# Winterbourne Railway Cutting

## Highlights

Winterbourne Railway Cutting shows the best exposure of the Mangotsfield Formation in the Bristol–Somerset Coalfield. It is particularly important for understanding the development of the major fluvial system draining from the uplifting hinterland to the south, which affected much of south-west Britain.

## Introduction

This deep cutting on either side of the bridge taking Dragon Road over the main London–Cardiff railway line, Winterbourne, Avon [ST 651 799] exposes part of the Mangotsfield Formation in the Coalpit Heath 'basin' north of Bristol. The only account of the geology is in an unpublished thesis by Stead (1974).

## Description

The exposed sequence here is about 200 m thick. It consists of alternating thick and thin beds of sandstone (i.e. greater than and less than about 1 m thick), both bed-types being strongly cross-bedded. They often weather to a distinctive red to purple colour, suggesting a high iron content. According to Stead (1974), the sedimentology indicates deposition in a north-west-flowing' fluvial system. From both their lithological character and field relations, the strata clearly belong to the Mangotsfield Formation.

## Interpretation

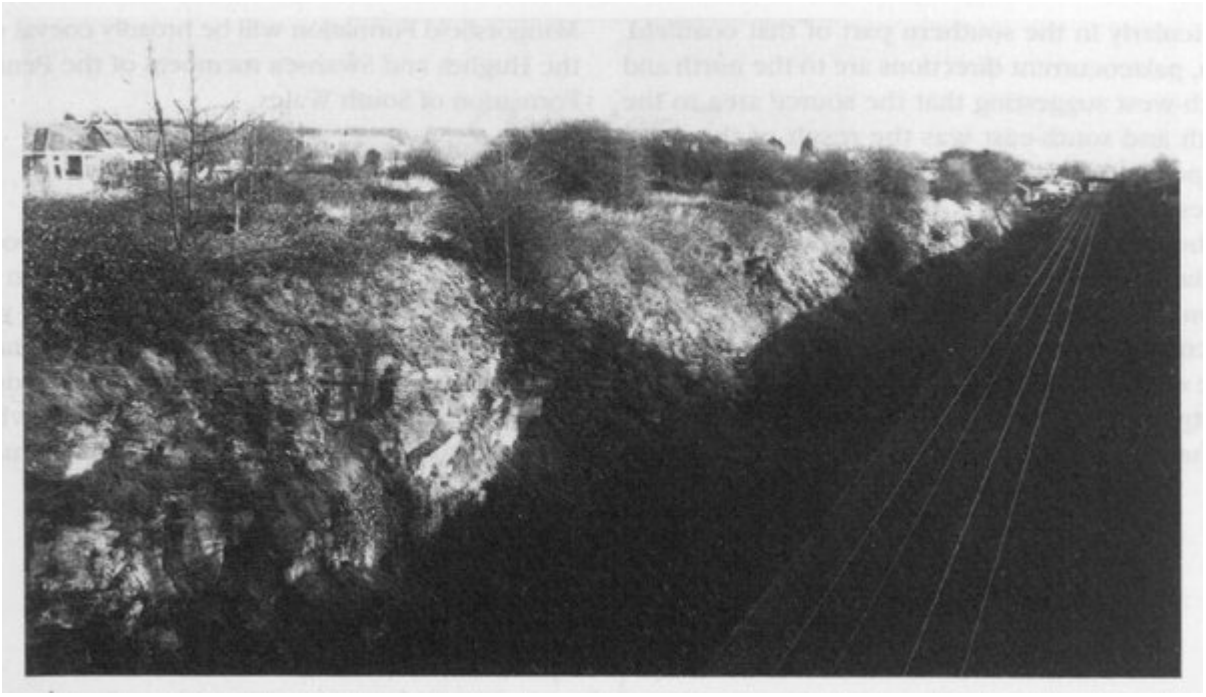
This is by far the most extensive exposure of the Mangotsfield Formation in the Bristol–Somerset Coalfield, and may be taken as the type for the interval (Figure 6.5). Lithologically, it compares closely with the South Wales Pennant Formation, particularly in the southern part of that coalfield. Also, palaeocurrent directions are to the north and north-west suggesting that the source area to the south and south-east was the result of the same nappe-generated uplift that produced the South Wales sandstones.

There is no direct biostratigraphical evidence available here, and fossils are generally rare throughout the formation. However, Moore and Trueman (1937) report plant fossils from near the base of the formation which clearly indicate the Westphalian D, possibly the middle Westphalian D. If the latter proves to be the case, then the Mangotsfield Formation will be broadly coeval with the Hughes and Swansea members of the Pennant Formation of South Wales.

## Conclusions

Winterbourne Railway Cutting is the best exposure of rocks of the Mangotsfield Formation in the Bristol–Somerset Coalfield, about 300 million years old. It is particularly important for understanding the development of the major river system draining from the uplifting area to the south, which affected much of south-west Britain at this time.

**References**



*(Figure 6.5) Exposures of the Mangotsfield Formation, seen at Winterbourne Railway Cutting. (Photo: C.J. Cleal.)*