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# Tyn-Illan

[SH 5415 4044]

## Introduction

The stream section and adjacent outcrops at Tyn-Illan expose fossiliferous representatives in the type Tremadoc area of the lower beds of the Dol-cyn-afon Formation, equivalent to the Tynllan Beds of Fearnside (1910). It has long been known for its fossils (Salter, 1866b, p. 253) and has the best-preserved Cressagian trilobite faunas in the region.

Salter (1866b) summarized early biostratigraphical work, but the most detailed study was that of Fearnside (1910), who distinguished the Tynllan or *Niobe* Beds as the lowest division of the Tremadoc Series and listed fossils found at the present site. In their resurvey of the Tremadoc area, Howells and Smith (1997) subsumed the Tynllan Beds within their informal 'Lower Sandstone Member' of the Dol-cyn-afon Formation. Detailed sedimentological descriptions of the unit are contained in Prigmore (1994).

## Description

The mudstones exposed in the stream section at Tyn-Illan dip north-east at about 30°. They are similar to lower Tremadoc strata seen elsewhere in North Wales, such as at Ogof Ddû (see site report) and consist of thin- to medium-bedded, fairly massive, dark-grey silty mudstones. Cleavage, although present, is not well developed. Faint lamination can be seen in places. Paler-grey laminae show signs of disruption and bioturbation, producing mottled textures. Pyrite is common as layers and lenses 1–2 mm thick. Pale-grey quartz-rich and pyritic silt beds, usually less than 1 mm thick but occasionally reaching 1 cm, occur throughout. Phosphate nodules are common. Some beds contain trilobites, especially *Psilocephalinella innotata* (Salter) but also *Beltella depressa* (Salter), *Niobella bomfrayi bomfrayi* (Salter) and *Shumardia (Conophrys?)* sp., together with brachiopods (*Eurytreta sabrinae* (Callaway) and *Lingulella* sp.), hyolithids, sponge spicules and other taxa.

## Interpretation

The lower Tremadoc rocks exposed at Tyn-Illan are assigned to the Lower Sandstone Member of the Dol-cyn-afon Formation (Howells and Smith, 1997), and are referable to the *flabelliformis* Zone. Because the cleavage is weak, it is the best locality at which to examine the trilobite fauna, some species of which are restricted to this division of the lower Tremadoc. They allow correlation with similar beds exposed in North Wales and elsewhere, for example the Breadstone Shales of Gloucestershire (Cave, 1977, p. 11) and Random Island, south-east Newfoundland (Fortey and Owens, 1991a).

## Conclusions

The stream section and adjacent exposures at Tyn-Illan are of importance as they show the best fossiliferous exposures of the lowest member of the Tremadoc sequence in North Wales.

## [References](#)