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# Soudley Quarry

[SO 477 918]

## Introduction

Soudley Quarry contains the basal stratotype for the Glynboro Member of the Cheney Longville Formation, beneath which is the thinnest development of the Alternata Limestone Formation, the basal unit of the type upper Caradoc. Sedimentological and palaeoecological information from the quarry have played a key role in understanding the history of the margin of the Welsh Basin.

The disused sandstone quarries at Soudley, 600 m south-east of Hope Bowdler, were described by Murchison (1839). The section comprises two sandstone–siltstone units, separated by a thin limestone. The historical development of the stratigraphical terminology applied to the south Shropshire Ordovician, outlined by Dean (1958, 1964), Greig *et al.* (1968) and Hurst (1979b), shows that the lower unit exposed in Soudley Quarry has been variously termed the 'Horderley Flags' (introduced by Salter and Aveline, 1854), the 'Chatwall Sandstone' (or 'Flags') (Callaway (1877), the 'Horderley Sandstone' (La Touche, 1884) and the 'Soudley Sandstone' (Cobbold, 1901). Bassett *et al.* (1992, fig. 4.15) summarized current usage, as applied by Hurst (1979b), using the terms 'Horderley Sandstone Formation' for the southern Caradoc area (which includes Soudley) and 'Chatwall Sandstone' in the northern area.

The limestone was termed the Alternata Limestone by Cobbold (1901) and has been variously grouped with the underlying unit (Cobbold, 1901; Lapworth, 1916) or the overlying unit (Bancroft, 1933; Greig *et al.*, 1968). Dean (1958, 1964) made no such grouping and Hurst (1979b) explicitly applied formation status to it, defining the base of the Woolstonian (formerly Upper Longvillian), and hence the upper Caradoc, at its base in the Onny River section [SO 418 856] (Hurst, 1979b, p. 210, fig. 12) ((Figure 10.9) herein). Soudley Quarry is the only locality where the base of the Cheney Longville Formation (introduced by La Touche (1884) as Cheney Longville Flags) can be seen. Hurst (1979b, p. 191) stated that this was not an ideal locality for a formational boundary stratotype but nevertheless used it as the stratotype for the basal Glynboro Member.

The sedimentology, palaeoecology and stratigraphy of the units in Soudley Quarry were described by Hurst (1979a, b, c) in his assessments of the Alternata Limestone and contiguous units and the type Upper Caradoc. (Figure 10.15) is based on his measured sections.

## Description

Although this quarry is overgrown, the three units present are all exposed (Figure 10.15). The parallel-laminated purple and green sandstones of the Horderley Sandstone Formation give way abruptly to the silty muds, sandy silts and coquina limestones of the Alternata Limestone, here 2 m thick (Figure 10.16). The coquinas and shell lags are dominated by bryozoans and the brachiopods *Sowerbyella sericea* (Sowerby), *Kjaerina bipartita* Bancroft, *Bancroftina typa* (Bancroft — formerly *B. robusta*) and *Heterorthis alternata* (Sowerby), the eponym for the unit (Figure 10.12)e, f. The base of the Alternata Limestone is marked by a 20 cm limestone unit; phosphatized pebbles and shells occur within its lower half. The top is gradational to the planar and cross-bedded sandstones and thin bioturbated siltstones of the Glynboro Member of the Cheney Longville Formation. A few limestone coquinas, dominated by *Kjaerina bipartita*, are present in the lowest part of the formation, and the gradational nature of the change is exemplified by Hurst's drawing of the boundary at slightly different levels in his 1979b and 1979c papers. The lower part (but not the base) of the Glynboro Member is also well exposed in the stream section to the south-west of Soudley Quarry [SO 478 916], and a measured section from there was given by Hurst (1979c, fig. 9B). Coquinas in the stream section contain fewer bryozoans than the Alternata Limestone but have similarly dominant brachiopod species, with the exception of *H. alternata* (Hurst, 1979c, table 3).

## Interpretation

Bancroft (1929b, p. 40) argued that the Alternata Limestone rests on upper Soudleyan strata at Soudley, the Longvillian (his Lower Longvillian) being absent. This view was upheld by Dean (1958, 1964) and Hurst (1979b, p. 214, fig. 15). Bassett *et al.* (1992, p. 102) suggested that reported breaks in the Horderley–Chatwall sandstones in Shropshire 'may be a result partly of erosive scour and ecological gaps rather than original non-deposition'. However, Bassett *et al.* (1992) also recognized that the phosphatic nodules in the lower part of the Alternata Limestone (such as at Soudley) may reflect transgression over a previously non-depositional surface and thus may indicate, at least locally, emergence during the Longvillian. Hurst (1979b, p. 191) suggested that the presence of phosphatic nodules and phosphatized fossils and the very reduced thickness of the Alternata Limestone at Soudley Quarry point towards a condensed sequence here — the formation is up to 30 m thick elsewhere.

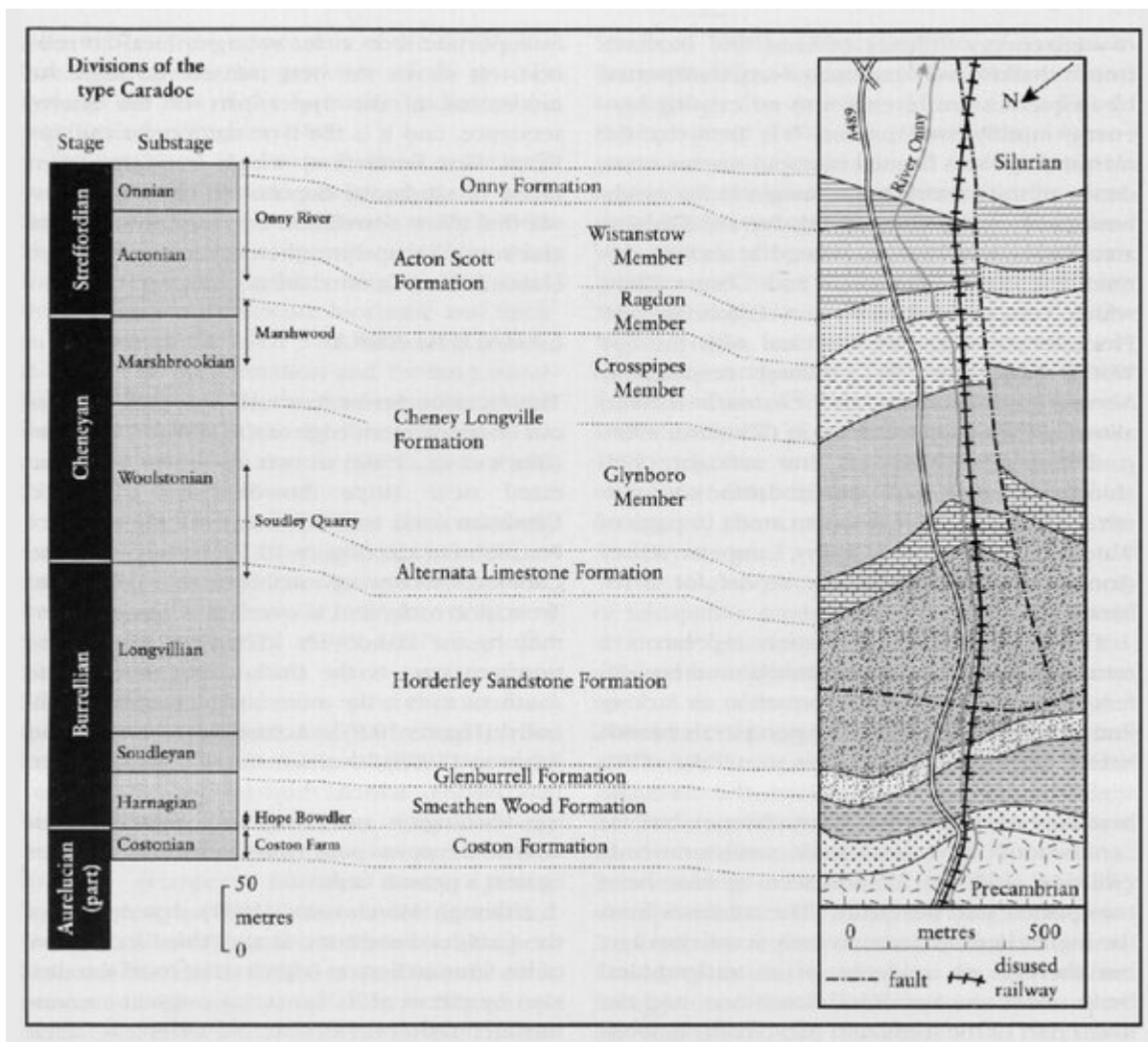
All of the units present in Soudley Quarry are fossiliferous. Greig *et al.* (1968, appendix 1) listed species from various levels through the section, and Hurst (1979c, table 3) presented the quantitative results of bulk sampling from the Alternata Limestone and Glynboro Member. Brachiopods (Hurst, 1979b), trilobites (Dean, 1960, 1961b, 1963a, b) and ostracods (Jones, 1986) have been described from the quarry. Savage and Bassett (1985) recorded conodonts from the Alternata Limestone and Glynboro Member there, although zonally diagnostic forms were not present in their samples.

Hurst (1979a, c) assigned the faunas from both the more complete development of the Horderley Sandstone (not present at Soudley) and the Cheney Longville Formation to what he termed the '*Bancroftina robusta* association' (which Lockley (1983, p. 120) corrected to *B. typa* association). Hurst (1979a, c) considered the faunas of the Alternata Limestone to consist of transported shelly faunas of such variable composition that no obviously recurring faunal associations could be recognized. He interpreted this mixing of faunas as reflecting a rather varied environment, possibly associated with marine bars. He considered the Alternata Limestone of the Soudley–Cheney Longville area to have been deposited in a more distal environment than the equivalent limestone in the northern inlier (Hurst, 1979c, p. 29), which he subsequently termed the 'Chatwall Limestone' (Hurst, 1979b, p. 199).

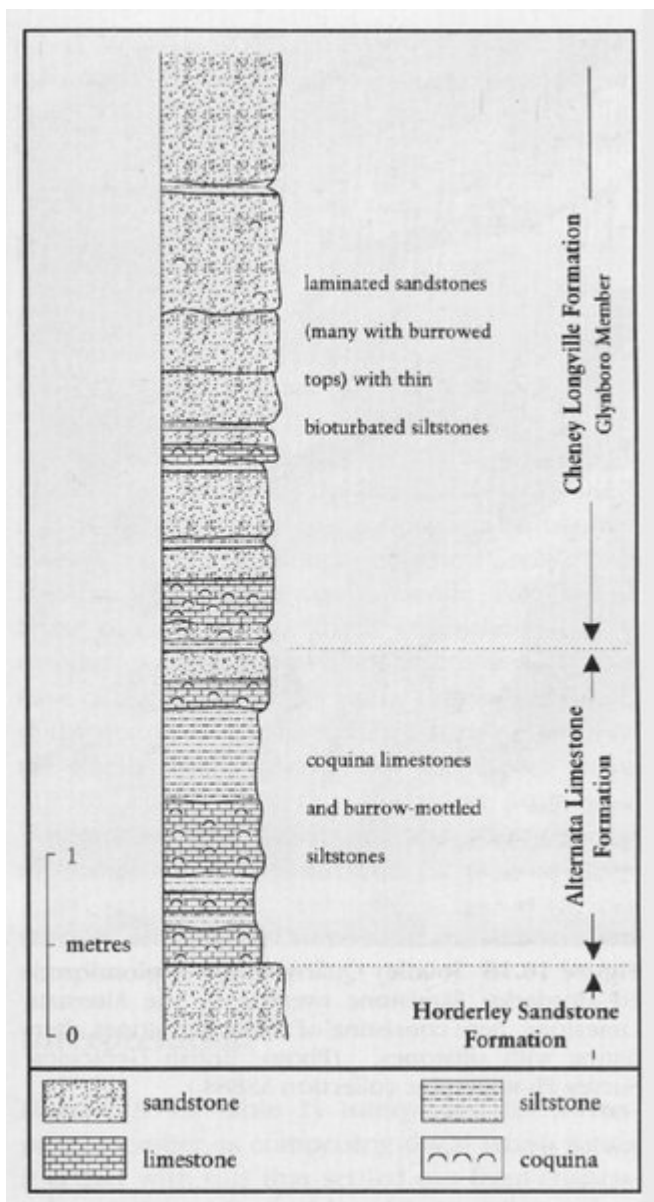
## Conclusions

Soudley Quarry shows a significant succession of two fossiliferous sandstone–siltstone formations separated by the Alternata Limestone, which is widespread in south Shropshire but at its thinnest (2 m) here and may be condensed. The Longvillian Substage is missing beneath the limestone, possibly indicating an episode of erosion. The quarry is the type locality for the base of the Glynboro Member of the Cheney Longville Formation, and sedimentological and palaeoecological information there have played an important role in the understanding of the changing environments near the edge of the Welsh Basin during the mid-Caradoc.

## [References](#)



(Figure 10.9) Geological map of the Onny Valley showing the Caradoc succession in the southern Caradoc area, based on Savage and Bassett (1985, fig. 3), with stratigraphical amendments proposed by Owen and Ingham (1988) and Fortey et al. (1995).

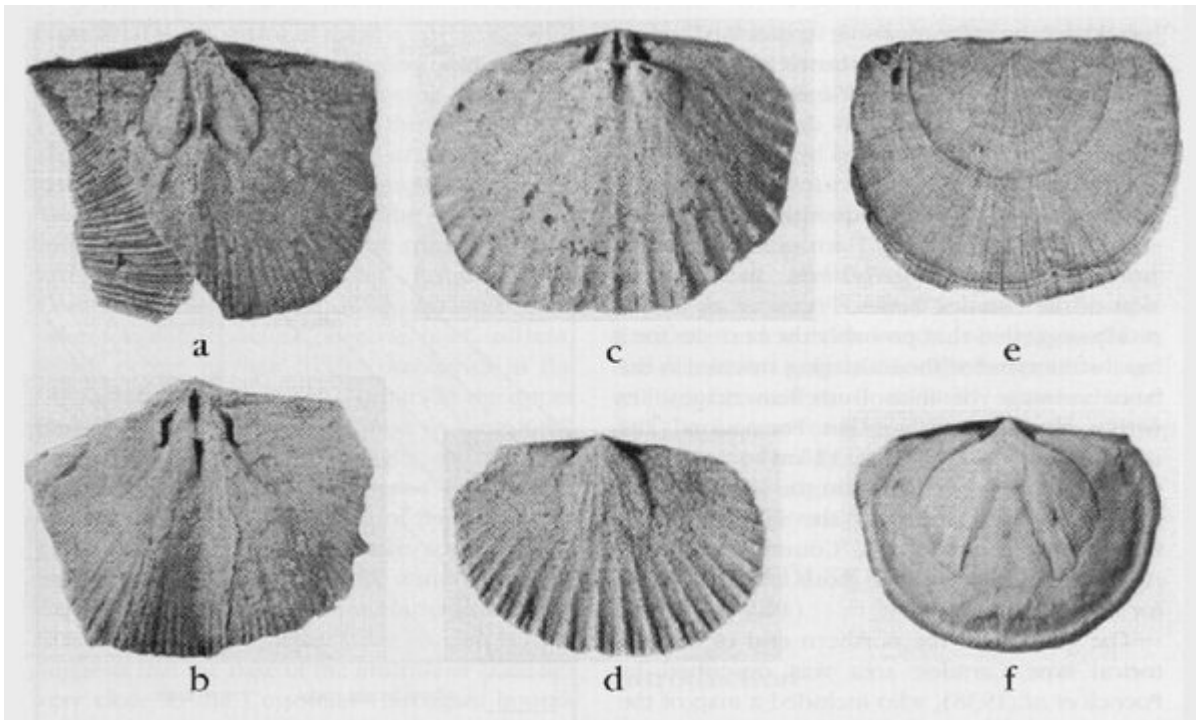


(Figure 10.15) Sedimentary log of the Alternata Limestone Formation and the lower part of the Cheney Longville Formation at Soudley Quarry, based on Hurst (1979b, fig. 4).



Figure 10.16 Soudley Quarry. Massive colour-banded

*(Figure 10.16) Soudley Quarry. Massive colour-banded Horderley Sandstone overlain by the Alternata Limestone, here consisting of shelly limestones alternating with siltstones. (Photo: British Geological Survey Photographic collection A8888.)*



(Figure 10.12) Brachiopods from the type Caradoc area. (a, b) *Harknessella vespertilio* (J. de C. Sowerby), x2, Coston. (c, d) *Dinorthis flabellulum* (J. de C. Sowerby), x2, Coston. (e, f) *Heterorthis alternata* (J. de C. Sowerby), x 1.5, Soudley.