Mesolithic Miscellany

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Dating the putative Mesolithic human tibia from underneath the Kilham Neolithic long barrow

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Introduction

Excavations of the pre-barrow surface underlying the Kilham long barrow, Yorkshire, revealed a pit, 'Pit B', thought to be of Mesolithic date (Manby 1976). It contained a partial adult human tibia that, based on its context, was accepted as of Mesolithic age in the catalogue of European Mesolithic human remains compiled by Newell *et al.* (1979: 98; see also Gray Jones 2011: 226). If confirmed, this could suggest a degree of continuity in use of a place for burial across the Mesolithic-Neolithic transition otherwise unknown in Britain. This, in turn, has potential implications for the real and/or perceived identity of early farmers, i.e., that the remains of preceding Mesolithic hunter-gatherers could have been accepted as ancestral, and were therefore appropriate for inclusion within the space of a long barrow. A coincidental relationship specifically involving deposition of human remains would be very improbable. Crucial to any futher interpretation, however, is the demonstration that the tibia fragment is indeed Mesolithic in date. There are numerous examples of cases in which radiocarbon dating has shown that presumed stratigraphic integrity to have been nothing of the sort. This makes direct dating of potentially important or unexpected finds essential, as emphasised by the series of papers published by Chris Meiklejohn and colleagues in various recent issues of this journal. Meiklejohn *et al.* (2011: 46; see also Conneller 2006: 147) specifically emphasise the need to directly date the Kilham find before it can be considered Mesolithic.

The tibia fragment from Pit B was initially sampled in the late 1990s for stable carbon ($\delta^{13}C$) and nitrogen ($\delta^{15}N$) isotope analysis (Schulting 1998). Since the results (-21.2‰, 8.5‰, respectively) were consistent with an entirely terrestrial diet, it was assumed that this was not from a Mesolithic individual since Kilham is only some 7km from the North Yorkshire coast. Given the isotopic results from other coastal Mesolithic sites in Britain known at the time (Richards and Mellars 1998; Schulting and Richards 2002), the expectation was that any Mesolithic individual would show evidence of some degree of reliance on marine resources. Thus, given limited funds available at the time, no radiocarbon dating was undertaken. But since it is not invariably the case that Mesolithic humans found near the coast exhibit a clear marine isotopic signal (e.g., Rockmarshall, Ireland: Woodman 2009; Kent's Cavern, Devon, UK: Schulting *et al.* 2015), it seemed that the issue was well worth revisiting.

Kilham

The Kilham long barrow is in East Yorkshire, some 11 km west of Bridlington (54.0908 N, 0.3870 W) (Figure 1). The site was first excavated by Rev Canon William Greenwell in 1868 (Greenwell 1877: 553-6), who reported the long barrow to be 170 ft long by 60 ft wide and 4 ft high at the NE end, narrowing to 45 ft wider and 3 ft high at the SW end, although it had already been reduced by ploughing by this time. Excavations recovered scattered human skeletal remains from several locations, including some cremated remains. Unusually, for a British Neolithic long barrow, four crouched inhumations were also found, with one reportedly lying on the natural surface beneath the mound; the others were within the lower part of the mound. Greenwell also recovered two Bronze Age burials, both with Food Vessels (Manby 1976: 115). Indeed, Greenwell placed Kilham (CCXXXIV in his catalogue) in the round barrow category because of the nature of the burials and the pottery (1877: 553-556).

T.G. Manby renewed the excavations at Kilham in the late 1960s and early 1970s (Figure 2), providing a comprehensive plan of the structure of the site, which included not only the earlier Neolithic long barrow, but also an Early Bronze Age round barrow near the east end of the long barrow. The long barrow, however, was also used for burial in the EBA, as seen in the two burials found by Canon Greenwell more than a century earlier. Sherds of Early Neolithic Carinated Bowl ('Grimston Ware') pottery were recovered from the old land surface and the pre-barrow soil (Manby 1976: 138-9). A small number of Beaker sherds were

found in two locations by Manby, in the fills of both the northern and southern quarry ditches (*ibid*.: 139-40). Manby (1976) lists three inhumations and two cremations in the burial chamber, plus two Bronze Age skeletons.

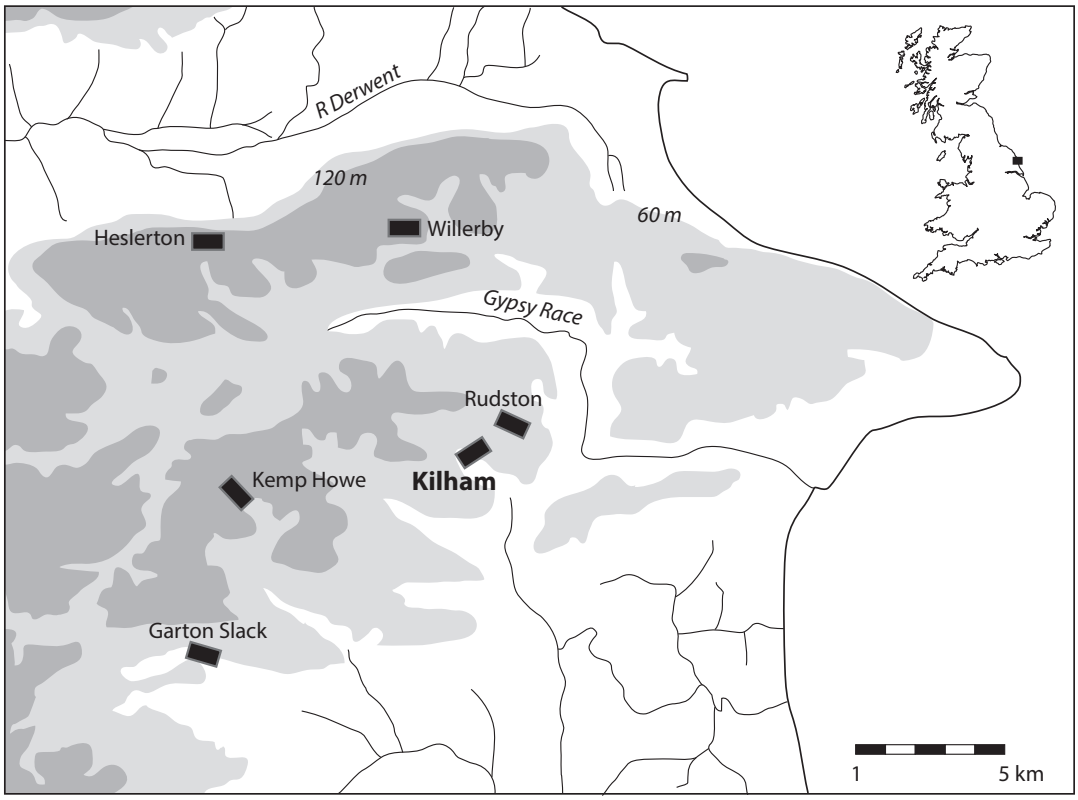

Figure 1. Location of the Kilham long barrow and selected nearby barrows (after Manby 1976: fig. 1).

Of particular interest here is the Mesolithic flint industry recovered from the 'reddish brown clayey soil' underlying the mound (Manby 1976: 117). The microliths, of Late Mesolithic character, include scalene and isosceles triangles, rods and backed points (Manby 1976: fig. 14.10-19). This material was spread over an area of some 21.5m, concentrated at the eastern end of the mortuary enclosure and in and around Pit B. In contrast to the lightly patinated post-Mesolithic flint industry, the Mesolithic flints were heavily patinated (Manby 1976: 137). Three 'hearth sites' were also identified by areas of burnt soil on the pre-barrow surface. Manby felt that the pre-barrow soil was truncated in the Neolithic as earth was moved to form the earthen banks flanking the burial area. In addition, much of the area of the central axis of the mound had been excavated by Greenwell, adding to the disturbance.

Previous radiocarbon dating at Kilham is limited to a charcoal sample from the long barrow (ditch?), which gave a broad Early/Middle Neolithic result of 3945–3360 cal BC (BM-293: 4830 ± 125 BP) (Barker *et al.* 1971). Bone samples from two burials in the long mound as well as the tibia fragment from Pit B were previously analysed for stable carbon ($\delta^{13}C$) and nitrogen ($\delta^{15}N$) isotopes (Table 1) (Schulting 1998). All three are consistent with an entirely terrestrial diet. The $\delta^{15}N$ values from the two burials are surprisingly low in a British Neolithic context (Schulting 2011; Schulting and Borić 2017). However, it is likely that re-analysis today would return somewhat higher values, as has been noted in repeat measurements of other samples first run in the 1990s, related to advances in instrumention and calibration standards.

Sample	*$\delta^{13}C$*	*$\delta^{15}N$*	*C:N*
B1	-21.5	7.6	3.1
B2	-21.3	5.6	3.0
Pit B	-21.2	8.5	3.5

Table 1. Human bone collagen $\delta^{13}C$ and $\delta^{15}N$ results previously obtained from Kilham long barrow (Schulting 1998)

Pit B

Pit B is one of a group of five pits (A-E) underlying the barrow that were attributed by Manby to the Mesolithic (Figure 2). Pit B was oval, measuring 1.6 m by 2-4 m, with sloping sides, the main fill of weathered chalk 'with an intervening layer of reddish brown soil, continuous with the pre-barrow soil, dipping into the northern portion of the pit' (Manby 1976: 117). However, Greenwell's excavations had cut into Pit B to an unknown extent – unfortunately, no profile is provided for Pit B, unlike other pre-barrow features (Manby 1976: fig. 10) – though from the plan the intervention was substantial (*ibid*.: fig. 7).

Small fragments of animal bone and Mesolithic flints were recovered from the lower chalk layer in Pit B and fragments of charred hazelnut shells and flints were found throughout the soil layer. Bramwell (in Manby 1976: 157) identified two horn core fragments and the proximal end of a phalange of a large ox, as well as indeterminate calcined fragments and unburnt tibial fragments with 'human characteristics'. The last has been confirmed by the present author as the mid-shaft section of an adult-sized human tibia, originally sampled for stable isotope analysis as noted above. For this study, a remaining fragment of the same sample was submitted to the Oxford Radiocarbon Accelerator Unit (ORAU) for AMS radiocarbon dating. Preparation and analysis followed the standard protocols in place at the laboratory (Brock *et al.* 2010).

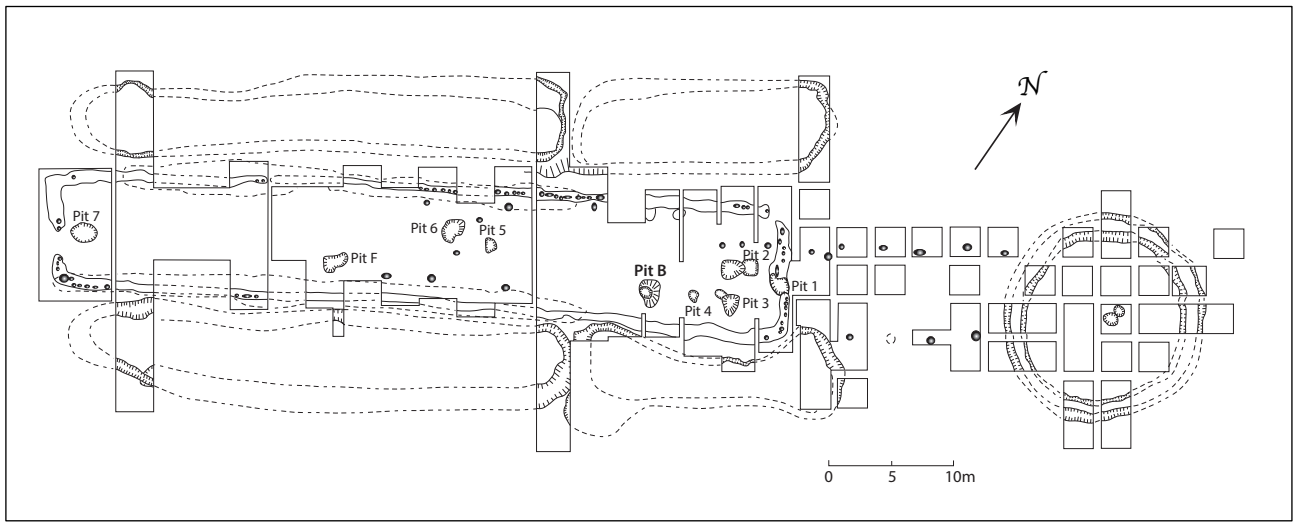

Figure 2. Plan of the Kilham long barrow and round barrow (after Manby 1976: fig. 3).

Results

The tibia fragment from Pit B returned a radiocarbon date of 3631 ± 33 BP (OxA-34176), calibrating to 2130–1900 cal BC (95.4% confidence) in OxCal 4.2. There is no record or other indication of the use of any preservatives on the bone, and so there is no reason to suspect that the date is not correct. The $\delta^{13}C$ value of -21.0‰ is nearly identical to the previous measurement (-21.2‰), and consistent with an entirely terrestrial diet. The $\delta^{15}N$ value of 9.3‰ is nearly 1‰ higher than that previously obtained, not unusual for re-analyses of samples first run in the 1990s, as noted above. The C:N ratio of 3.2 indicates well-preserved collagen.

Discussion

The radiocarbon determination of 2130–1900 cal BC definitively excludes the Pit B tibia fragment as being Mesolithic in age, and also excludes any association with the primary use phase of the Neolithic long barrow. Instead, the specimen is from the Early Bronze Age. The impression that Pit B was sealed under the long barrow, as suggested by Newell et al. (1979), is unwarranted. The most likely explanation for this is the disturbance caused by Canon Greenwell's mid-nineteenth century excavations. Manby (1976: 115) reports that Greenwell's excavations were extensive, extending down to the pre-barrow soil over a significant proportion of the mound, and clearly including at least partly removing the contents of Pit B. As well as removing contents, it seems that material, including the human tibia fragment, was introduced into the pit from the upper levels of the site during backfilling. As noted above, Greenwell encountered two Early Bronze Age burials with Food Vessels in the long barrow, typical of the period ca. 2200-1700 BC (Sheridan

2004). Manby (1976: 149) suggests that some of the other inhumations reported by Greenwell also may have belonged to this period. It is highly probable, then, that these skeletons were not fully recovered, or that other fragmented individuals were not identified, with some skeletal elements then becoming scattered over the site and subsequently incorporated into the fill of Pit B.

The putative association with the microliths in Pit B must now be seen as coincidental. The lithic assemblage still does raise an interesting question regarding the relationship between this Mesolithic activity and the long barrow, but in the absence of dating for the former, it is difficult to take this discussion further. However, the fact that the Mesolithic flints were noted as heavily patinated, while the later were not (Manby 1976: 137), suggests a considerable chronological gap between these events. This, then, would also argue for a fortuitous association. It may instead simply be that the relevant factor for both the Mesolithic and Neolithic activity was the site's location in the landscape, near the head of a small stream (Figure 1).

The result presented here for the tibia from Pit B at Kilham emphasises once again the need for direct dating of specimens where there is uncertainty regarding context, particularly when the find is unusual and potentially very important for interpretations.

Acknowledgements

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