Inninmore Bay

Highlights

Inninmore Bay is the northernmost exposure of coal-bearing Upper Carboniferous in Europe, probably representing either a tongue of sediment extending north from the Scottish Basin, or a discrete intramontane basin.

Introduction

This site [NM 710 423]–[NM 729 421] refers to exposures along the shore and a short distance inland on the southern coast of Morvern, 5 km south-east of Lochaline, Lochaber, Highland Region, Scotland. They show a small patch of strata, less than one-third of a square kilometre in extent, which is the northernmost exposure of terrestrial Upper Carboniferous in Europe. It was first discovered by Judd (1874, 1878), and the most recent account of the geology is provided by Macgregor and Manson (1935).

Description

Lithostratigraphy

There are a number of discrete exposures of Upper Carboniferous strata here, which have yet to be correlated in detail. Macgregor and Manson (1935) estimate that there is a total thickness of at least 90 m, and may be more than 150 m. Of the available exposed sections, that near Quarry Burn is the most complete (Figure 12.13), where some 53 m of Upper Carboniferous can be seen. Their lower contact is not exposed, but they are overlain by Triassic red beds.

The succession is predominantly arenaceous, with white, coarse-grained quartzitic sandstones, and dark, micaceous sandstones. Three shales more than 1 m thick have been recorded, but mostly the argillaceous beds are inconspicuous, only a few centimetres thick. There is also at least one seat earth with lycophyte roots. Some 275 m NW of Inninmore Cottage, this is associated with a 10 cm thick bituminous coal, which in the past was worked in small-scale drifts.

Biostratigraphy

The only fossils reported from here so far are plant macrofossils. None have been described or illustrated, and our only knowledge of them are species lists reviewed by Macgregor and Manson (1935). The presence of form-genera such as *Calamites, Annularia, Asterophyllites* and *Cordaites* strongly suggests that the beds are Upper Carboniferous. There are also a number of pteridospermous frond fragments, which were identified as *Adiantites bondii* Kidston, *Mariopteris muricata?* (Brongniart) Zeiller, *Neuropteris heterophylla?* (Brongniart) Sternberg, *Paripteris gigantea* (Sternberg) Gothan and *Eusphenopteris striata* (Gothan) Novik. On the face of it, such an assemblage would belong to the *Lyginopteris hoeninghausii* Zone, indicating the Langsettian. However, nearly all of these species have been the subject of misidentification in the past, and the material will need to be re-assessed in the light of current taxonomy.

Interpretation

The main interest of this site lies in its isolated situation, compared with the rest of the Upper Carboniferous of Scotland. It lies 100 km distant from the nearest other exposure (the Cock of Arran — see Leitch, 1942). It is one of the few known exposures of such strata north of the Highland Boundary Fault (the only others being Cock of Arran and Machrihanish Bay on Kintyre), and the only one north of the Great Glen Fault. It thus lies outside of the area normally taken to delimit the Scottish Basin.

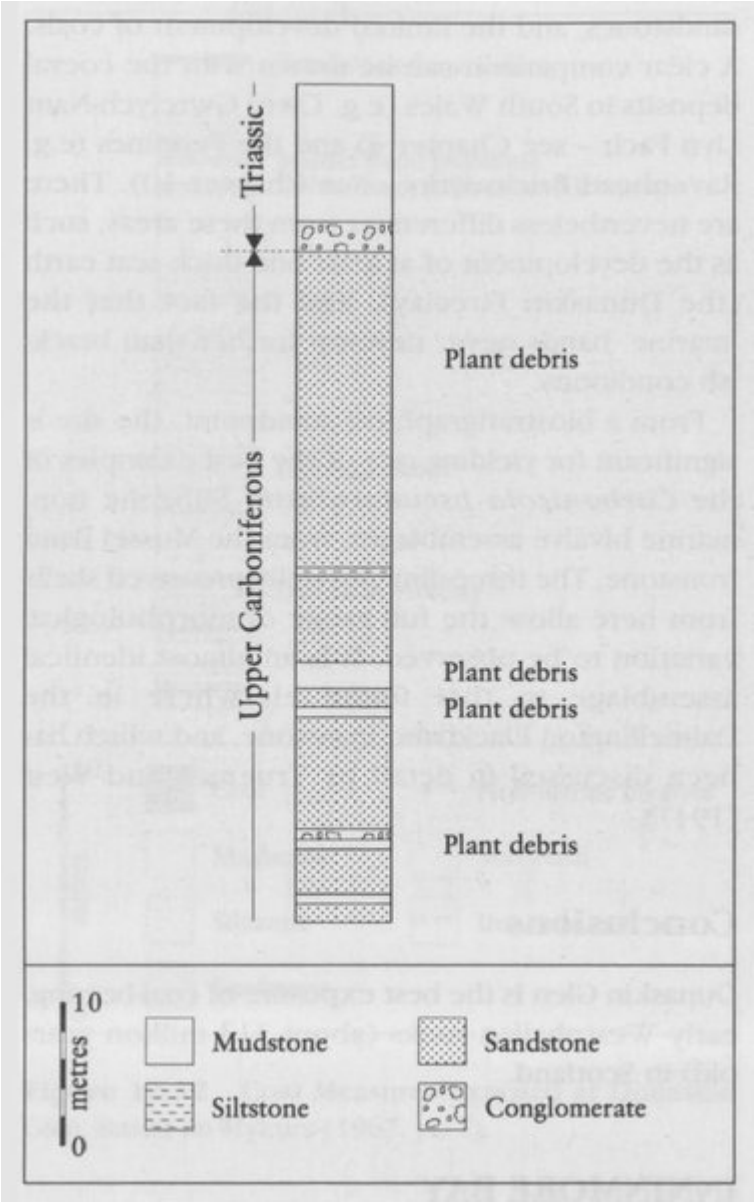
The relationship between the Inninmore deposits and the Scottish Basin is unclear. Such a predominantly arenaceous succession could be interpreted in terms of it being very marginal in the basin, similar to the marginal deposits of the

Pennine Basin found in the English Midlands (see Chapter 7). However, it is too far from the rest of the basin's deposits for such a view to be accepted without question. One possible explanation is that the Inninmore deposits are the remains of a 'gulf' that extended the Upper Carboniferous in a narrow belt north of the main part of the basin. A similar situation, albeit on a smaller scale, can again be found along the southern margins of the Pennine Basin, in the English Midlands. Alternatively, it may represent marginal deposits of a small intramontane basin, quite separate from the main Scottish Basin, and which would also be expected to be predominantly arenaceous (cf. Courel, 1988). There is clearly much potentially important work to be done on these Inninmore deposits, both on their sedimentology and establishing their exact chronostratigraphical position.

Conclusions

Inninmore Bay is the northernmost exposure of coal-bearing Upper Carboniferous rocks in Europe.

References



(Figure 12.13) Coal Measures exposed along Quarry Burn, Inninmore Bay. Based on measurements given in Macgregor and Manson (1935).