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# Cornbrook Dingle

## Highlights

Cornbrook Dingle is the type and best exposure of the Cornbrook Sandstone Formation, and the only place to have yielded biostratigraphical evidence for the unit.

## Introduction

This stream section south of the Ludlow–Cleobury Mortimer road (A4117), 9 km east of Ludlow, Shropshire [SO 602 758]–[SO 604 755] is the type section for the Cornbrook Sandstone Formation in the Titterstone Clee Coalfield. The geology is mentioned by Dixon *in* Kidston *et al.* (1917), and a more complete account provided by Jones and Owen (1961).

## Description

### Lithostratigraphy

According to Dixon *in* Kidston *et al.* (1917), the Cornbrook Sandstone here is about 300 m thick, but Jones and Owen (1961) claimed that this was an over-estimate due to repetition of the sequence by faulting and that it was probably nearer to 215 m. The sequence is thought to lie unconformably on Lower Carboniferous limestones, although the exposed contact is faulted. The formation consists mainly of thick, pebbly sandstones, some of which are stained red, orange or brown. There are also clay bands, which according to Jones and Owen are often seat earths with thin coals, but exposure of these emergent layers is poor.

### Biostratigraphy

#### Plant fossils

Kidston *in* Kidston *et al.* (1917) recorded *Lepidodendron veltheimianum* Sternberg from near the top of the formation, which seemed to indicate an Early Carboniferous age. However, a more diverse assemblage was listed by Jones and Owen (1961) from a slightly lower level, which is unequivocally Upper Carboniferous, and it is likely that Kidston's record was a misidentification, perhaps of *Lepidodendron aculeatum* Sternberg. Jones and Owen's list includes (with modified generic names) *Laveineopteris tenuifolia* (Sternberg) Cleal *et al.*, *Alethopteris lonchitica* Sternberg, *Lonchopteris rugosa* Brongniart and *Pecopteris plumosa* (Artis) Brongniart, which suggest the *L. rugosa* Zone (although a position just above or below that zone cannot be entirely ruled out). This in turn suggests a Duckmantian age.

#### Palynology

Owens *in* Greig *et al.* (1968) reported obtaining spores from the Cornbrook Sandstone, and further details were reported by Turner and Owens (1993). This suggested Pendleian and Arnsbergian (Lower Carboniferous) ages for the Cornbrook Sandstone, in obvious conflict with the macropalaeobotanical evidence mentioned above.

## Interpretation

The Cornbrook Sandstone was referred to by early authors as the Millstone Grit of this area (Prestwich, 1840; Jones, 1871). Dixon's downwards revision of the age, based on the erroneous palaeobotanical evidence, appeared to support the ideas put forward by Vaughan (1905), that the Cornbrook Sandstone was a lateral equivalent of the Drybrook Sandstone of the Forest of Dean. As pointed out by George (1956), however, this does not agree with the field evidence, as there is a clear unconformity between the Cornbrook Sandstone and the Lower Carboniferous limestones. George reverted to the original view that it was Millstone Grit (*i.e.* Namurian). The most recent biostratigraphical evidence has

produced conflicting ages, a middle Westphalian, probably Duckmantian age from the plant macrofossils (Jones and Owen, 1961) and a basal Namurian (Pendleian–Arnsbergian) from the palynomorphs (Turner and Owens, 1993). Turner and Owens dismiss the macropalaeobotanical evidence as having originated probably from sandstones overlying the true Cornbrook Sandstone. However, the lithostratigraphical argument for this is not clearly presented. It is perhaps more reasonable to accept the view of Greig *et al.* (1968) that the Cornbrook Sandstone Formation includes both basal Namurian and middle Westphalian deposits, which all share the same lithological characters.

This is by far the best exposure of the Cornbrook Sandstone, and the only one that has yielded biostratigraphical evidence. Jones and Owen (1961) record the formation in the upper reaches of Hopton Brook, about 5 km NE of Cornbrook Dingle, but exposures are smaller and have not yielded fossils. On the northern side of Titterstone Clee, at and near Crumps Brook, Greig *et al.* (1968) found only small exposures of this formation.

The Cornbrook Sandstone represents the western extremity of the belt of marginal Upper Carboniferous deposits, that onlap onto the Wales–Brabant Barrier, and extend between Warwickshire and Shropshire. The Westphalian part of the formation is approximately coeval with the lower part of the Productive Coal Formation of the Wyre Forest Coalfield (known locally there as the Kinlet Group), which also consists mainly of red and brown sandstones. However, it is slightly younger than the lowest beds of the South Staffordshire Coalfield, such as seen at Doulton's Claypit (upper Langsettian), which in turn is younger than the base of the Warwickshire Coalfield (lower Langsettian — Ramsbottom *et al.*, 1978). The reason for this apparent westerly younging of the base of the Upper Carboniferous along the northern margins of the Wales–Brabant Barrier is at present unclear.

## **Conclusions**

Cornbrook Dingle is the most important locality for rocks of the Cornbrook Sandstone Formation, the upper part of which is nearly 312 million years old. It is the only place where fossils have been found in these rocks, allowing their stratigraphical age to be accurately determined.

## **[References](#)**