
Bath University

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Highlights

Bath University (Bathampton Down) is representative of sites at the far south-eastern extent of a spread of erratic material in the Bristol and Bath districts, and thus at the limits of a very early glaciation. The site has especial importance because it can be used to demonstrate that the original deposition of this 'exotic' material pre-dates the formation of most of the valleys in the Bath area. It is proposed as the type-site of the Bathampton Down Member.

Introduction

At Bathampton Down, fissures and karstic cavities contain gravels and diamictons rich in flint and other erratic lithologies. Good examples are exposed in the road cutting at the entrance to Bath University.

Buckland and Conybeare (1824) described transported chalk flints on the summits of the hills south and east of Bath. 'High-level' gravels in the Bath district were then described by Weston (1850), who attributed them to the 'deluge'. Prestwich (1890) attributed them to deposition by an eastward-flowing proto-Thames. Most of the subsequent writers (Varney, 1921; Davies and Fry, 1929; Palmer, 1931) regarded them as fluvial, deposited by a river system draining into the Solent. Later workers (Hawkins and Kellaway, 1971; Gilbertson and Hawkins, 1978a) have regarded them as of glacial origin. The gravels on Bathampton Down were described in general terms by Varney (1921), Davies and Fry (1929) and Palmer (1931), and in more detail by Hawkins and Kellaway (1971). The site is proposed as the type-locality of the Bathampton Down Member by Campbell *et al.* (in prep.), who correlated the deposits with the glacial deposits of the Kenn lowlands which are thought to pre-date Oxygen Isotope Stage 15.

Description

In the entrance-cutting to Bath University [ST 535 759], solution cavities and fissures in the Great Oolite Limestone contain strong brown, clayey, clast- and matrix-supported fine gravels. These are sometimes overlain by pale brown, matrix-supported, crudely plane-bedded clayey and silty gravels. The gravel clasts are predominantly of Greensand chert, but flint, Carboniferous Limestone and chert, Oolitic Limestone, coal, shales, sandstone, 'bunter' quartzite and conglomerate are also present. Many of these rock types are not found upstream of Bathampton in the Bristol Avon catchment. Some of the fissure- and solution cavity-fills have been tilted and faulted by later cambering and landslips.

Interpretation

Both fluvial (Varney, 1921; Davies and Fry, 1929; Palmer, 1931) and glacial origins (Hawkins and Kellaway, 1971; Gilbertson and Hawkins, 1978a) have been suggested for these deposits. Hawkins and Kellaway (1971) suggested that the gravels may have been locally reworked from glacial deposits by fluvial or slope processes into the fissures and caves in the limestone. Most of these authors agree that deposition of these materials probably pre-dates the cutting of the valley system in the Bath area. The age of the glaciation which laid down these materials is not apparent from this site, but it has been argued to be the same as that which laid down the glacial deposits underlying interglacial sediments at Yew Tree Farm and Kennpier in the Avon Levels (Gilbertson and Hawkins, 1978a). Recent work (Andrews *et al.*, 1984; Bowen *et al.*, 1989) suggests that these interglacial deposits are of considerable antiquity and can be correlated with Oxygen Isotope Stage 15. Thus, the glacial deposits at Bathampton Down would appear to pre-date the Anglian and could date from before 600 ka BP.

Conclusion

The 'high-level' gravels of Bathampton Down are part of the evidence for a very early glaciation of the British Isles, although they have also been regarded as ancient fluvial deposits. This site lies towards the far south-eastern extent of a spread of 'excitic' material in the Bristol and Bath districts and is thus important for establishing the limits of a very early glaciation. Bath University GCR site is also important because it shows that most of the valleys in the Bath area were cut after this glacial event.

[References](#)