Rhobell-y-Big–Foel Gron

[NY 7859 2845] and [NY 7882 2827]

Introduction

Localities in the Dolgellau Formation between Rhobell-y-big and Foel Gron yield the best faunas of the *Peltura scarabaeoides* Zone in Wales. These are of value for correlation with those from the measured section at Ogof Ddû and the Scandinavian standard succession.

The *Peltura scarabaeoides* Zone is recognized on both east and west sides of the Harlech Dome, but whereas the material collected to the west (from Penmorfa and Garreg-wen (Salter, 1866b, p. 250) and from Ogof Ddû (see site report)) is commonly strongly deformed, the localities between Foel Gron and Rhobell-y-big yield relatively well-preserved specimens. Various localities hereabouts were evidently known to early collectors and appear to include the type localities of some trilobite species described by Belt (1868), but the present localities were described more exactly by Wells (1925, p. 467) and Allen *et al.* (1981).

Description

Two main streams drain the moorland between Rhobell-y-big and Foel Gron. The lower reaches of the western stream [NY 7869 2907] to [NY 7880 2921] cross the lower part of the Dolgellau Formation (*spinulosa* Zone), but the upper part reveals sporadic exposures of the upper Dolgellau Formation, which consists of soft, black, pyritous mudstone that is finely laminated and weakly cleaved. Exposures are not extensive and the folding and faulting preclude assessment of the superposition or thickness of these beds. Locally [NY 7859 2845] trilobites occur plentifully. Allen *et al.* (1981, p. 314) recorded a fauna representing the *bisulcata* Subzone of the *scarabaeoides* Zone: *Ctenopyge* (*Ct.) bisulcata* (Phillips), *Ct.* (*Ct.) directa* Lake, *Ct.* (*Ct.) falcifera* Lake, *Ct.* (*Ct.*) *pecten* (Salter), *Lotagnostus trisectus* (Salter), *Parabolinella aff. caesa* Lake, *Parabolinites? williamsonii* (Belt), *Peltura scarabaeoides scarabaeoides* (Wahlenberg) (Figure 3.8)d and *Sphaerophthalmus humilis* (Phillips). They are flattened but fairly well preserved (Allen *et al.,* 1981, pl. 2, figs 1, 2, 4, text-fig. 5). The next stream to the east yields a different assemblage representing a slightly higher horizon, possibly the *linnarssoni* or *lobata* Subzone, including *L. trisectus, Micragnostus* sp., *Parabolinites? longispinus* (Belt), *P. scarabaeoides westergardi* Henningsmoen, *Plicatolina* cf. *quadrata* Pokrovskaya and *Sphaerophthalmus major* Lake [NY 7882 2823] and [NY 7882 2827]. Earlier collectors also found *Parabolinites longispinus* (Belt) and *Hedinaspis? expansa* (Salter) hereabouts. The lower stretch of the eastern stream crosses higher beds of the Dolgellau Formation and yields good faunas of the *Acerocare* Zone (locality A of Rushton, 1982, p. 44).

Interpretation

The faunas consist entirely of trilobites and include only agnostids and olenids, forms that were adapted to dysaerobic environments typical of the Dolgellau Formation, also evinced here by the lack of bioturbation. The species of *Ctenopyge* reported from the *bisulcata* Subzone allow correlation with the *bisulcata* Subzone of the Scandinavian sequences (Henningsmoen, 1957) and are the same as those recorded from the White-leaved Oak Shale of the Malvern area (Worssam *et al.,* 1989). None of the *Ctenopyge* species is known from the measured section at Ogof Ddû, and the *bisulcata* Subzone has not yet been identified there with certainty. The fauna of the *linnarssoni–lobata* Subzone has species in common with the corresponding fauna from Ogof Ddû (Howells and Smith, 1997), but at Rhobell it includes the olenid *Plicatolina* (known from a single specimen) and lacks both brachiopods and the remopleuroid trilobite *Ricbardsonella? invita* (Salter) known from Ogof Ddû.

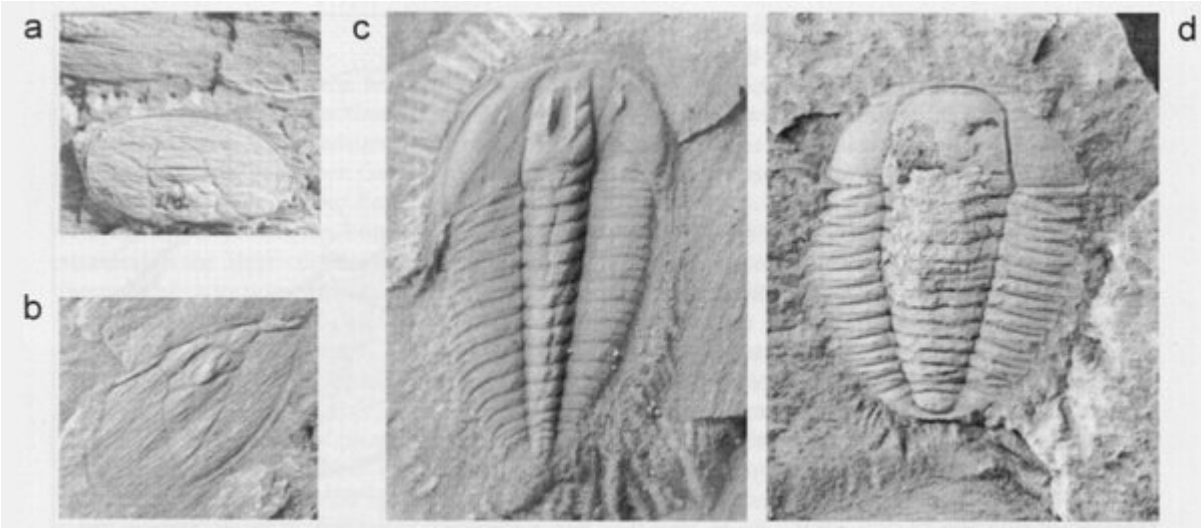
Belt's specimens are generally poorly localized and his publications state only that various of his species, such as *Parabolinites? longispinus, williamsonii* and *Pseudagnostus obtusus,* are from 'near Rhiw-felyn' [SH 781 292] (Belt, 1868, pp. 9–11); but the Geological Survey investigations (Allen and Jackson, 1985) suggest that the streams draining

Rhobell-y-big and Foel Gron are probably the type localities of some of Belt's species.

Conclusions

These localities reveal good faunas of trilobites of the *Peltura scarabaeoides* Zone, that were adapted to living in poorly oxygenated sea water such as characterized many areas during the later Cambrian. These faunas compare closely with others from parts of England, Wales and Scandinavia and allow an exact correlation.

References



(Figure 3.8) Cambrian trilobites from North Wales. (a, b) Ptychagnostus punctuosus, cephalon and pygidium, x4, from the Clogau Formation (St David's Series) in Afon Llafar. (c) Olenus micrurus Salter, x4, from Maentwrog Formation (Merioneth) of Nant Ganol. (d) Peltura scarabaeoides (Wahlenberg), x 3, from Dolgellau Formation of Rhobell-y-big.