Shelve Church

[SO 3365 9901]

Introduction

Small exposures in the vicinity of All Saints Church, Shelve (locality '7' in (Figure 10.1)), represent the typical development of the 'Shelve Church Beds', now known to be of late Arenig age. They contain an abundant fauna of dendroid graptolites that, together with the rest of the fauna, is one of the most diverse in the Arenig of the Shelve area. It is the type locality for several graptolite and brachiopod species.

The 'Shelve Church Beds' of Lapworth (1916, p. 37) were for many years regarded as a discrete division of the Shelve Arenig (e.g. Whittard, 1931, 1955–1967). They are 131m-black shaly flags interleaved with silver-grey weathering, rusty-coated, blue-hearted shales' (Whittard, 1979, p. 24), characterized by a high percentage of volcanic dust. The term 'Shelve Church Beds' has now been abandoned, following Whittard (1955–1967, p. 303; Whittard, 1979, pp. 16, 24), since it was claimed to represent a local facies at more than one horizon within the Mytton Flags Formation, rather than a discrete mappable unit. Beds of this lithology crop out in the central Shelve Anticline in the Shelve area, especially in the vicinity of Shelve Church, but also around Wood House and Gravels to the north. Long regarded as belonging to the *extensus* Zone, the'Shelve Church Beds', with their fauna of biseri-al graptolites and trilobites such as *Placoparia cambriensis* Hicks and *Selenopeltis buchi macrophthalma* (Kloudek), are now seen as of latest Arenig age, and their fauna is presumably the youngest in the Mytton Formation, that of the 'Tankerville Flags' appearing to be slightly older (see Bergam Quarry site report). No upward passage from the 'Shelve Church Beds' into overlying strata is exposed.

Whatever the stratigraphical status of the 'Shelve Church Beds', their fauna is significant both in its diversity and in demonstrating the presence in the Shelve area of the latest Arenig.

Description

The roadside section adjacent to All Saints Church, which afforded so many of the fossils in the past, is currently grassed over, but a small exposure remains accessible in a nearby field. In the short distance between Shelve Church and the faulted boundary against the Hope Shale Formation, unfossiliferous rocks of 'Shelve Church Beds' and Mytton Flags lithologies have been reported (Whittard, 1979, p. 24) at Whittard's localities 682 and 681 respectively.

This locality was mentioned briefly by Lapworth and Watts (1894, p. 316) as a source of graptolites noted by Hopkinson and Lapworth (1875, p. 636). Elements of the fauna have since been described by, for example, Bulman (1927–1963) and Strachan (1986) (graptolites), Whittard (1955–1967) and Fortey and Owens (1987) (trilobites), Williams (1974) (brachiopods) and Yochelson (1964) (the gastropod *Modestospira*) . Other fossils include ostracods and cystoid plates, sometimes crowded on bedding planes in association with gastropods, small brachiopods and cyclopygid trilobites (Whittard, 1955–1967, p. 176). The fauna is dominated by dendroid graptolites that include *Aspidograptus implicatus* (Hopkinson), *Callograptus salteri* Hall, *C. radiatus* Hopkinson, *Dictyonema cobboldi* Bulman (type locality), *D. fragile* Bulman (type locality) and *D. shelvense* Bulman (type locality). Graptoloid graptolites include biserial taxa (see below), with '*Corymbograptus*'*deflexus* (Elles and Wood), *Expansograptus* cf. *nitidus* (Hall) and *E. sparsus* (Hopkinson). Trilobites are less frequent and, besides *Selenopeltis buchi macrophthalma,* include *Placoparia cambriensis* Hicks, *Ectillaenus bergaminus* Whittard and *Pricyclopyge.* This is also the type locality for *Protoskenidioides revelatus* Williams and *Dalmanella elementaria* Williams, among the brachiopods.

Interpretation

Whittard (1955–1967, p. 4) placed the 'Shelve Church Beds' near the top of the *extensus* Zone, on account of the presence of *E. nitidus* and the absence of *D. hirundo.* However, these extensiform graptolites are less reliable than the

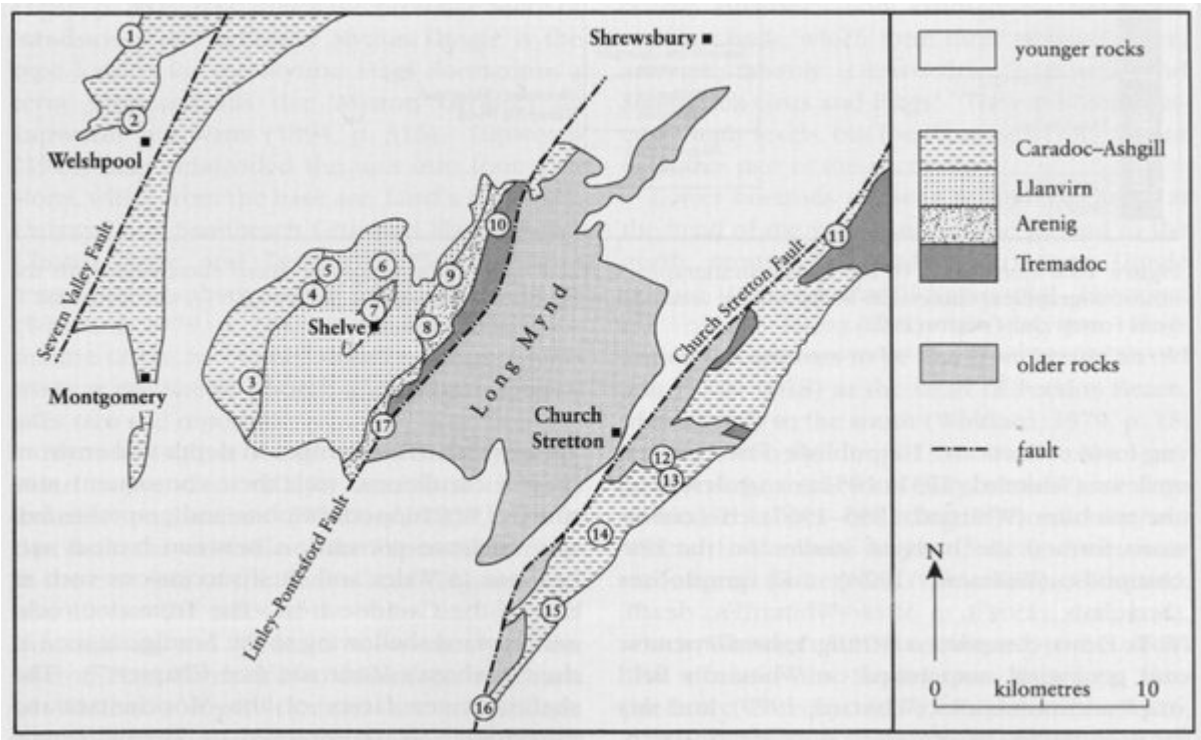
biserial graptolites present: *Undulograptus shelvensis* (Bulman; see Mitchell, 1992) (type locality) and *U. austrodentatus* (Harris). These, together with *Expansograptus sparsus* and the trilobite *S. buchi macrophthalma* place the beds firmly within the upper Arenig (Fortey and Owens, 1990b, p. 607), equivalent to the *hirundo* Zone of Fortey *et al.,* (1990) (Figure 10.2) and within the *Undulograptus austrodentatus* Zone of Mitchell and Maletz (1995), which has been recognized world-wide.

Several of the dendroid graptolites are common to the mid Arenig (Whitlandian) of Pwlluog (see site report), but the associated graptoloids and trilobites there are different taxa. Evidently the dendroids are long-ranging, but a similar palaeoenvironment may be represented at both localities. Apart from the pelagic cyclopygids, the trilobites are small-eyed or blind, a typical atheloptic association. A fairly offshore environment is probably represented within the cyclopygid biofacies (Fortey and Owens, 1987, p. 105), although probably not as far offshore or as deep as at Pontyfenni (see site report), which lacks abundant dendroid graptolites and articulate brachiopods.

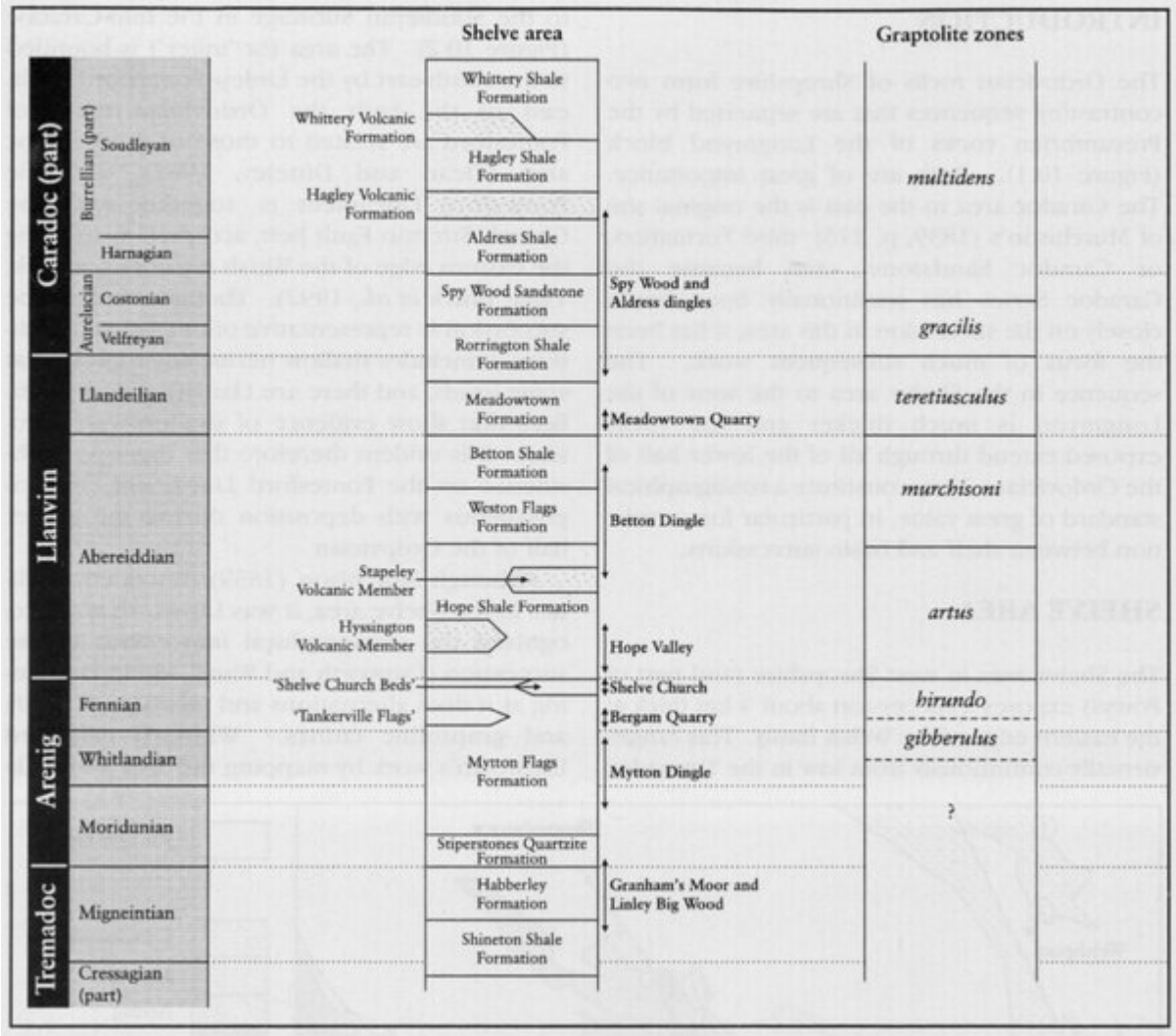
Conclusions

The Shelve Church site is of considerable importance on account of the rich fauna in the 'Shelve Church Beds', which demonstrates the presence of the late Arenig *hirundo* and *austrodentatus* graptolite zones in the Mytton Formation.

References



(Figure 10.1) Map showing the distribution of Ordovician rocks in south Shropshire and eastern central Wales, from British Geological Survey (1994c). GCR sites as follows: 1, Gwern-y-brain; 2, Trilobite Dingle; 3, Spy Wood and Aldress dingles; 4, Meadowtown; 5, Betton Dingle; 6, Hope Valley; 7, Shelve Church; 8, Bergam Quarry; 9, Mytton Dingle; 10, Granham's Moor (Tremadoc, see Chapter 7); 11, Coundmoor Brook (Harnage); 12, Hope Bowdler; 13, Soudley Quarry; 14, Marshwood; 15, Onny River; 16, Coston Farm; 17, Linley Big Wood (Tremadoc, see Chapter 7).



(Figure 10.2) Correlation of the chronostratigraphical standard and the graptolite zonal succession with the lithostratigraphical succession in the Shelve area, following British Geological Survey (1991); the Tremadoc is from Fortey and Owens (1992).