
Trilobite Dingle

[SJ 221 080]

Introduction

The abundance of trinucleid trilobites in Bron-y-buckley Wood, near Welshpool ('2' in (Figure 10.1)) led Murchison (1839, p. 303) to call this locality 'Trilobite Dingle'. It is the historically important type locality for *Salterolithus caractaci*, the type species of a trinucleid trilobite genus that, together with the closely related *Broeggerolithus*, plays a vital part in Anglo-Welsh Caradoc correlation. The abundant trinucleids from this site enable close correlation with the somewhat shallower-water succession of the type Harnagian Substage of the Burrellian Stage in Shropshire. They also provide valuable insights into the evolution of this group of trilobites. The co-occurrence in Trilobite Dingle of the planktonic graptolites with shelly fossils is potentially important for global correlation of this division of the Ordovician.

Wade (1911, p. 422) described the section, listed the faunas and termed the Ordovician rocks here the 'Trilobite Dingle Shales'. Cave (1957) redescribed populations of the trinucleids, including topotypic *Salterolithus caractaci* (Murchison) (Figure 9.15). He provided a sketch-map of the site, as did Cave and Dixon (1993, p. 64, fig. 6).

Description

Green-grey micaceous shales and nodular mudstones of the Trilobite Dingle Formation crop out intermittently for some 300 m in the bed and banks of the stream in Bron-y-buckley Wood (Figure 9.16). The beds dip north-west fairly steeply (50–60°) along most of the stream, but at the northern end the dip is gentler (25°) and almost due west. Dr J.K. Ingham suggests (pers. comm., September 1996) that this reflects the presence of a fault striking approximately east, with a southerly downthrow, between Cave's localities λ36 and λ35. Beds immediately south of this putative fault are stained red, probably as a result of pre-Triassic emergence and the flow of oxidizing fluids along the fault. About 50 m to the north of the last outcrop of the Trilobite Dingle Formation, a small quarry exposes red Llandovery conglomerates dipping east at about 50°

Interpretation

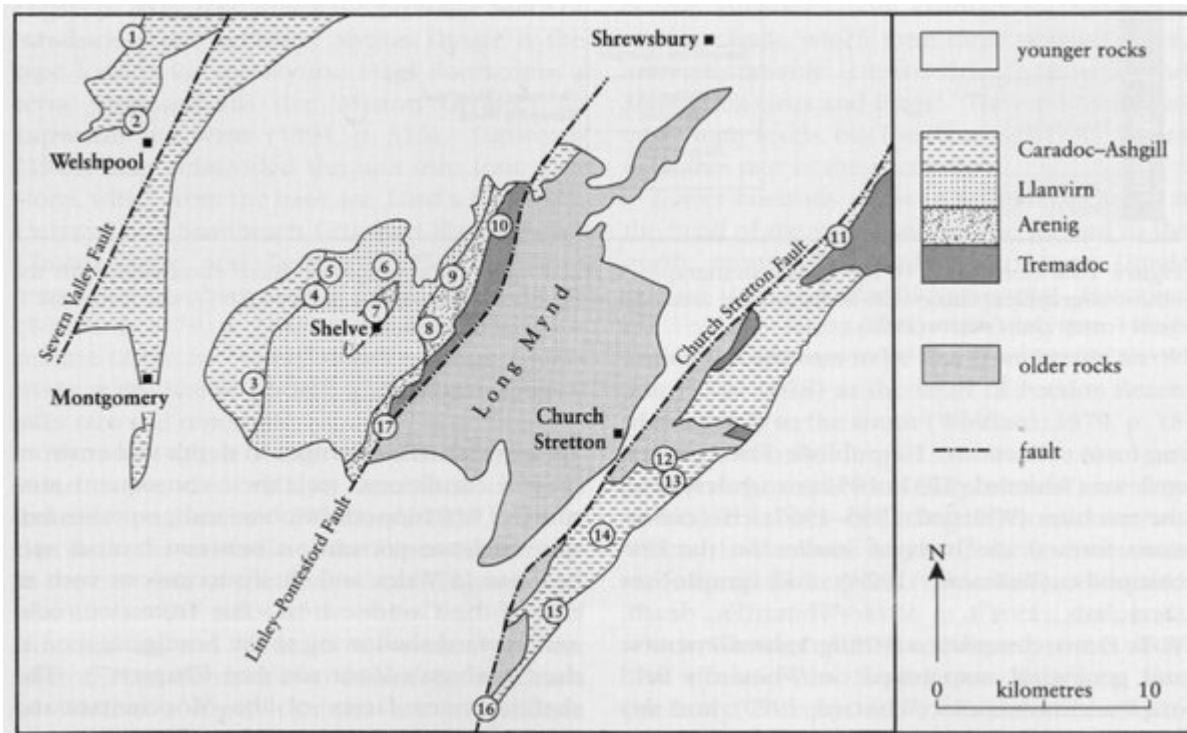
The Trilobite Dingle Formation is the lowest Ordovician unit exposed in the Welshpool area. Wade (1911) considered it to be 'Llandeilo' in age, but Bancroft (1929a) assigned it to his newly established Girvanian and Harnagian stages of the lower Caradoc. In 1933, when Bancroft replaced the name 'Girvanian' by 'Costonian', he restricted the beds in Trilobite Dingle to the Harnagian. This view was subsequently endorsed by Cave (1957), and a correlation to the Harnagian Substage of the Burrellian Stage (of Fortey *et al.*, 1995) is now well established. The abundance of trinucleid trilobites enabled Cave (1957) to undertake a detailed analysis of populations. A more wide-ranging statistical analysis of the taxonomy and evolution of *Salterolithus* and the closely allied *Broeggerolithus* in the Caradoc of the Welsh Basin is being carried out by Ms A. Bowdler-Hicks of Glasgow University; her work shows that, whilst the samples from south of the putative fault in Trilobite Dingle belong in the upper Harnagian taxon *Salterolithus caractaci*, those from north of the fault are closest to lower Harnagian forms seen also in the type Caradoc of South Shropshire.

In addition to the abundant trinucleid trilobites, the Trilobite Dingle Formation is the type locality for the asaphid trilobite *Parabasilicus powisii* (Murchison), which also facilitates correlation with the somewhat shallower-water Harnagian of Shropshire. Brachiopods, molluscs and several graptolite species are also known (Wade, 1911). The graptolites belong in the *multidens* Zone and are in need of modern re-identification, but the association of graptolites and shelly fossils provides a rare opportunity to enhance the wider correlation of the lower part of the Burrellian Stage.

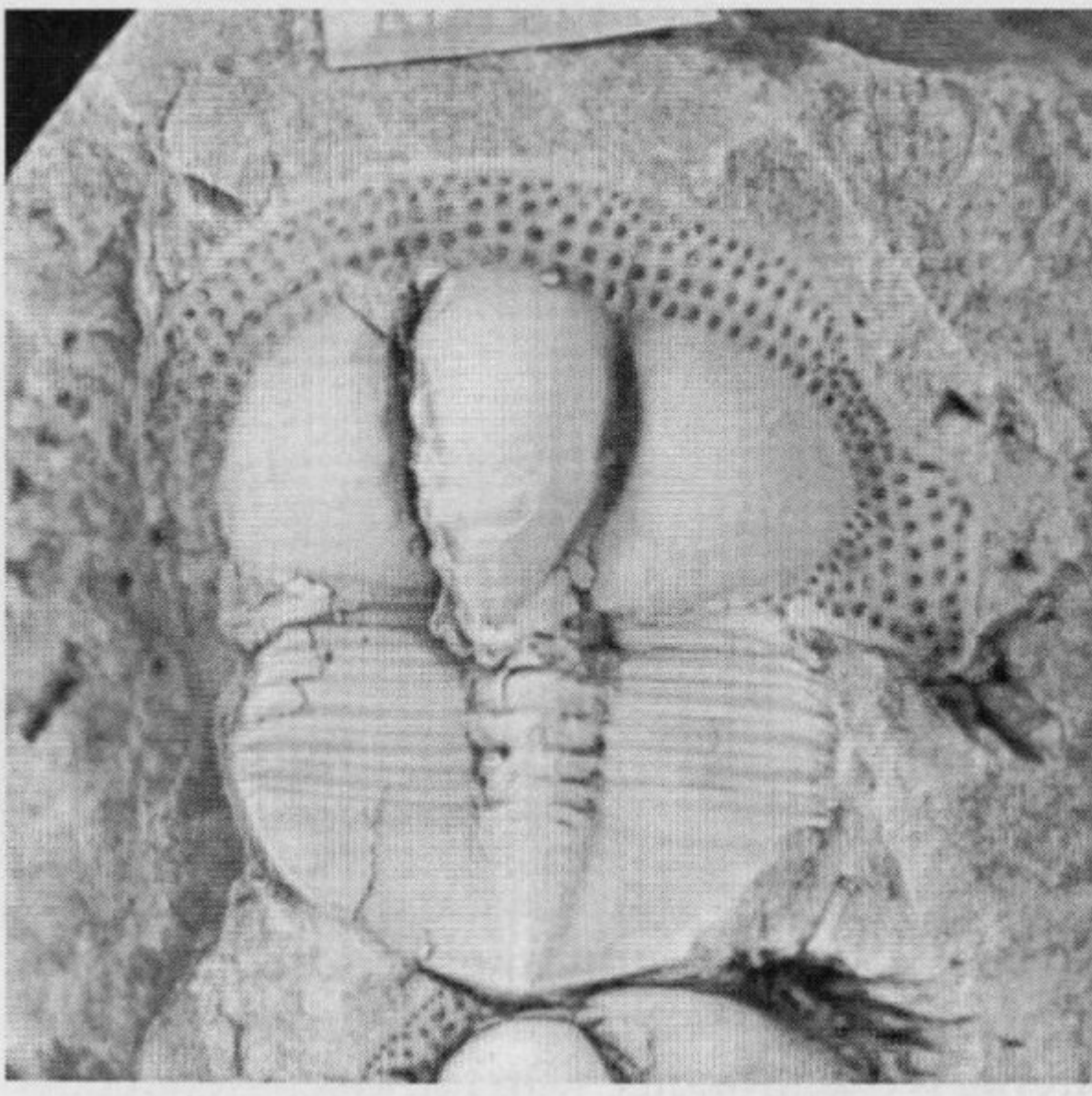
Conclusions

The site is famous for the abundance of specimens of trinucleid trilobites, including *Salterolithus*, and the large populations of trinucleids sampled here help to reveal the evolutionary pathways taken by this stratigraphically important group. They enable close correlation with the type Harnagian Substage of the Burrellian Stage in Shropshire, and the occurrence of graptolites as well holds potential for wider correlation of this division of Ordovician time.

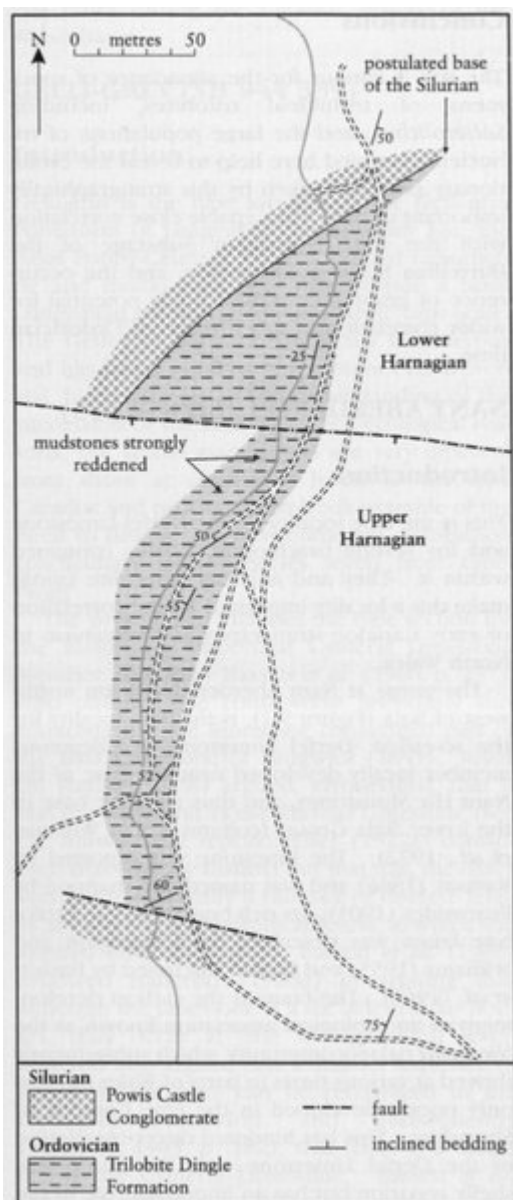
References



(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 9.15) *Salterolithus caractaci paucus* Cave, x3, showing healed injury on the right-hand side of the fringe. Trilobite Dingle.



(Figure 9.16) Sketch map of the Trilobite Dingle Formation in Bron-y-buckley Wood, Welshpool, based on Cave (1957, fig. 1) and including an east-west fault suggested by Dr J. K. Ingham (pers. comm., 1996) that separates the Lower Harnagian mudstones at the northern end of the section from Upper Harnagian strata farther south.