Bleadon Hill

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Highlights

The enigmatic deposits on Bleadon Hill may be a Mesozoic sea beach deposit, Pleistocene shoreline materials, proglacial lake-shore sediments or glaciofluvial gravel. If either of the latter two possibilities is the case, this site provides evidence for a glacial invasion of at least part of Sedgemoor and is therefore of great significance for understanding the limits of Pleistocene glaciation in South-West England. Bleadon Hill has been proposed as the type-section of the Bleadon Member.

Introduction

Bleadon Hill lies on the southern flank of the Mendip Hills and its controversial deposits are unrelated to an obvious source, such as a valley or cave resurgence. Clasts are derived predominantly from the local Carboniferous Limestone, but the deposit contains rare Lower Jurassic foraminifera.

The site was found and described by Findlay *et al.* (1972) and re-described in the Geological Survey Memoir (Whittaker and Green, 1983). The following description is largely taken from their work. The site is proposed as the type-section of the Bleadon Member by Campbell *et al.* (in prep.), who accepted a glacial origin for the deposit.

Description

A body of sand and gravel lies at 82 m OD on the south side of Bleadon Hill at [ST 350 573]. At its western end, the deposit lies upon a bench-like feature and against a near-vertical face cut in the Carboniferous Limestone, but most of the deposit lies upon siltstones of the Mercia Mudstone Formation.

At the south-east corner of the deposit, in an old gravel working, Findlay *et al.* (1972) recorded the following stratigraphy, with beds dipping at 35° to the north-east and all beds point-contact cemented. The base of the deposit was not seen. Not all bed maximum thicknesses were recorded by Findlay *et al.* (1972): those missing from their report were obtained during re-examination for the GCR, where possible, and are shown in parentheses.

5. Clast-supported, cobbly openwork gravel. The clasts are subrounded and up to 0.15 m in diameter. All clasts are of Carboniferous Limestone. (0.6 m)

4. Clast-supported, fine openwork gravel with occasional cobbles. The clasts are subrounded and most are between 5 and 20 mm, though the cobbles are up to 0.08 m. Most clasts are of Carboniferous Limestone, with some 'yellowish calcareous rock' and rare quartz and calcite. (1.2 m)

3. Clast-supported, cobbly openwork gravel. The clasts are subrounded and mostly 0.05–0.1 m in diameter, but with some up to 0.23 m in diameter. The transition to the underlying bed is irregular. (1.6 m)

2. Clast-supported, openwork very coarse gravel, cobbles and boulders. The clasts are up to 0.3 m in diameter. (*c.* 2 m)

1. Clast-supported fine and medium gravels. (> 2 m)

Findlay *et al.* (1972) recorded the following section at the eastern end of the site in an excavated pit:

4. Clast-supported, cobbly carbonate-cemented gravel. The clasts are subrounded and up to 0.15 m in diameter. They are all composed of Carboniferous Limestone. (0.6 m)

3. Reddish-brown, pebbly sandy silt. (1.2 m)

2. Pale brown carbonate-cemented sand.

1. Pale brown, 'laminated' and ripple-marked unconsolidated sand containing rare Liassic (probably Sinemurian) foraminifera. The bedding in the sands dips at 37° to the south. The base of the deposit was not seen.

Interpretation

Findlay *et al.* (1972) suggested a variety of origins for the deposits including a sea beach of either Mesozoic or Pleistocene age, a proglacial lacustrine beach deposit or a glaciofluvial gravel. Since it is now apparent that, in the Severn coastlands, sea levels have persistently returned only to levels close to or at most a few metres above present levels throughout the Middle and Upper Pleistocene (Andrews *et al.,* 1984), the presence of a Pleistocene shoreline deposit at 82 m OD at Bleadon Hill is considered unlikely. There is no evidence to disprove any of the other suggestions of Findlay *et al.* (1972), though the lack of demonstrably glacially transported erratic material could be taken as an indication that a glacial origin is unlikely. On the other hand, cementation of the deposit is never more than rather light point-contact; heavier cement might reasonably be expected from a deposit of Jurassic age.

Conclusion

The origin of the Bleadon Hill deposit is uncertain, but suggested possibilities include Mesozoic and Pleistocene sea beach deposits, a proglacial lake-shore deposit or a glaciofiuvial gravel. This site thus potentially preserves evidence for a glacial invasion of at least part of Sedgemoor and therefore may be of great significance for the understanding of the limits of Pleistocene glaciation in South-West England. Its research potential is largely unrealized.

References