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# Wharnccliffe Crag

## Highlights

Wharnccliffe Crag is the type and best locality for the Wharnccliffe Crag Formation, the remains of a localized braided river system in the lower Langsettian of the Pennine Basin.

## Introduction

Crag [SK 300 972] overlooking the River Don, east of Stocksbridge, 10 km NNW of Sheffield, South Yorkshire (Figure 10.20), are in sandstones of the Wharnccliffe Crag Formation, a localized development in the Langsettian of the southern part of the Yorkshire Coalfield. There have been no published accounts of the site, and the following assessment is based on unpublished information supplied by P.D. Guion and H. Williams.

## Description

The main crag exposes about 10 m of sandstone, representing the lower member of the Wharnccliffe Crag Formation. About 2 m of the upper member can also be seen above the main crag, but the intervening argillaceous beds are not exposed.

The formation is characterized by relatively pure, quartzitic sandstone. Pebble beds are absent, although some horizons with mud clasts can be seen. The dominant sedimentary structures are planar to gently trough cross-bedding, with sets up to 2 m thick. There are also soft-sediment deformation structures, particularly in the upper member and the upper part of the lower member. There is no evidence of either coarsening or fining upwards. Palaeocurrent indicators suggest that sediment transport was generally towards the south.

No fossils have been found at this site, but these sandstones are known to overlie the Amaliae Marine Band, and are thus lower Langsettian.

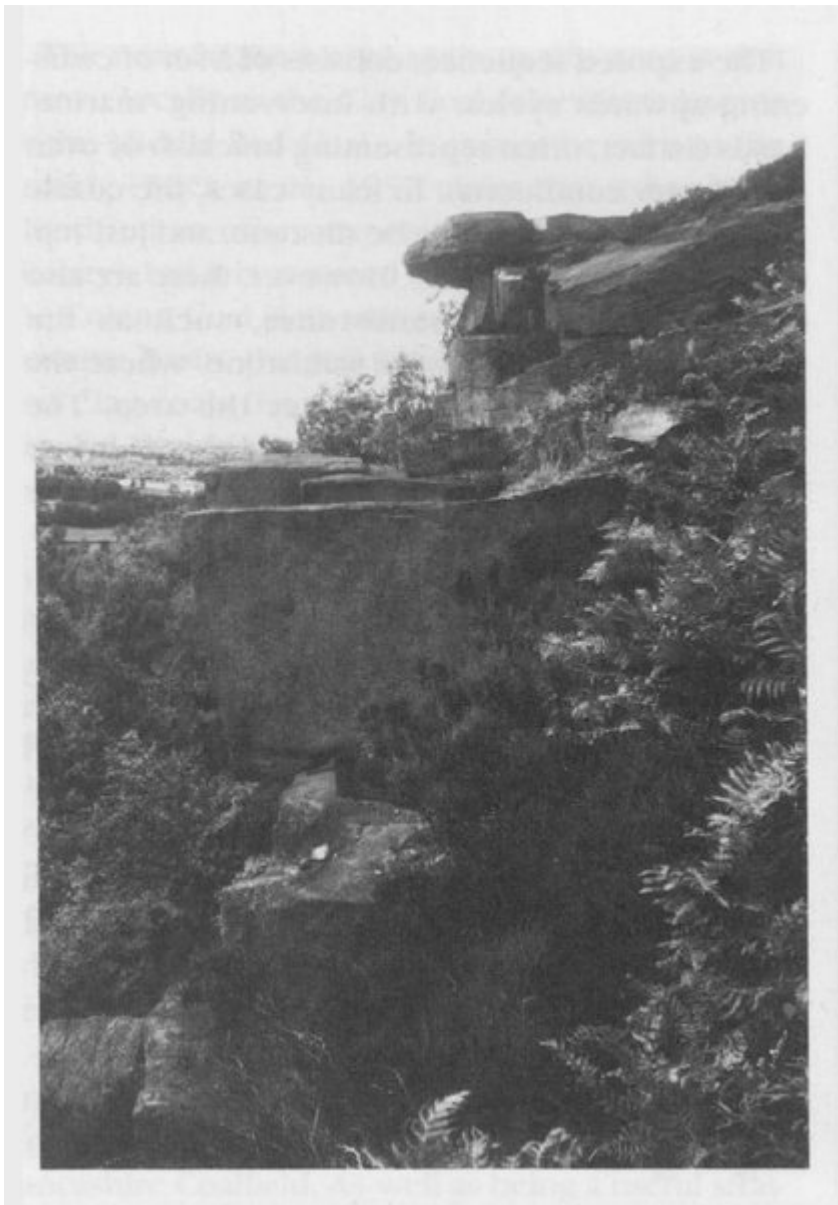
## Interpretation

This is the type and best exposure of the Wharnccliffe Crag Formation. It is a very localized deposit, restricted in development to the vicinity of Stocksbridge (Eden *et al.*, 1957). Laterally it is absent in the Sheffield area, and it also appears to rapidly die-out to the north-west. It is probably the remains of a localized, low-sinuosity, braided fluvial system, transporting sediment southwards. It can thus be more closely compared with the Elland Flags Formation (Davies, 1966), except that it is on a much smaller scale. In contrast, the other major arenaceous formation in the lower Langsettian, the Crawshaw Rock, has an eastern and southern provenance (see Ridgeway Quarry and Stannington Ruffs).

## Conclusions

Wharnccliffe Crag is the best exposure of rocks of the Wharnccliffe Crag Formation. These sandstones, which are about 310 million years old, are thought to be the remains of deposits laid down in a braided river system (i.e. a relatively straight river divided into many small, shallow, interlaced channels). This is in marked contrast to most of the other sandstones of the Coal Measures of the Pennine Basin, which were deposited by deeper, meandering rivers.

## [References](#)



*(Figure 10.20) Wharnccliffe Crags Formation exposed at its type locality. (Photo: C.J. Cleal.)*