Court Hill

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Highlights

Although much of the Quaternary fill of the 'col-gully' at Court Hill was removed during construction of the M5 motorway, the site still provides secure and spectacular evidence for the glaciation of the Avon coastlands. It is the only well-documented example of this type of glacial landform in South-West England.

Introduction Failland Ridge (Hawkins and Kellaway, 1971; Gilbertson, 1974; Gilbertson and Hawkins, 1978b). The deposits included a number of clasts of lithologies erratic to the Failland Ridge, including Greensand chert, and some Cretaceous foraminifera. Gilbertson and Hawkins (1978b) interpreted the feature as a 'col-gully', of glacial origin. Campbell *et* al. (in prep.) assigned the glacigenic deposits to the Kenn Formation, which elsewhere in Avon and north Somerset pre-dates an interglacial of 'Cromer-complex', probably Oxygen Isotope Stage 15, age.

Description

A full geomorphological and stratigraphical description of the site was given by Gilbertson and Hawkins (1978b), from whose account the following is largely taken.

The deposits at Court Hill [ST 473 723] lie in a channel some 24 m deep, excavated in the Carboniferous Black Rock Limestone of the Failland Ridge. The base of the channel falls and the channel widens from south to north. The fill of the feature varies laterally, with predominantly boulder-, cobble- and gravel-sized material to the south, passing into predominantly sand-sized material to the north (Figure 10.2). The following sedimentary facies can be distinguished.

5. The whole site is overlain unconformably by a veneer of red silty sand usually less than 0.5 m thick.

4. Unconformably overlying the main part of the sequence are lenticular red-brown diamicton and gravel bodies up to 3 m thick. The matrix of the diamicton is a sandy silt, with constituent boulders up to 0.5 m in diameter. Most of the large clasts are Carboniferous Limestone, but other lithologies, including Pennant Sandstone, Carboniferous chert, Triassic sandstone, Mercia Mudstone, Old Red Sandstone, Greensand chert and flint, are present.

On the south side, the main part of the fill comprises beds between 0.5 to 2.0 m thick of imbricated, well-sorted, often openwork well-rounded gravels, cobbles and boulders, which dip northwards at *c.* 37°. The beds exhibit both normal and inverse grading. The deposits contain a similar range of rock types to facies 4. The silty sand to gritty sand matrix of the clast-supported beds is indurated with calcium carbonate while openwork deposits are usually carbonate-cemented at point contact. A number of conical cavities, 2–3 m deep, 1 m wide at the top and 3–4 m wide at the base, occur within this facies.

2. The gravels and boulder beds interdigitate with uncemented, cross-bedded, coarse gritty sands with occasional very thin clay/silt partings. Gilbertson and Hawkins (1978b) suggest that this cross-bedding is of a deltaic type. Beds in the sands are 0.5–3.0 m thick and the cross-sets all dip northwards at 10–20°. A few Jurassic and Cretaceous foraminifera were found in the sands.

1. The sands are interbedded with occasional lenticular bodies of diamicton up to 0.75 m thick. The diamicton is poorly bedded and comprises cobbles and boulders in a sandy silt matrix. Most of the boulders are of Carboniferous Limestone, but other lithologies, similar to those in facies 3 and 4, are also present.

Interpretation

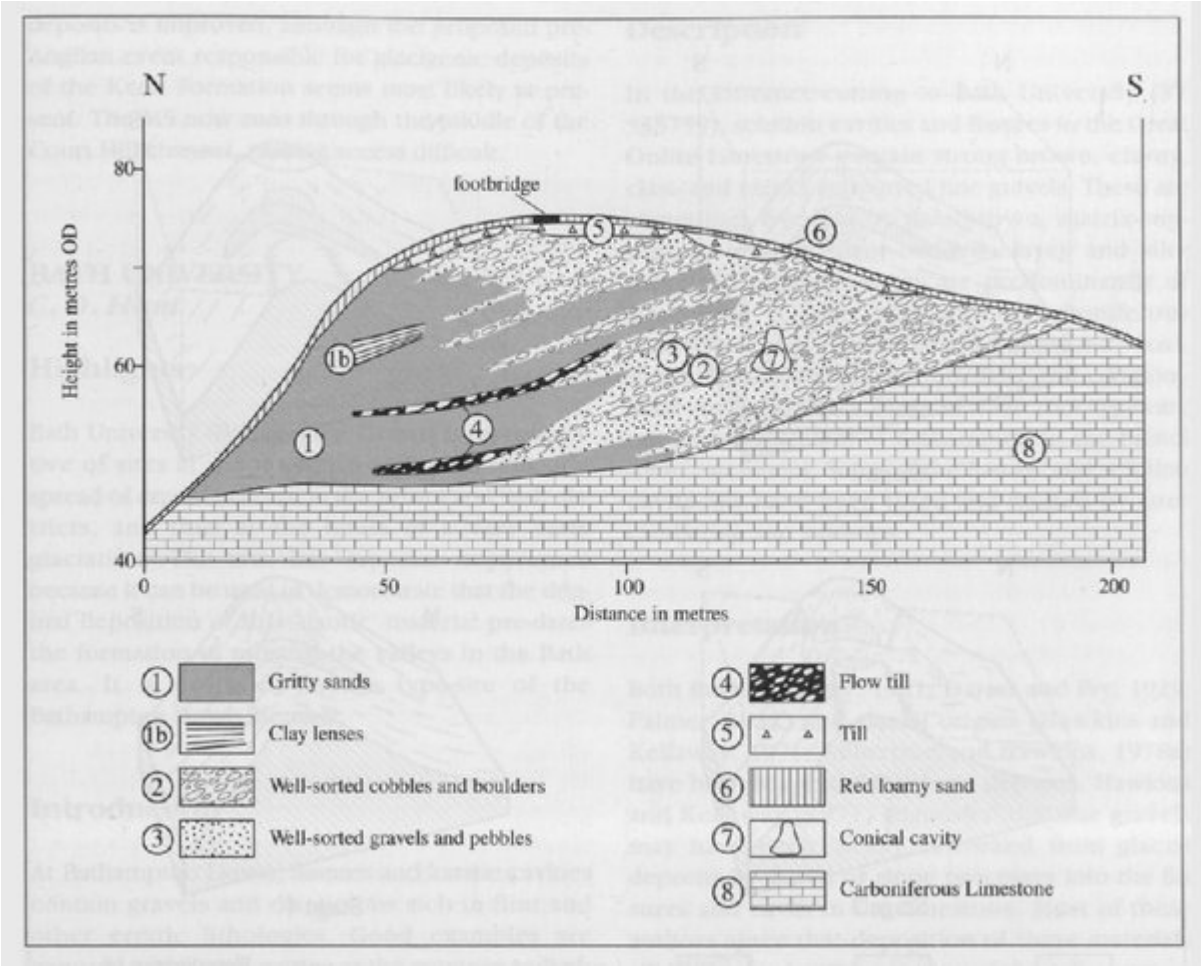
A number of valley-fills of Triassic dolomitic conglomerate are known in the Bristol District (Kellaway and Welch, 1948). The presence of erratic materials, notably the Greensand chert and flint and the Cretaceous foraminifera, however, precludes the fill of the Court Hill channel being dolomitic conglomerate.

Gilbertson and Hawkins (1978b) regard the Court Hill channel as a glacial 'col-gully', cut by meltwaters of a downwasting ice sheet and infilled with glaciofluvial gravels (facies 3), rare flow tills (facies 1) and deltaic sands (facies 2). Further patches of till (facies 4) overlie these deposits. The silty sand (facies 5) overlying the sequence was interpreted as an aeolian coversand. In their interpretation, the ice sheet, of proposed Wolstonian or Anglian age, is supposed to have been thicker in the Kenn lowlands, to the south of the Failland Ridge, than it was in the Vale of Gordano to the north, where an ice-marginal lake formed. The meltwaters which cut the 'col-gully' are believed to have flowed northwards into this lake (Figure 10.3).

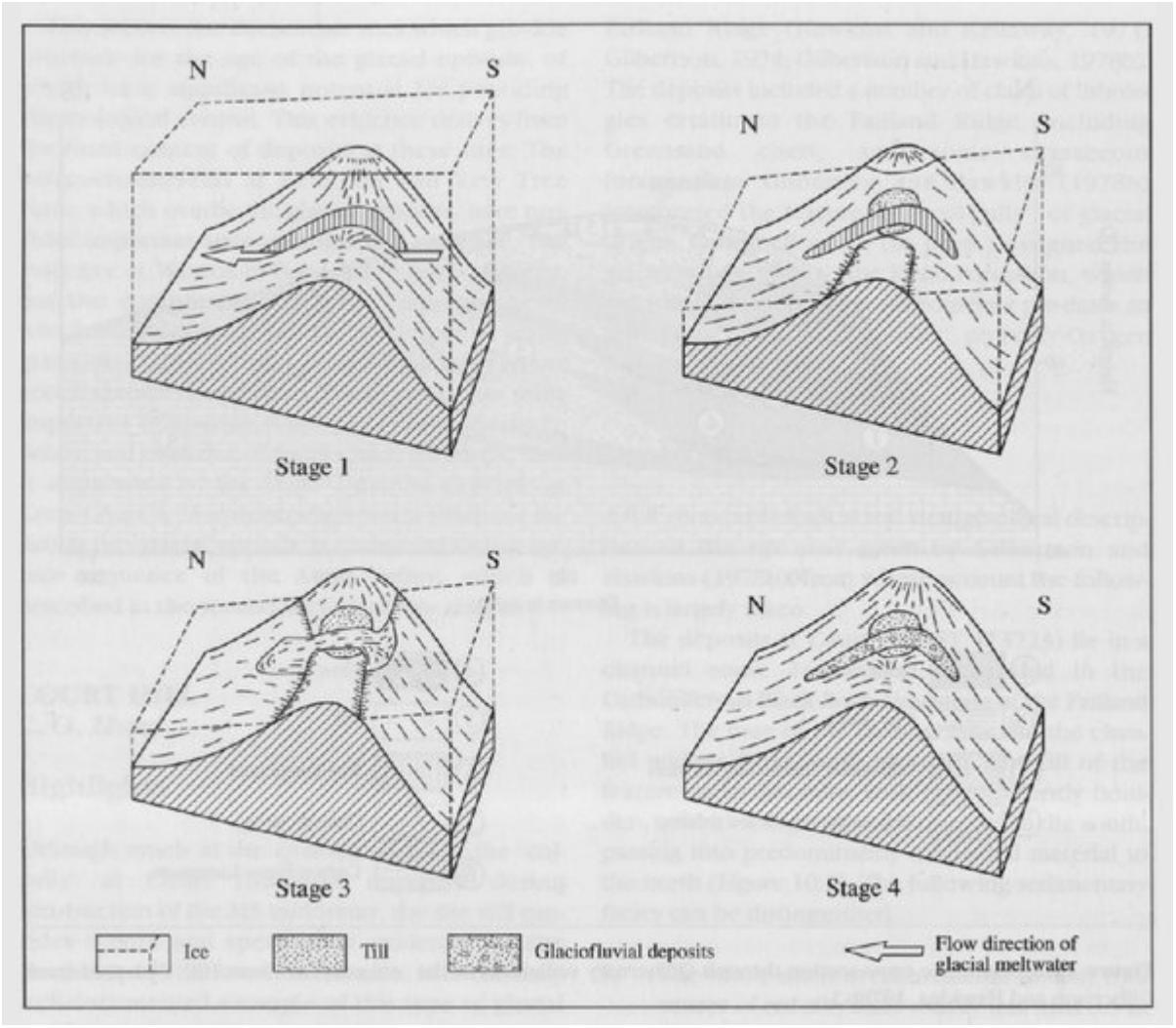
Conclusion

Court Hill provides spectacular and unambiguous evidence for the glaciation of the Avon coastlands and, in particular, provides important evidence for the configuration of the ice masses located in the Vale of Gordano and the Kenn lowlands. The 'col-gully' contains an impressive infill of Quaternary sediments which includes till, glaciofluvial and glaciolacustrine deltaic deposits. The age of the glacial episode(s) responsible for the landforms and deposits is unproven, although the proposed pre-Anglian event responsible for glacigenic deposits of the Kenn Formation seems most likely at present. The M5 now runs through the middle of the Court Hill channel, making access difficult.

References



(Figure 10.2) Schematic cross-section through Quaternary sediments in the 'col-gully' at Court Hill. (Adapted from Gilbertson and Hawkins, 1978b.)



(Figure 10.3) A four-stage model to explain the formation of the Court Hill 'col-gully'. (Adapted from Gilbertson and Hawkins, 1978b.)