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# Barland Common

## Highlights

Barland Common is the stratotype for the Bishopston Formation, which is the mainly argillaceous facies of the Millstone Grit found on the south crop of the South Wales Coalfield. It provides the most complete sequence of Namurian marine bands in South Wales.

## Introduction

This stream section near Bishopston, on the Gower Peninsula, Wales [SS 576 897]–[SS 579 902], exposes part of the Millstone Grit, as developed on the south crop of the South Wales Coalfield. It was described first by De la Beche (1846), who provided a lithostratigraphical log, and later by Dix (1931a), who described some of the animal fossils. The most detailed survey of the site was by J.V. Stephens, probably in the 1960s. This work has not been published in detail, although it is summarized by Owen (1971c) and Ramsbottom (1971b, 1978).

## Description

### Lithostratigraphy

This site exposes a sequence of c. 200 m of Upper Carboniferous (Chokierian–Marsdenian) strata, of the Bishopston Formation. It consists mainly of mudstones and shales, with only subsidiary sandstones. These so-called 'basinal' deposits have been interpreted by Kelling (1974) as pro-delta and floodbasin lake sediments, which were subject to periodic marine incursions.

### Biostratigraphy

Palaeontological evidence here is restricted to marine animal fossils, which occur at 10 separate horizons (a further 3 marine bands have been recognized in the underlying Lower Carboniferous/Arnsbergian part of the sequence). They are in the 'goniatite-pectinoid facies' of Ramsbottom (1969b) and thus all yield biostratigraphically sensitive ammonoid assemblages. According to Stephens *in* Ramsbottom (1978), the following subzones can be recognized:

| Stages         | Subzones                  |
|----------------|---------------------------|
| Marsdenian     | <i>B. bilinguis</i>       |
|                | <i>B. superbilinguis</i>  |
|                | <i>R. reticulatum</i>     |
|                | <i>R. nodosum</i>         |
| Kinderscoutian | <i>R. circumplicatile</i> |
|                | <i>H. magistrorum</i>     |
| Alportian      | <i>V. eostriolatus</i>    |
|                | <i>H. undulatum</i>       |
| Chokerian      | <i>H. beyrichianum</i>    |
|                | <i>I. subglobosum</i>     |

## Interpretation

This is the stratotype and best exposure of the Bishopston Formation, which represents the 'basinal' facies of the Millstone Grit in South Wales, as developed along the central and western parts of the south crop. The formation consists mainly of argillaceous rocks, which explains why there are far fewer exposures than there are of the more resistant arenaceous Millstone Grit of the north crop (e.g. Vale of Neath — see below). The only other good exposure of the

Bishopston Formation is along the Tenby–Saundersfoot coastal section in Pembrokeshire, but the sequence there is thinner, does not have as many marine bands, and is tectonically disturbed. The exposed sequence near Aberkenfig is also more condensed than that of the Gower, and has a much greater proportion of arenaceous deposits due to the northwards progradation of a small fluvial delta (Woodland and Evans, 1964; Kelling, 1974).

According to Ramsbottom (1978), all of the Namurian mesothems identified in the Pennines region can also be recognized at Barland Common. The principal difference is that some of the mesothems (N5, N8 and N9) lack the basal marine band. Ramsbottom argued from this that 'a still more basinal sequence' might be present to the south of the Gower. However, no evidence of this has yet been forthcoming from the Bristol Channel (Cope and Bassett, 1987).

## **Conclusions**

Barland Common is the most important site for a sequence of rocks known as the Bishopston Formation. They represent the deposits of mainly muds and silts, originally laid down some 315–320 million years ago (i.e. during the Namurian Epoch) in a marine basin, immediately in front of river deltas that lay to the north. They contrast with similar-aged deposits only a short distance to the north, which are far more sandy and represent the remains of those deltas. The Barland Common rocks contain numerous fossils of marine animals known as ammonoids, which allow detailed correlations with sequences elsewhere in Europe and North America.

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