Bleadon Hill

C.O. Hunt

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