
Burcot, Hereford and Worcester

[SO 972 716]

Introduction

This small road cutting exposes an excellent section of the Bromsgrove Sandstone Formation resting unconformably upon the Wildmoor Sandstone Formation. The Bromsgrove Sandstone Formation is of fluvial origin and consists of planar-tabular- and trough-cross-bedded, pebbly sandstones with a broad spread of palaeocurrent directions, features consistent with deposition in a meandering river. Two discrete sand bodies are exposed, separated by a red siltstone with a development of oolitic and pisolitic calcrete near the top. The site shows a regionally significant unconformity and has features reflecting deposition in a variety of Triassic palaeoenvironments.

The Burcot section has been described by Wills (1948, 1976), Mitchell *et al.* (1961), and Old *et al.* (1991).

Description

The road cutting at Burcot exposes a 350-m-long section through the Wildmoor Sandstone Formation and the Burcot Member of the succeeding Bromsgrove Sandstone Formation (Figure 3.55). The lower part of the succession consists of the reddish sandstones and siltstones of the Wildmoor Sandstone Formation, formerly known as the 'Upper Mottled Sandstone'. The sandstones are characteristically dark red, fine-grained, and soft, and contain a scattering of small pebbles; they show large-scale sedimentary structures, for example trough cross-bedding. Palaeocurrent directions, measured from cross-beds, indicate a uni-modal direction of transport of sediment from the south-east.

The boundary between the Wildmoor Sandstone and the overlying Bromsgrove Sandstone Formation is marked by a clearly defined unconformity. The Bromsgrove Sandstone Formation comprises numerous upward-fining sedimentary cycles, of which several are exposed in the Burcot section. This lower unit of the Bromsgrove Sandstone Formation has been named the 'Burcot Member' (Old *et al.*, 1991). The sediments are reddish- or yellowish-brown elastic deposits and range from conglomerates to fine-grained sandstones and thin mudstones. The basal unit rests on a deeply eroded surface, and two channels are cut into the Wildmoor Sandstone and filled with Bromsgrove Sandstone conglomerates. The Bromsgrove Sandstone Formation conglomerates are structureless and polymict, occur in beds no more than about 1 m thick, and contain pebbles of quartz, quartzite, chert, quartz-tourmaline rock, tuff, sandstone, siltstone, and feldspar, as well as intraformational sandstone, siltstone, and mudstone clasts, with a diameter of approximately 0.05 m. The conglomerates are overlain by thick units of fine- to medium-grained sandstone that display planar, lenticular, and trough cross-bedding and pass up into finer-grained sandstones with small-scale cross-bedding and occasional ripple marks. The sandstones, especially those towards the top of the section, contain abundant carbonate nodules and a bed of pisolitic and oolitic calcrete. Palaeocurrent directions measured on cross-beds indicate a north-easterly current flow.

The base of the Burcot Member of the Bromsgrove Sandstone Formation is also visible at other localities nearby, for example where the railway crosses the road between Tutnall and Burcot [SO 986 713]. Near to this [SO 9835 7137], the Burcot Member sandstone contains fresh feldspar clasts, quartz pebbles up to 70 mm in diameter, and rounded mudstone clasts up to 100 mm across (Old *et al.*, 1991, p. 29).

Fossils have not been recorded from Burcot itself, but the Bromsgrove Sandstone Formation has yielded an extensive flora and fauna (Wills, 1910, 1947; Warrington, 1970a; Old *et al.*, 1991, pp. 26–9; Benton *et al.*, 1994; Benton and Spencer, 1995). Most of the fossils, however, come from the higher Finstall and Sugarbrook members of the formation. The Burcot Member has yielded sparser remains, including teeth of the shark *Acrodus* from near Tutnall (Wills, 1910); burrows and bioturbation occur in the upper parts of the member in the Sugarbrook No. 3 Borehole (Old *et al.*, 1991, pp. 20, 27).

Interpretation

The Triassic sediments at Burcot are indicative of a range of palaeoenvironments. The trough cross-bedding in the Wildmoor Sandstone Formation has been interpreted as evidence for a fluvial mode of deposition. However, the sand grains are well sorted and rounded, which might indicate an origin as an aeolian deposit. Overall, the evidence suggests that this formation was deposited in seasonally active braided streams that reworked and transported sediment from areas of sand dunes a relatively short distance away to the south-east (Old *et al.*, 1991, pp. 17–18). The unconformity with the overlying Bromsgrove Sandstone Formation, and the pebble bed lying at its base, represent a phase of intense erosion.

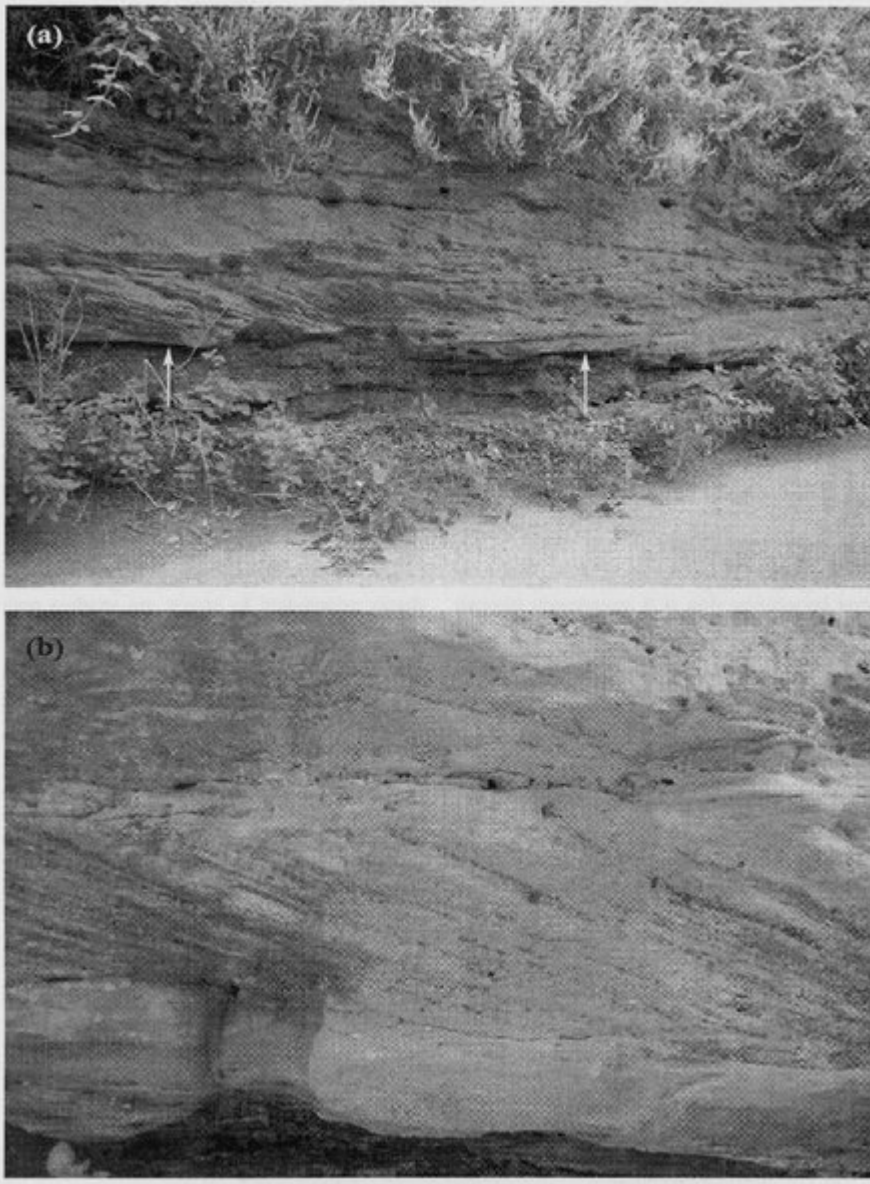
The Bromsgrove Sandstone Formation, characterized by cross-bedded, often coarse-grained sandstones, was deposited under fluvial conditions. The basal, coarse-grained conglomeratic beds were rapidly deposited as channel lags, and are associated with the period of erosion responsible for the unconformity. The overlying cross-bedded sandstones are indicative of fluvial conditions and were deposited in braided, low-sinuosity channels (Old *et al.*, 1991, p. 25). The fine-grained sandstones and rare mudstones represent overbank deposits. The calcretes at the top of the section are typical of pedogenic processes and represent soils.

The shark *Acrodus*, and the bioturbation, in the Burcot Member confirm the presence of habitable rivers, ponds, and other shallow bodies of water, mainly at the tops of depositional cycles. Other fossils, including miospores, from higher in the Bromsgrove Sandstone Formation, confirm an Anisian age.

Conclusions

The Burcot road cutting exposes an excellent section through the Wildmoor Sandstone and Bromsgrove Sandstone formations of the Sherwood Sandstone Group. These sediments include sandstones, siltstones and conglomerates, deposited under fluvial conditions. The site exposes the locally important unconformity between these clastic units and sedimentary structures indicative of the fluvial palaeoenvironments within the Bromsgrove Sandstone Formation.

[References](#)



(Figure 3.55) The Burcot section (a) Bromsgrove sandstone overlying mudstones of the Wildmoor Sandstone (boundary marked with arrows) (b) Detail of the base of the sandstone body shown in (a) showing cross bedding. This is a distinct pebbly sandstone and it marks a major change from the red-brown sandstones and marls of the Wildmoor Sandstone Formation (Photo: English Nature/R. Cottle.)