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# Howick to Seaton Point

## Highlights

The coastal exposures between Howick and Seaton Point provide the best exposure of the unconformity between the Yoredales and Millstone Grit in the northern Northumberland Basin.

## Introduction

Coastal exposures [NU 262 173]–[NU 264 125] 2 km east of Longhoughton, near Alnwick, Northumberland, show the Millstone Grit of the Northumberland Trough, lying unconformably on Yoredale limestones. The site has been described by Carruthers *et al.* (1930). Much of the sequence exposed is in the Lower Carboniferous Yoredale limestones, so that the following account is restricted to the Millstone Grit part of the succession.

## Description

Problems of faulting, particularly in the southern part of the site, makes it difficult to establish a total thickness for the succession, but it is likely to be at least 125 m. It consists of three sandstone units, 15, 18 and 75 m thick in ascending order, separated by shale/siltstone units about 3 m thick. The lowest sandstone is a fine-grained, coarsening-upwards unit. The other two are coarser, sometimes pebbly sandstones, with cross-bedding and ripple-lamination, generally more typical of the Millstone Grit of the Central Province to the south (see Chapter 9).

Mapping of the area described by Carruthers *et al.* (1930) demonstrated that the base of the Millstone Grit here is unconformable, and this is supported by indirect biostratigraphical evidence (see below).

## Interpretation

This is the best site for showing the relationship between the Millstone Grit and the underlying Yoredales in the northern part of the Northumberland Trough. It shows particularly well the change from the limestone-dominated to the sandstone-dominated facies, reflecting the progressive withdrawal of marine influence from the area.

The size of the stratigraphical gap between the Yoredales and Millstone Grit in this part of Northumberland is difficult to determine, and this site provides little direct evidence on the point. However, the highest part of the Yoredales seen along this stretch of coast lies just above the Upper Foxton Limestone, which Ramsbottom *et al.* (1978) correlated with the middle Arnsbergian Castlecary Limestone in the Kincardine Basin of Scotland. According to borehole evidence reviewed by Hull (1968), the base of the Millstone Grit throughout most of Northumberland is in the middle Kinderscoutian. Consequently, the stratigraphical gap here probably represents the upper Arnsbergian, Chokierian, Alportian and lower Kinderscoutian.

## Conclusions

Between Howick and Seaton Point can be seen the best exposures of the junction between the rock units known as the Yoredales and Millstone Grit in the northern Northumberland Basin. There is evidence that there is a time-gap of about 4 million years between the two rock units.

## [References](#)