Coal Measures overlie the Silurian strata in the distance (Figure 4.38).

The fine biosparite limestones of the steep dip slope are richly fossiliferous, especially in terms of well-preserved brachiopods and solitary corals (Crosfield and Johnston, 1914). Indicative of this is the study of Bassett (1970b), in which specimens of the orthacean brachiopod *Ptychopleurella bouchardi* (Davidson) were collected from here that allowed variation in the cardinalia of this species to be assessed. Taxonomic revision of articulate brachiopod material from Lincoln Hill (Bassett 1972, 1974b, 1977) has included *Resserella canalis* U. de C. Sowerby), *Dalejina hybrida* (J. de C. Sowerby), *Isorthis amplificata* Walmsley, *Leptaena depressa* (J. de C. Sowerby), *Lepidoleptaena poulsenii* (Kelly) and *Amphistrophia* (A.) *funiculata* (M'Coy). Brachiopod community analysis on specimens from the dip slope was conducted by Hurst (1975a), who assigned them to the *I. clivosa* Community. There is also a diverse, beautifully preserved ostracod fauna from here (Siveter, 1978, 1980; Lundin *et al.*, 1991) which includes the non-palaeocopes *Columatia variolata* and *Silenis longus*, and the palaeocopes *Sleia pauperata*, *Thlipsura corpulenta*, *Sarmatotoxotis phracta* and *Tinotoxotis velivola*. The last two species are the type species of their respective genera, and were established on the basis of

Lincoln Hill material (Siveter, 1980).

## Interpretation

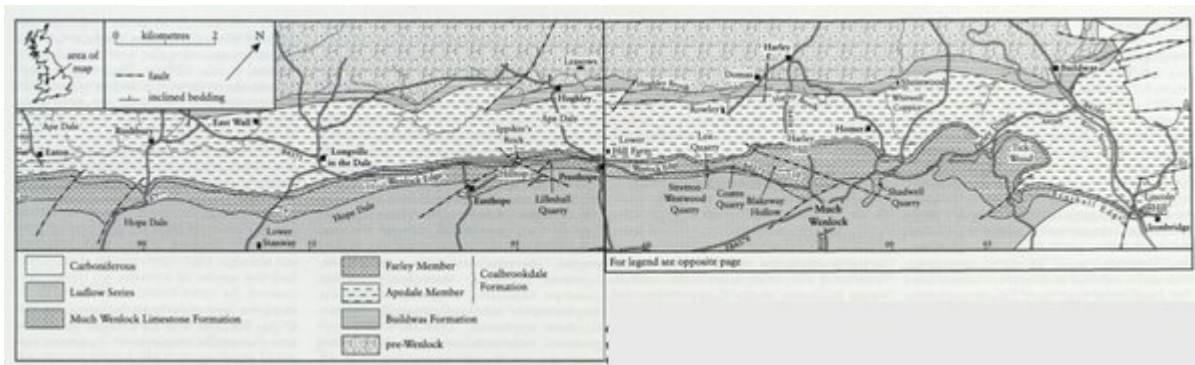
The limestones of the steeply dipping bedding plane were formed slightly earlier than the small bioherms originally present in this area, and leeward of the main 'barrier' reef and patch reef complex which occurs to the south-west on Wenlock Edge as far as Easthope (Bassett, 1970b; Scoffin, 1971). Comparison of the cardinalia of *P. bouchardi* material from Lincoln Hill with those of conspecific material from Coates Quarry, Wenlock Edge, indicates relatively quieter water conditions in the former area, as specimens from there have their muscle attachment area and articulatory mechanism less well developed (Bassett, 1970b).

In combination with the Longville–Stanway and Easthope–Harley Hill sites, Lincoln Hill helps provide comprehensive faunal and lithofacies coverage of the Much Wenlock Limestone Formation in its type area.

## Conclusions

Lincoln Hill has yielded numerous fossils from the Much Wenlock Limestone Formation that are amongst the best preserved and most easily obtained from this unit in its type area. The site represents the type locality for several invertebrate taxa. In a historical context the hill was both described and figured by Murchison.

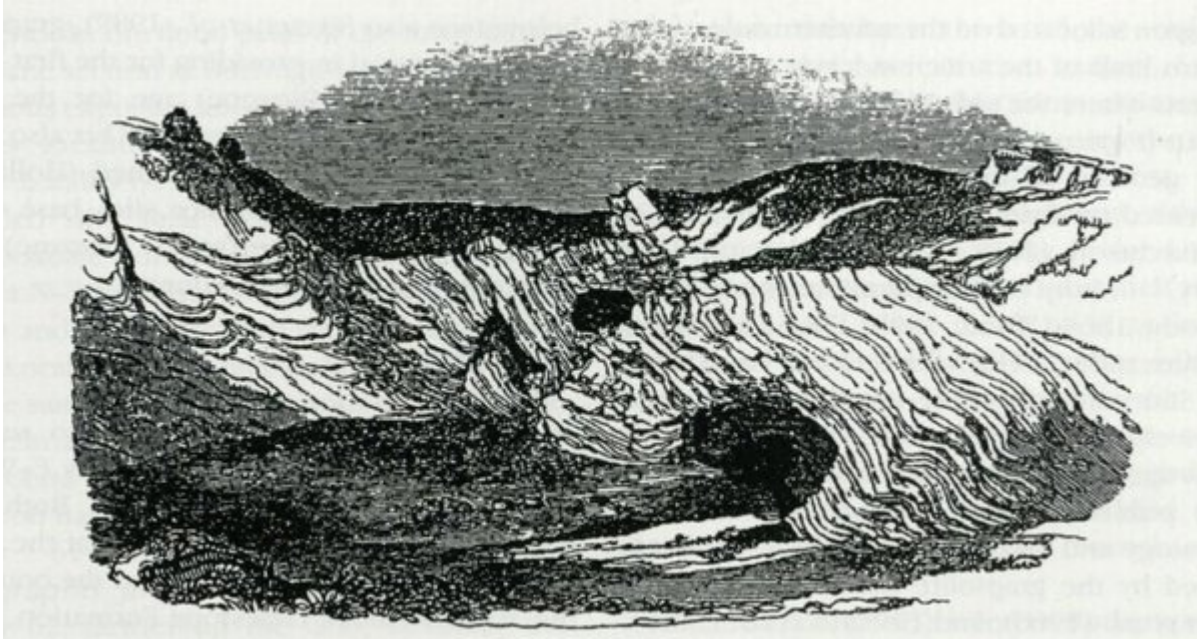
## References



(Figure 4.27) Geology of the Wenlock Edge–Benthall Edge area between Eaton and Ironbridge, Shropshire (after Bassett et al., 1975).



*(Figure 4.37) Lincoln Hill area, Ironbridge, Shropshire. Steeply dipping face of Much Wenlock limestone Formation. (Photo: Derek J. Siveter.)*



*(Figure 4.38) Lincoln Hill, Ironbridge, Shropshire. Reproduction of the wood-cut from *The Silurian System* (Murchison, 1839), showing sites (dark-shaded hollows) of extraction of the 'concretions' or 'ballstones' from the (Much) 'Wenlock Limestone' (Formation), with the 'coal grits' (Carboniferous) forming the small scarp in the distance (upper right).*