
Orchard Farm

Highlights

Orchard Farm is the proposed international stratotype for the base of the Yeadonian Stage.

Introduction

This site, in the southern part of the Pennines Basin, is along a small stream on Orchard Common, 8 km WNW of Longnor, Staffordshire [SK 023 691]. It was mentioned by Cope (1946), as showing an example of contorted beds in the Millstone Grit of the north Midlands. The stratigraphical significance of the section did not come to light, however, until it was proposed as the stratotype for the base of the Yeadonian Stage.

Description

Lithostratigraphy

About 30 m of strata are exposed here (Figure 2.8). The lowest 4 m is a pink sandstone, belonging to the top of the Chatsworth Grit, which is in the upper part of the Middle Grit Subgroup. This is overlain by a 90 cm thick dirty coal known as the Ringinglow Seam. The remaining 25 m are mainly mudstones, which mark the base of the Rough Rock Subgroup. Within this part of the section, there are two beds of contorted mudstone, showing prominent slickensiding. Cope (1946) interpreted this as bedding-plane slip, resulting from tectonic folding.

Biostratigraphy

Marine bands

Two bands of mudstone within the Rough 'Rock Formation here have yielded marine fossils. The lowest occurs 13.5 m above the Ringinglow Seam, and contains the ammonoid *Cancelloceras cancellatum* (Bisat). According to Ramsbottom (1981), three successive assemblages can be recognized within this mudstone: 1 — at the base, containing only *Cancelloceras branneroides* (Bisat); 2 — in the middle, a mixture of *C. cancellatum* and *Bilinguites superbilinguis* Bisat; 3 — at the top, a mixture of *C. cancellatum* and *Agastrioceras carinatum* (Frech). This is the classic succession of ammonoids within this marine band, as outlined by Ramsbottom (1969b). It marks the base of the *C. cancellatum* Zone in the European biostratigraphy, and the base of the *Cancelloceras–Branneroceras* Superzone.

About 8 m above this, a second band of mudstones has yielded ammonoids. Ramsbottom (1981) does not record identifications, although it is claimed that it is the Cumbriense Marine Band.

Palynology

Ramsbottom (1981) details pollen and spores derived from 28 levels within this section. The abundant occurrence of *Ahrenisporites beeleyensis* Neves and *Raistrickia fulva* Artiz suggests that the sequence belongs to the *Raistrickia fulva–Reticulatisporites reticulatus* Zone (Owens in Ramsbottom *et al.*, 1979). No major change can be recognized through the sequence exposed here. This is not surprising, as the base of the *fulva–reticulatus* Zone is in the middle Marsdenian (Owens *et al.*, 1977), at a rather lower stratigraphical level than is represented here. Perhaps significantly, however, *Florinites antiquus* Schopf comes in at a short distance below the Cancellatum Marine Band, as its lowest occurrence is usually at about the base of the Yeadonian Stage (Owens, 1982).

Chronostratigraphy

The base of the Yeadonian Stage is defined at 'the base of the marine band containing the faunas of the *Gastrioceras cancellatum* Marine Band' (Ramsbottom, 1981). This is the lower of the two marine bands exposed here.

Interpretation

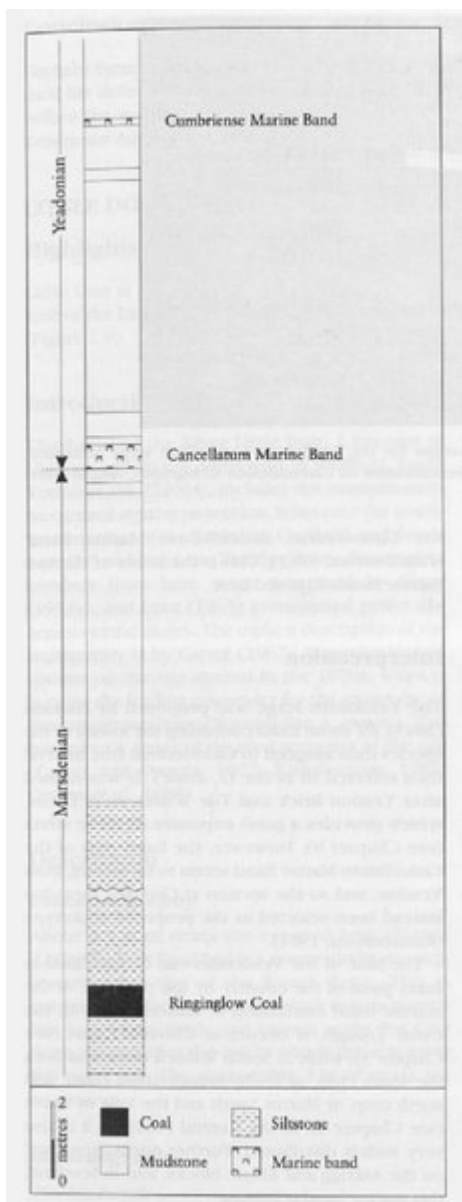
The Yeadonian Stage was proposed by Hudson (1945), for those strata containing the lowest of the species then assigned to *Gastrioceras* (the interval then referred to as the G₁ Zone). It was named after Yeadon Brick and Tile Works, near Leeds, which provides a good exposure of these strata (see Chapter 9). However, the basal part of the Cancellatum Marine Band seems to be missing from Yeadon, and so the section at Orchard Farm has instead been selected as the proposed stratotype (Ramsbottom, 1981).

The base of the Yeadonian can be identified in many parts of the country by the presence of the marine band containing *C. cancellatum*. In the Culm Trough, it occurs at Clovelly Coast (see Chapter 3), while in South Wales it occurs on both the south crop, at Tenby–Saundersfoot Coast, and north crop, at Marros Sands and the Vale of Neath (see Chapter 4). In the Central Province it is also very widely distributed. Further north, however, on the Askrigg and Alston blocks, and in Scotland, this marine band is missing.

Conclusion

Orchard Farm is an internationally recognized standard for defining a time plane, 316 million years before the present, and marking the start of the Yeadonian Age.

[References](#)



(Figure 2.8) Log of section at Orchard Farm. Based on Ramsbottom (1981, p. 9.3).