

---

# Great Dib Wood

## Highlights

Great Dib Wood is the only good exposure of the Otley Shell Bed, a source of unusually well preserved marine fossils, including some of the youngest known trilobites in Britain.

## Introduction

A natural cliff [SE 199 443] on the south side of Great Dib Wood, 1 km south of Otley, West Yorkshire exposes the Otley Shell Bed, a localized fossiliferous deposit in the middle Namurian of Wharfedale, just south of the Askrigg Block. The geology has been described by Stephens *et al.* (1953) and Walker (1964b).

## Description

### Lithostratigraphy

About 26 m of strata are exposed here. Most of the sequence consists of sandstone, the lower 10 m belonging to the Addlethorpe Grit and the upper 10 m the Caley Crag Grit. Both are coarse, well bedded sandstones, with thin mudstones and seat earths. Between the two major sandstone units is the interval of limestones, thin sandstones and uncompacted mudstones known as the Otley Shell Bed.

### Biostratigraphy

The shell bed has yielded an extremely diverse assemblage of marine animal fossils, including articulate and inarticulate brachiopods (*Lingula*, *Orbiculoidea*, *Chonetes*, *Spirifer*, *Crurithyris*, *Productus*), bivalves (*Dunbarella*, *Aviculopecten*, *Allorisma*, *Palaeolima*), gastropods (*Nauticopsis*, *Zygopleura*, *Hesperiella*, *Phymatifer*), trilobites, ostracods, corals, polyzoa and fish fragments. There are also numerous ammonoids of the *Reticuloceras nodosum* Zone.

The site is mentioned in Higgins' (1975) study of the conodonts of the Millstone Grit of northern England, and referred to as site K11. However, no taxa are listed from here.

The preservation of the shelly fossils is particularly good, since the sediment has been subjected to relatively little compaction. This is thought to have been a consequence of the early cementation of the unit.

## Interpretation

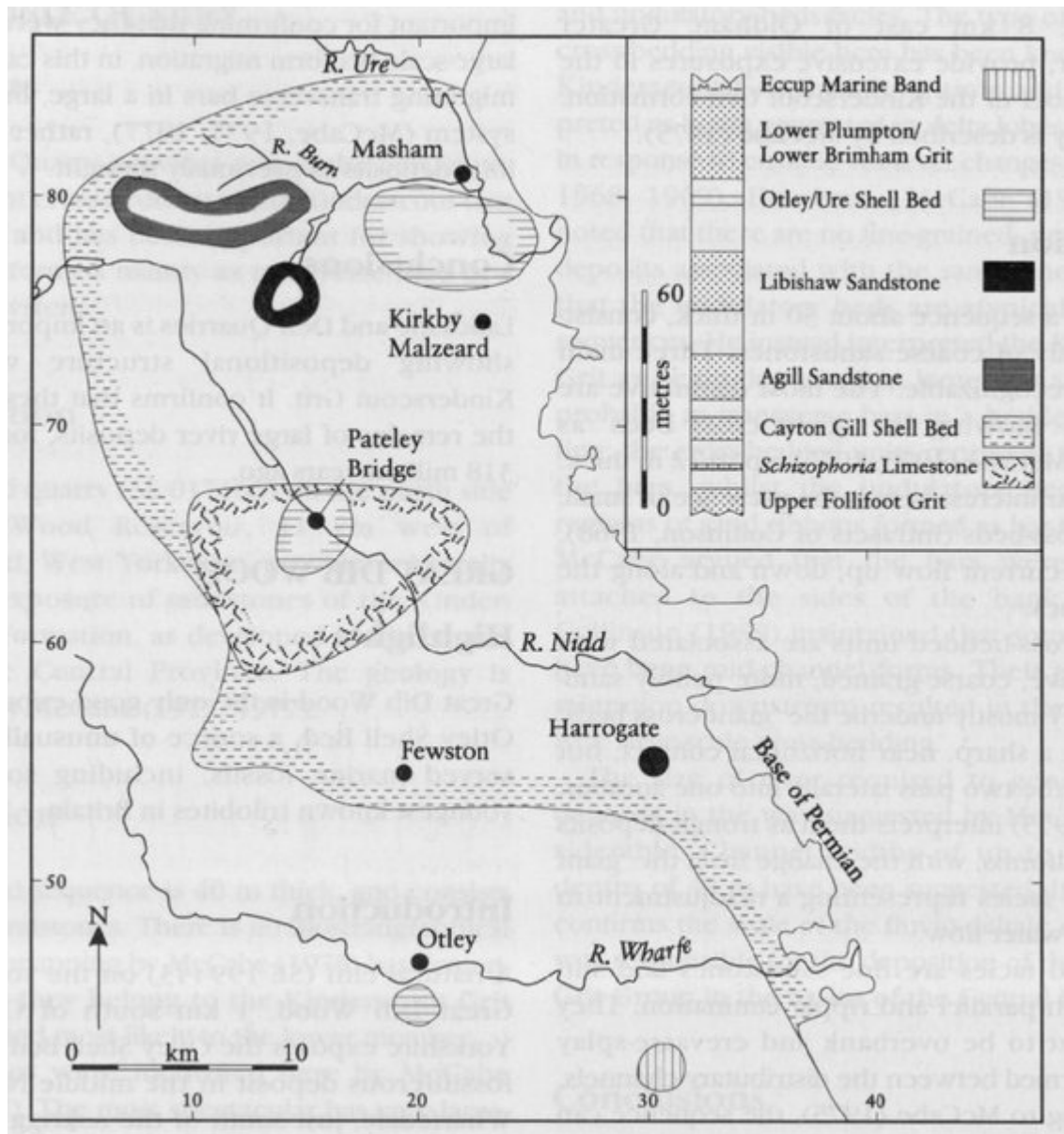
This is the only good exposure of the Otley Shell Bed, whose aerial distribution seems to be restricted to the immediate vicinity of The Chevin at Otley (Figure 9.12). It has an unusual lithology for the British Millstone Grit, whose marine bands are usually more laminated and darker in colour, representing relatively anaerobic conditions. The Otley bed, in contrast, seems to represent fully aerobic conditions, in a shallow, open-marine setting. The closest comparison is with the Cayton Gill Shell Beds, in the lower Kinderscoutian of the Harrogate area (Fox-Strangeways, 1908).

The fossil fauna has not yet been the subject of a comprehensive monographic treatment, and so its full significance has yet to be established, beyond the fine quality of the preservation. One point of interest that has already been revealed, however, is the presence of trilobites, this being one of the stratigraphically highest assemblages to have yielded such arthropods at surface in Britain.

## Conclusions

Great Dib Wood is the only good exposure of an interval of limestones, thin sandstones and mudstones, known as the Otley Shell Bed. The rocks are about 315 million years old, and are a source of unusually well preserved marine fossils, including some of the youngest known trilobites in Britain.

### References



(Figure 9.12) Geographical distribution of some of the localized shell beds in the Kinderscoutian of the Central Province. Based on Ramsbottom et al. (1974, fig. 30).