
Cherme's Dingle

[SJ 611 070]–[SJ 612 058]

Introduction

The stream section in Cherme's Dingle is a section of national importance. It shows the best-exposed and most complete sequence through the lower part of the Shineton Shale Formation in its type area of Shropshire. The rocks provide a biostratigraphical standard for the early Tremadoc (Cressagian) graptolite zones of *Rhabdinopora flabelliformis* and *Adelograptus tenellus* and also for the correlative acritarch microfloral succession. Cherme's Dingle shows the only exposure of the Transition Beds between these graptolite zones and is the type locality for species of trilobites and other taxa of importance in the correlation of lower Tremadoc sequences, both in Britain and abroad.

In 1877 Callaway showed that the Shineton Shales of the Wrekin area of Shropshire were of Tremadoc age and distinguished them from the Harnage Shales, of Caradoc age. A more detailed account of the Shineton Shales was given by Stubblefield and Bulman (1927), who subdivided the formation into six units, mostly on palaeontological grounds, and compared them with similar Tremadoc rocks from other areas of Shropshire. They described the Cherme's Dingle section in detail and showed that the lower three of their units were present. Fortey and Owens (1991b) revised the zonal nomenclature, but from the lithostratigraphical standpoint considered that only the uppermost of Stubblefield and Bulman's (1927) units could be distinguished and rejected the others as mappable members. The geology of the area is further described by Hamblin and Coppack (1995).

Description

The section in Cherme's Dingle extends downstream for some 850 m (Figure 7.10), where it joins The Marrys (also known as Mary Dingle). The rocks exposed are blue-grey and grey-green mudstones and shales with disrupted and mottled textures; they are remarkably uniform across the district. Calcareous nodules with cone-in-cone structure are common throughout. Dips vary but are dominantly downstream to the south-south-east.

The upstream part of the section is referable to the *Rhabdinopora flabelliformis* Zone. The northern parts of the sequence dip vertically or even north, and downstream the rocks are affected by asymmetrical folds, with their northern limbs vertical and southern limbs dipping south at 70°. Fold axes strike east to north-north-east. Farther downstream the folds become almost symmetrical and pass upwards into relatively undisturbed beds dipping south at 40°. Locally the *R. flabelliformis* Zone is interrupted by about 100 m of strata of the *Adelograptus tenellus* Zone, brought in by strike-slip faulting. Estimates of thickness are difficult where folding occurs, but the upper, less disturbed, mudstones are about 100 m thick.

Rhabdinopora flabelliformis (Eichwald) is abundant throughout the section; Stubblefield and Bulman (1927) state that 'in 210 feet of shale exposed in the stream bed, 119 localities spaced well over the length of the section have yielded '*Dictyonema flabelliforme*'. Shales of the *flabelliformis* Zone pass upwards into the 'Transition Beds' (Figure 7.10), some 15 m thick, in which shales with faunal assemblages from the *tenellus* Zone, characterized by *Adelograptus tenellus* (Linnarsson) itself, alternate with layers with *R. flabelliformis*. Stubblefield and Bulman (1927, p. 118) recorded 22 taxa from the Transition Beds, including the type specimens of the trilobites *Hospes clonograpti* Stubblefield, *Macropyge chermi* Stubblefield, *Shumardia (sensu lato) curta* Stubblefield and *Proteuloma monile praemonile* (Lake), together with brachiopods, hyolithids etc..

Above the Transition Beds are similar strata referable to the *tenellus* Zone. These extend down The Marrys for some 500 m (Figure 7.10), representing maybe 60 m of beds.

Rasul (1979) collected acritarch samples from many points in Cherme's Dingle and The Marrys; D1–11 were from the *flabelliformis* Zone, T1–2 from the Transition Beds and C1–8 from the lower part of the *tenellus* Zone. Of these, D1–7

were of doubtful significance, but D8–11 and T1 were assigned to Rasul's acritarch Zone 1, T2 and C1–6 to his Zone 2 and C7–8 to Zone 3.

Interpretation

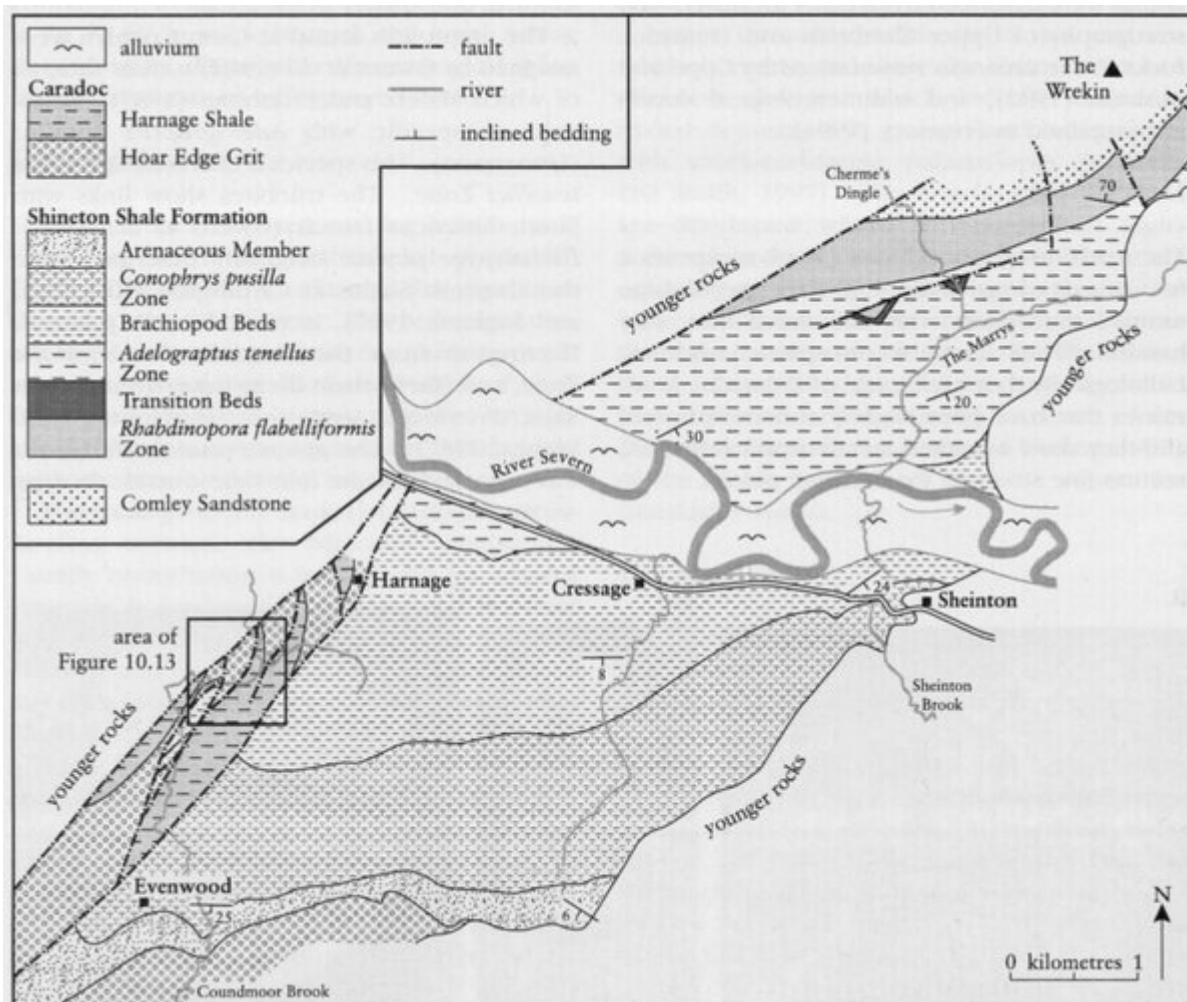
The section through the Shineton Shales in Cherme's Dingle is relatively continuous, with few structural disturbances. It shows the passage from shales of the *flabelliformis* Zone through a transition zone into shales of the *tenellus* Zone and is used as a standard for the lower Tremadoc zonal sequence in Britain. The faunas are richer, more numerous and better preserved than those of North Wales and have a parallel sequence of acritarch floras. These enable comparison with outcrops in other areas of Britain and in particular help to date those in South Wales and the subsurface Tremadoc of the English Midlands (Old *et al.*, 1987), where stratigraphical continuity is not readily seen. The faunal and microfloral succession also enables correlation with areas outside Britain, such as Estonia, Belgium, Newfoundland and South America.

The lower Shineton Shale Formation is very similar to correlative strata in many parts of eastern Avalonia (cf. Landing, 1996). In some areas the sequences are very thick, reflecting active fault-controlled rifting in the Tremadoc. Smith and Rushton (1993) showed that deposition occurred in half-grabens, with some divisions thickened locally against syndepositional faults.

Conclusions

The section in Cherme's Dingle is a nationally important site. It shows a good development of the lower Shineton Shales containing a succession of fossil assemblages that provide a zonal standard for the Tremadoc deposits of Britain and are used for correlation around the world.

References



(Figure 7.10) Geological map of the Shineton Shales of the Wrekin district, after Stubblefield and Bulman (1927, pl. 5). Coundmoor Brook includes the Tremadoc GCR site south-east of Evenwood and the type Harnage Shale locality south-west of Harnage (Chapter 10).