
Iron Pit Spring Quarry, Cumbria

[SD 311 783] and [SD 308 786]

Introduction

The Iron Pit Spring Quarry GCR site is a disused quarry complex at Plumpton, 2 km east of Ulverston that offers important Arundian sections through the highly fossiliferous Dalton Beds. The localities are important for showing the deepening of the environment in mid-Arundian times and, in particular, are well known for their rich faunas. Key site descriptions are by Rose and Dunham (1977) and by Johnson *et al.* (2001).

Description

In Iron Pit Spring Quarry [SD 308 786] about 12 m of the Dalton Beds can be seen (earlier work by Rose and Dunham (1977) placed the Red Hill Oolite–Dalton Beds boundary in the middle of this section). The lower 6 m of this succession (= the top of the Red Hill Oolite of earlier workers) comprises massive pale-coloured bioclastic and peloidal grainstone generally lacking visible fossils. However, a diverse assemblage of abraded and micritized bioclasts, including brachiopods, crinoids, molluscs, foraminifera and calcareous algae, is visible in thin-section (Adams *et al.*, 1990). Rose and Dunham (1977) took the boundary with the Dalton Beds at the base of the first bedded dark-coloured limestone although they noted some interbedding of pale- and dark-coloured lithologies above the boundary. The upper 6 m are characteristically dark-grey bioclastic packstones with shale partings. The site includes an old quarry to the south-east of Iron Pit Spring [SD 311 783] which exposes higher levels in the Dalton Beds (c. 17 m thick). The succession here comprises well-bedded dark-grey crinoidal limestones with shaly partings.

Interpretation

The Dalton Beds, particularly the lower part, are famous for their rich faunas, recognized by Garwood (1913, 1916) and named by him the 'Arnside Fauna'. At Iron Pit Spring, Rose and Dunham (1977) recorded a diverse coral assemblage, including *Caninia* sp. *cylindrica* group, *Clisiophyllum mutliseptatum*, *Koninckophyllum meathopense*, *Palaeostnilia murchisoni* and '*Zaphrentis*' *kentensis*. Numerous brachiopods are also recorded by Rose and Dunham (1977), with *Delepinea carinata*, the diagnostic fossil of Garwood's (1913) *Chonetes carinata* Subzone and a form recognized as typical of mid-Arundian times (Riley, 1993), being particularly abundant in the lower part of the unit.

The Dalton Beds record a deepening of the Lake District carbonate platform to at least below normal wave-base and were interpreted as mid- to outer-ramp deposits by Adams *et al.* (1990). These somewhat deeper, calmer waters were favourable for the development of a prolific fauna.

Conclusions

This site is ideal for studying the prolific 'Arnside Fauna' and represents a valuable teaching and research resource. The site is also invaluable for recording the progressive deepening of the Lake District carbonate platform in Arundian times.

[References](#)