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## Wern Road

[SH 544 396]

### Introduction

The road cutting at Wern exposes part of the lower Tremadoc (Cressagian) sequence in the historical type area. The section passes from the upper Tynllan Beds of Fearnside (1910) through the '*Dictyonema* Band' into the Moelygest Beds, which, though commonly poorly fossiliferous, have here yielded an assemblage of fossils.

When Salter (1866b, p. 250) described the palaeontology of the 'Tremadoc Slates', he characterized a 'lower' and an 'upper' division and recognized 'Passage Beds' between them, principally at Llanerch (2 km south-east of Wern) (Salter 1866b, p. 253), though the stratigraphy there is evidently affected by faulting. Fearnside (1910) mentioned rocks in the vicinity of Wern, although the road cutting itself had not then been made. He stated that the '*Dictyonema* Band' was very fossiliferous, and that by the road from Wern to Bron y foel near Cefn Cyfanedd was a wall 'every piece of which, when broken open, is fit for preservation in a museum' (Figure 7.7)b. The area was resurveyed by Howells and Smith (1997), who referred the '*Dictyonema* Band' and Moelygest Beds to their 'Lower Mudstone Member' of the Dol-cyn-afon Formation, but the site owes much of its importance to the unpublished discoveries of S. Jusypiw (see Interpretation, below).

### Description

The section extends along the A497 Porthmadog to Criccieth road. It exposes some 40 m of strata dipping north-east at about 25° and exhibiting a spaced cleavage dipping at 65° to the NNE. The beds consist of well-bedded dark-grey mudstones. Lamination occurs in places, with darker- and lighter-grey laminae giving the rock a characteristic ribbed appearance. However, disruption is common, and there is evidence of bioturbation. Pyrite is common as layers, lenses and euhedra; white-weathering phosphate nodules are ubiquitous in layers parallel to bedding.

The site has yielded faunas that span the top of the Lower Sandstone Member and the lower part of the Lower Mudstone Member of the Dol-cyn-afon Formation. East of the track to Bron y foel [SH 5436 3966] are numerous *Rhabdinopora flabelliformis* (Eichwald) *sensu lato*, and these indicate Fearnside's 'Dictyonema Band'. Farther to the east an outcrop (not now exposed) has yielded a fossil assemblage including the brachiopods *Eurytretra sabrinae* (Callaway), *Lingulella lepis* Salter, the bellerophonid *Oxydiscus? multistriatus* (Salter), the nautiloid *Dakeoceras praecox* (Salter) and the trilobites *Asaphellus bomfrayi* (Salter), *Platypeltoides croftii* (Callaway), *Proteuloma cf. geinitzi* (Barrande) and large *Niobella bomfrayi smithi* Stubblefield (Figure 7.7)a (Howells and Smith, 1997, p. 22).

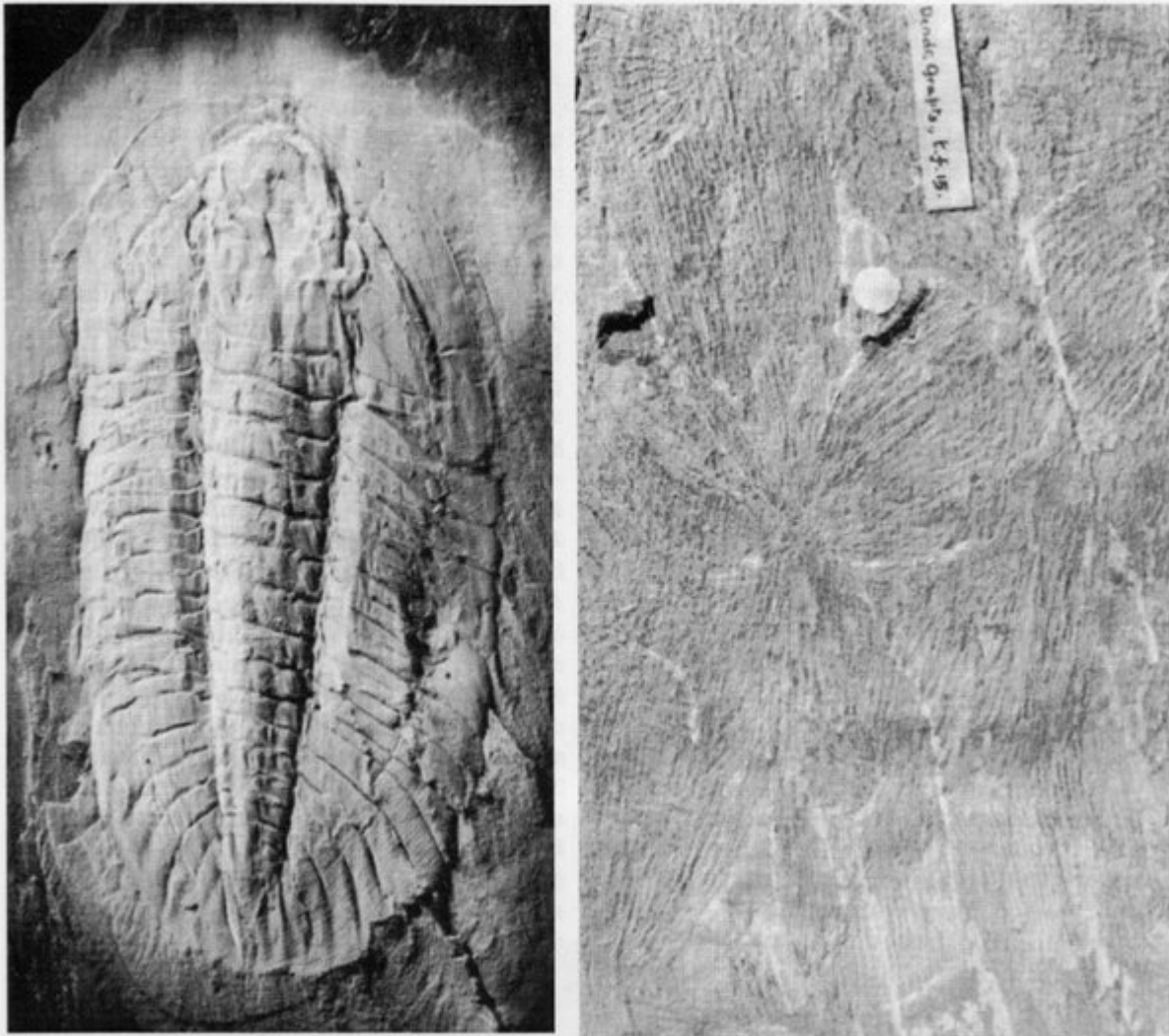
### Interpretation

The Dol-cyn-afon Formation at Wern Road typifies the succession from the top of the Lower Sandstone Member through the lower part of the Lower Mudstone Member. Sedimentological features generally indicate deposition in open marine conditions, with sediment influx of low-concentration muddy turbidity flows (see site report for Ogof Ddû). Palaeontologically this site has provided a fauna for part of the Dol-cyn-afon Formation above the *flabelliformis* Zone and (following mapping of the area) is assigned by Howells and Smith (1997) to the *tenellus* Zone, though the zonal graptolites have not yet been found there. It corresponds to the fauna of Salter's (1866b, p. 254) 'Passage Beds', as identified by him at Llanerch, in which the ranges of the Lower Tremadoc *Niobella* and the Upper Tremadoc *Asaphellus bomfrayi* overlap. The principal components of the fauna were collected by S. Jusypiw, but while he was preparing a description his collection was damaged in a fire, though such material as survives is now housed in the National Museum of Wales.

### Conclusions

The Wern Road section covers outcrops representative of the middle part of the Tremadoc sequence and has yielded (from what is generally a poorly fossiliferous part of the succession) the best assemblage of fossils that characterize this horizon.

### References



(Figure 7.7) Tremadoc fossils from the site at Wern. (a) *Niobella homfrayi smithi* Stubblefield, x0.65. (b) *Rhabdinopora flabelliformis socialis* (Salter), x1.5, paralectotype from Cefn Cyfannedd.