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# Trwyncynddeiriog

[SM 746 239]–[SM 748 240]

## Introduction

This site lies west of the St Non's Bay–Caerfai Bay site and shows part of the same succession but is important because it is the lowest horizon from which St David's (Middle Cambrian) fossils have been found in Wales; these serve to date the succession.

Salter and Hicks (1869, p. 52) reported the discovery of fossils in the lower part of the Solva Group, and Hicks (in Harkness and Hicks, 1871) described the fauna as from a 'headland near Nun's well'. Until the discovery of useful fossils in the Caerfai Bay Shales (Siveter and Williams, 1995), this was the oldest fauna of stratigraphical value in South Wales, and it remains of significance, underpinning the whole Solva succession. Further collections have been made by Dr M.Z. Farshori (Smith and White, 1963, p. 404) and M. Lewis (1987, unpublished).

## Description

The headland of Trwyncynddeiriog exposes sandstones of the Solva Group overlying the Caerbwdy Sandstone (Figure 4.5). Interpretations of the boundary between these divisions as exposed in Caerfai Bay have differed (see site report, above), but here the boundary is transitional. The rocks are sub-vertical, dipping north at about 80°. The purple Caerbwdy Sandstone occurs as fairly uniform beds of fine-grained and micaceous sandstone, ranging in thickness from 10–30 cm. Towards the top they become coarse and pebbly, with rip-up clasts of red mudstone, and some beds fine upwards. Bases are often erosive on finer sandstones intercalated between them. A green sandstone bed 15 cm thick is followed by 30–40 cm of purple sandstone with red muddy drapes, before the transition to the Solva Group is reached.

The lower Solva Group sandstones are very similar to the Caerbwdy sandstones, apart from their colour. At the base, they consist of thinly bedded, grey-green, pebbly sandstones, 10–30 cm thick, with erosive bases on intercalated finer sandstones and mudstones; the mudstones are micaceous and commonly lenticular. Some thicker sandstone beds show large-scale tabular cross-stratification, and some finer sandstones show truncated cross-lamination. The sandstones may also wedge out laterally and may show convolute lamination, erosive bases and mud rip-up clasts. However, graded bedding and sole structures are absent (Crimes, 1970a). Towards the extreme south of the headland the coarse pebbly sandstones disappear, and the beds consist of thinly bedded sandstones and mudstones several centimetres thick. The strata dip south at about 85°.

Probably less than 50 m of Solva Group strata are exposed, all referable to the 'lower Solva Beds' of Hicks, which are about 50 m thick. These beds, which are the type strata for the trilobites *Bailliaella lyellii* (Figure 4.8)c, *Condylopyge cambrensis*, *Eccaparadoxides harknessi* and *Plutonides sedgwickii*, all described by Hicks (in Harkness and Hicks, 1871), have also yielded other trilobites, hyolithids and sponge spicules.

## Interpretation

The gradual transition seen from purple sandstones of the Caerbwdy Sandstone, through purple and green beds, into the green lower Solva sandstones, suggests that there was no appreciable break in sedimentation, nor any striking change in environments, at this tittle, supporting the view of Stead and Williams (1971) rather than that held by Jones (1940) with reference to Caerfai Bay. The Solva Group is interpreted as having accumulated in shallow, energetic environments, probably above wave base (see St Non's Bay site report, above).

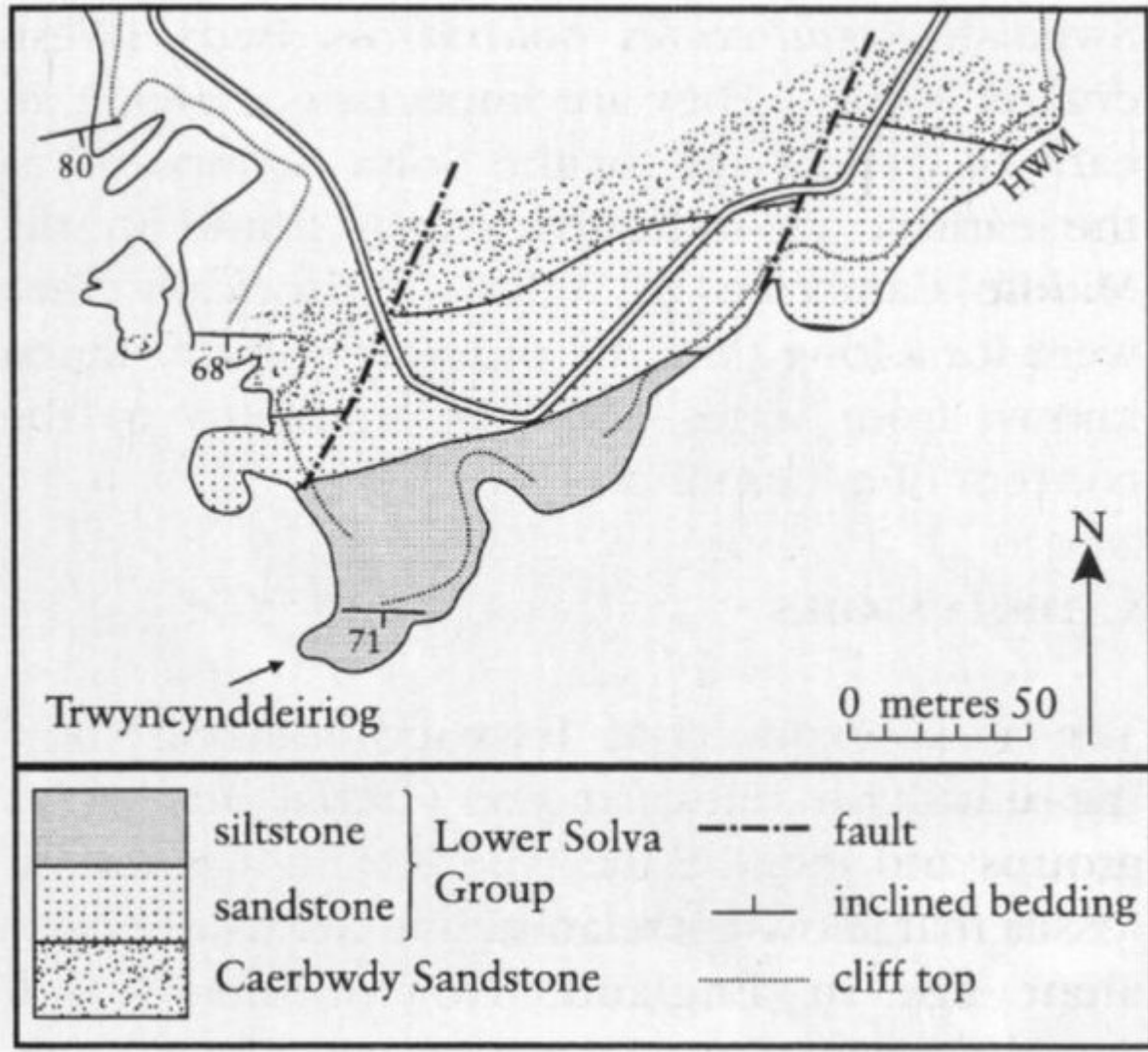
The fauna contains species similar or identical to those found in other low St David's (early Middle Cambrian) strata in Britain, Sweden and Newfoundland, and indicates that the beds are referable to the *Paradoxides oelandicus* Zone (Figure 2.2). Rushton (1966, p. 8) correlated them with the upper or *pinus* Zone of the Swedish *Paradoxides oelandicus*

Beds (Westergård, 1936). They are important as giving an early St David's age for the Solva Group and as the earliest age-indicative fossils found in the Middle Cambrian of Wales. Historically they were for a long time the oldest significant fauna known from Wales and lent credibility to the concept of a 'Cambrian Fauna'.

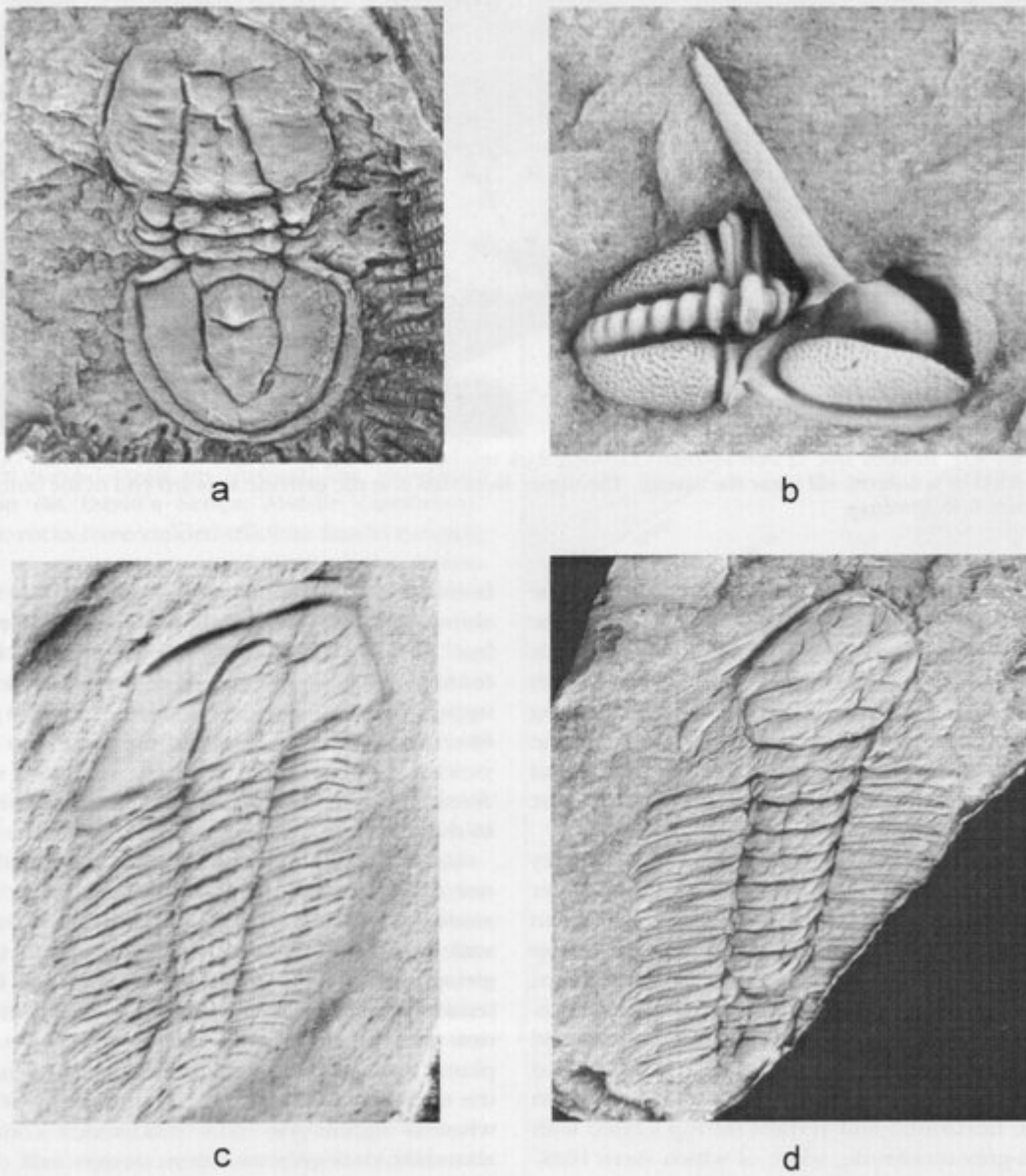
## Conclusions

The rocks exposed at Trwyncynddeiriog show the transition between the Caerfai and Solva groups and include the type locality for several fossils that allow correlation with rocks of equivalent age in England, Newfoundland and Scandinavia.

## References



(Figure 4.5) Geological map of Trwyncynddeiriog, after mapping by Lewis (1987, unpublished).



(Figure 4.8) Middle Cambrian Trilobites from South Wales. (a) *Onymagnostus davidis* (Hicks), x4, from Solva Harbour. (b) *Eodiscus punctatus* (Salter), x8, from Porth-y-rhaw. (c) *Bailiella lyelli* (Hicks), x3, from Trwyncynddeiriog. (d) *Plutonides hicksii* (Hicks), x2.5, from Dwrhyd. (Photos: M. Lewis.)

