

CWAR GLAS

OS Grid Reference: SN72632480

Highlights

This old but still-accessible quarry in Gorstian age strata of Dyfed has recently yielded the heterostracan *Archaeognaspis* sp., a much earlier occurrence than elsewhere in Britain.

Introduction

The strata from this site in Dyfed have been well known for many years and have yielded a rich fauna of marine invertebrates. The fossil fishes are rare, but important because they are older than the Ludlow Bone Bed faunas from Welsh Border localities.

Description

The fishes were found in a thin calcareous broken-shell bed (coquina) in the upper part of the Black Cock Beds, which are dated as belonging to the Gorstian Stage of the Ludlow Series (Siveter *et al.*, 1989, pp 92–93; Cocks *et al.*, 1992, pp. 9–10; Figure 3.7).

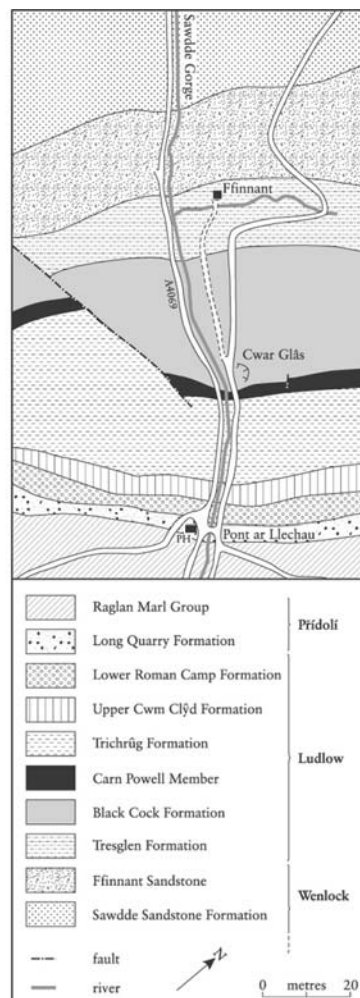


Figure 3.7: Geological sketch map and stratigraphical section of the Cwar Glas site in the Sawdde Gorge (after Bassett, 1982).

Fauna

AGNATHA

Heterostraci: Cyathaspidiformes: Cyathaspididae

Archaeogonaspis ludensis (Salter, 1859)

Archaeogonaspis is a genus known from the late Silurian of Poland, Scotland, Sweden, Wales and the Welsh Borders. The type species, *A. integra*, comes from the glacial erratics of Germany, and several other species are known. *Archaeogonaspis* sp. is said to occur in the middle Ludlow and ?early Devonian bone beds of Presteigne, Wales but remains one of the rarer heterostracan genera from the Welsh Borders.

Archaeogonaspis ludensis is the earliest known species of British heterostracan, and during early research in the 19th century, its discovery was of historical importance because it showed that 'true fishes' existed in beds underlying the Ludlow Bone Bed. In consequence, it was considered to be a forerunner for the 'Age of Fishes'. The genus is one of the more primitive members of the Family Cyathaspididae Kiaer, with few paired plates in the headshield. The earliest species is of Lower Wenlockian age; the latest is Upper Lochkovian. All members are marine.

Interpretation

The calcareous coquina occurs in several beds a few centimetres thick with a dominantly bivalve–gastropod fauna (Loeffler, pers. comm., 1990). Coquinas of this kind are known in littoral, tidal and subtidal environments; many have yielded vertebrate fragments. The fragments at Cwar Glas may have been introduced from freshwater or supratidal environments or more probably result from marine animals; they do not seem to have travelled any great distance as judged from their excellent preservation.

Conclusions

Specimens of the coquina are still easy to obtain, but require lengthy laboratory preparation. This site suggests that future examination of comparable localities in the lower Silurian of the Welsh Borders may yield early examples of fish fossils from palaeoenvironments that have previously not been considered worth searching because they represent the 'wrong' places to look for fishes. Thelodonts have now been recovered from many sites in the lower Silurian by maceration and sieving for microvertebrates (Turner, 1973). The conservation value lies in this being the earliest occurrence in Britain of larger, identifiable vertebrate remains and its potential for further investigation.

Reference list

- Cocks, L.R.M., Holland, C.H. and Rickards, R.B. (1992) *A Revised Correlation of Silurian rocks in the British Isles. Geological Society of London Special Report* **21**.
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- Siveter, D.J., Owens, R.M. and Thomas, A.J. (1989) *Silurian Field Excursions. A Geotraverse across Wales and the Welsh Borderland. National Museum Wales Geological Series* **10**, Cardiff, 133 pp.
- Turner, S. (1973) Siluro-Devonian thelodonts from the Welsh Borderland. *Quarterly Journal of the Geological Society, London*, **129**, 557–84.