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# Carlton Main Brickworks

## Highlights

Carlton Main Brickworks (Figure 10.30) shows the best exposure of the Cambriense Marine Band in Britain, and the last evidence of marine influence on the British environment, until the Late Permian.

## Introduction

The quarry [SE 411 081] for the brickworks south of Grimethorpe, 7 km ENE of Barnsley, South Yorkshire, exposes marine strata in the middle Productive Coal Formation of the Pennine Basin. It is mentioned by Spears (1967) and Calver (1968), and a detailed description is provided by Goossens and Bell (1969). Some of the fossils from here are figured (but not described) by Calver (1973).

## Description

The exposed sequence here is 15 m thick (Figure 10.31). The lower 8 m are black to dark grey mudstones and siltstones, representing the Cambriense Marine Band (see below). Most of the rest of the succession are pale grey mudstones and siltstones, representing non-marine flood-plain deposits, although there are also some darker grey mudstones and siltstones which are probably lacustrine deposits. The topmost 80 cm of the succession are a seat earth followed by interbedded shale and poor quality coal, thus representing emergent conditions. The section here can thus be seen in terms of a progressive regression of the marine incursion, changing from 'basinal' conditions, to emergent, swamp conditions.

Biostratigraphically and palaeoecologically, the most significant fossils here are found in the lower 8 m, which according to Calver (1968) is the Cambriense (or Top) Marine Band. The dominant form is the bivalve *Myalina compressa* Hind, but there are also rare *Dunbarella*, *Edmondia* cf. *transversa* Hind, *Geisina* and *Anthraconaia spathulata* Weir. This suggests it is the *Myalina* Facies as described by Calver, represented only in very shallow marine conditions, and contrasts with other occurrences of this marine band, further south in the Yorkshire Coalfield and in the most of the East Midlands Coalfield, where it is represented by deeper water, *Anthracoceras*/Pectinoid to Pectinoid facies (e.g. Edwards and Stubblefield, 1948; Goossens, 1952).

In the 2.8 m of strata above the marine band, Goossens and Bell (1969) mention 'non-marine' bivalves such as *Anthraconaia* and *Naiadites*. However, no species names were given. They probably represent an estuarine fauna, marking the first sign of reversion to non-marine conditions.

## Interpretation

This is the best exposure of the Cambriense Marine Band in Britain, and yields fossils of the *Myalina* Facies. It is the highest of the marine bands found anywhere in the Upper Carboniferous of northwestern Europe, and marks the withdrawal of marine influence from this area until the Late Permian. This environmental shift was symptomatic of the geomorphological changes occurring during the late Westphalian, resulting from the collision between the Laurasia and Gondwana palaeocontinents to form Pangea, and which is known as the Variscan Orogeny.

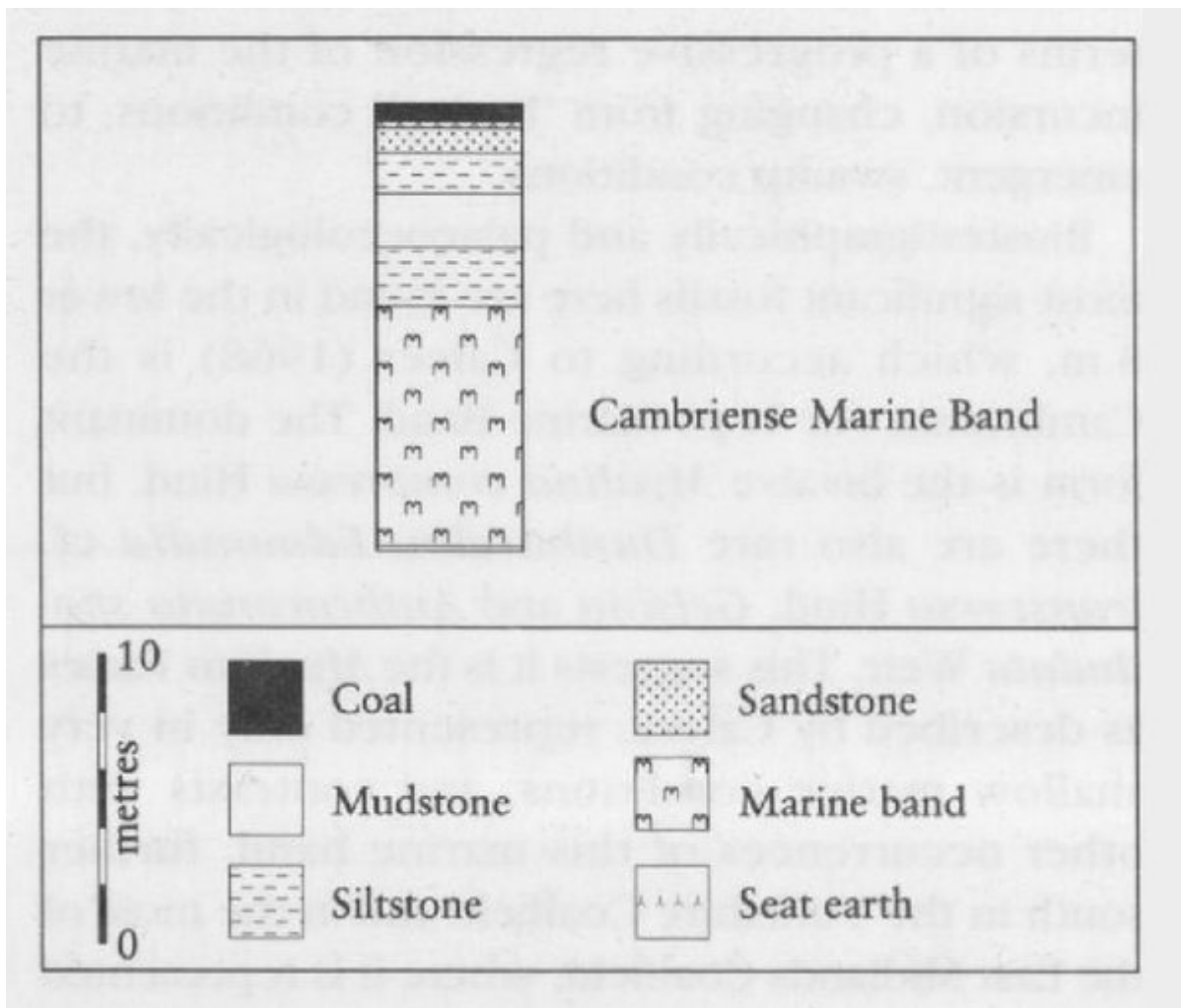
## Conclusions

Carlton Main Brickworks is the best British locality for shales of the Cambriense Marine Band, about 305 million years old. This marine band represents the last evidence in this country of marine conditions until the Late Permian.

## [References](#)



(Figure 10.30) Carlton Main Brickworks. (Photo: C.J. Cleal.)



(Figure 10.31) Section exposed at Carlton Main Brickworks. Drawn from descriptive log in Goossens and Bell (1969).