
The sequence at Dee Bridge

Exposures in the bank of the River Dee [SJ 269 420] near the bridge at Pontcysyllte, 5 km east of Llangollen, Clwyd, Wales show part of the upper Namurian as developed in the more southerly part of its exposure in North Wales. The geology has been described by Morton (1876) and Wedd *et al.* (1927).

The exposed sequence here is about 43 m thick, and ranges between the Lower Shale Formation and the Productive Coal Formation (315–319 million years old). Two major sandstone units occur, the Dee Bridge Formation, for which this is the type locality (Morton, 1876), and the Aqueduct Formation. The former is about 9 m of medium to fine-grained, yellow, quartzitic sandstone. In contrast, the Aqueduct Formation is about 20 m of coarse-grained, feldspathic sandstone with pebbly horizons, that developed in a sequence of fining-upwards units.

Only one marine band has been recorded from here, within the Lower Shale Formation. Ramsbottom (1974) records from this band *Reticuloceras paucicrenulatum* Bisat and Hudson. This belongs to the *R. circumplicatilis* Biozone, indicating the lower Kinderscoutian.

The shales immediately above and below the Aqueduct Formation have not here yielded fossils. However, at nearby localities, evidence of the Cancellatum and Subcrenatum marine bands has been reported (Wood, 1936; Ramsbottom, 1974).

Significance of the site

This is the best exposure of upper Namurian in North Wales, and the only one showing a more or less complete sequence from the lower Kinderscoutian to upper Yeadonian. It is also of historical interest, as the type locality for the Dee Bridge Formation. Of broader significance is that it is the only place where the two principal and contrasting sandstone lithologies can be seen on the southern margins of the Central Province: (1) the quartzitic sandstones (Dee Bridge Formation) representing the remains of fluvio-deltaic systems derived from the Wales–Brabant Barrier to the south; and (2) the feldspathic, more typically Millstone Grit type sandstones (Aqueduct Formation), from a northerly provenance.

According to Ramsbottom *et al.* (1978), the Millstone Grit in the Ruabon–Llangollen area, and exemplified by the Dee Bridge section, contains at least two significant non-sequences: it is claimed that the Chokierian–Alportian and upper Kinderscoutian–Marsdenian are missing here. This was argued to be compatible with the mesothem hypothesis of Ramsbottom (1977), since this was a marginal area subjected to only intermittent subsidence, and thus the eustatic sea-rises would only periodically impinge here. However, it must be borne in mind that these strata have not been subjected to detailed sedimentological analysis, and the existence of non-sequences is not necessarily proved merely by the absence of certain marine bands.

[References](#)