Journal of Archaeological Science 37 (2010) 508–515

Contents lists available at ScienceDirect

Journal of Archaeological Science

journal homepage: http://www.elsevier.com/locate/jas

An investigation of the origins of cattle and aurochs deposited in the Early Bronze Age barrows at Gayhurst and Irthlingborough

Jacqueline Towers [a,*], Janet Montgomery [a], Jane Evans [b], Mandy Jay [c,d], Mike Parker Pearson [e]

[a] Division of Archaeological, Geographical and Environmental Sciences, University of Bradford, Bradford BD7 1DP, UK
[b] NERC Isotope Geosciences Laboratory, British Geological Survey, Keyworth, Nottinghamshire NG12 5GG, UK
[c] Department of Archaeology, University of Durham, South Road, Durham DH1 3LE, UK
[d] Department of Human Evolution, Max Planck Institute for Evolutionary Anthropology, Deutscher Platz 6, 04103 Leipzig, Germany
[e] Department of Archaeology, University of Sheffield, Northgate House, West Street, Sheffield S1 4ET, UK

ARTICLE INFO

Article history:
Received 23 April 2009
Received in revised form
7 October 2009
Accepted 12 October 2009

Keywords:
Strontium
Isotope analysis
Tooth enamel
TIMS
Intra-tooth sampling

ABSTRACT

The Early Bronze Age round barrows at Irthlingborough, Northamptonshire and Gayhurst, Buckinghamshire contained remarkably large quantities of cattle (*Bos taurus*) remains. At Irthlingborough, at least 185 skulls with smaller numbers of mandibles, shoulder blades and pelves were found together with a small number of skeletal elements from aurochs (*Bos primigenius*). In contrast, the remains from Gayhurst are dominated by the limb bones from more than 300 animals. This study employed strontium isotope ratio analysis of cattle tooth enamel from 15 cattle and one aurochs to investigate the diversity of the animals' origins at both sites and provide insights into Early Bronze Age funerary practices. Although strontium results show that most of the cattle and the aurochs included in this study were consistent with local origins, one animal from each barrow was born remotely, most likely in western Britain. In addition, a second Gayhurst animal was consistent with origins in a region of chalk rather than the local Jurassic sediments.

1. Introduction

Separated by approximately 30 km in central southern England are two of Britain's most remarkable Bronze Age archaeological sites. Early Bronze Age round barrows were discovered during gravel extraction in 1980s and 1990s at Irthlingborough, Northamptonshire and Gayhurst, Buckinghamshire (Fig. 1). They were both dated to around 2000 BC and were notable for the unusually large quantities of cattle (*Bos taurus*) remains associated with their central human burials.

1.1. Irthlingborough

Barrow 1, situated 2 km northeast of the village of Irthlingborough, Northamptonshire, was one of a group of barrows and other monuments on the river Nene floodplain. It was excavated in 1986 as part of the Raunds Area Project (Dix, 1987). The cattle bones found there were mixed with limestone blocks, which are thought to have formed a cairn above a central, wooden, burial chamber. Evidence suggests that the bones and blocks fell into the chamber after the timber had rotted (Davis and Payne, 1993). The chamber contained a skeleton of an adult male human accompanied by various grave goods including a long-necked beaker, a flint dagger, jet buttons, an archer's stone wristguard and an amber ring (Halpin, 1987). These goods indicate links outside the local area. For example, the jet was from Whitby, Yorkshire, the flint dagger was from East Anglia and the amber was from the Baltic Sea region (Parker Pearson, 2005). The skeleton was radiocarbon dated to between 2200 and 1920 cal BC (95% confidence, 3681 ± 47 BP, UB-3148) (Harding and Healy, 2007).

Davis (2009) reported that the cattle bones from Barrow 1 at Irthlingborough include skulls from 185 animals, mandibles and scapulae from between 35 and 40 animals, and pelves from 15 animals (estimated minimum values). Most of the cattle were young adults when slaughtered. A lack of incisor and premolar teeth combined with good preservation of molar teeth suggests that there may have been a period of at least one month between slaughter and incorporation of the skulls into the barrow. This delay would have allowed the smaller teeth to loosen and fall from their sockets. Thus, Davis (2009) speculated that defleshed skulls were incorporated into the cairn and that the presence of fine cut marks on several bones implies the consumption of beef. However, due to

* Corresponding author.
E-mail address: j.r.towers1@Bradford.ac.uk (J. Towers).

0305-4403/$ – see front matter © 2009 Elsevier Ltd. All rights reserved.
doi:10.1016/j.jas.2009.10.012

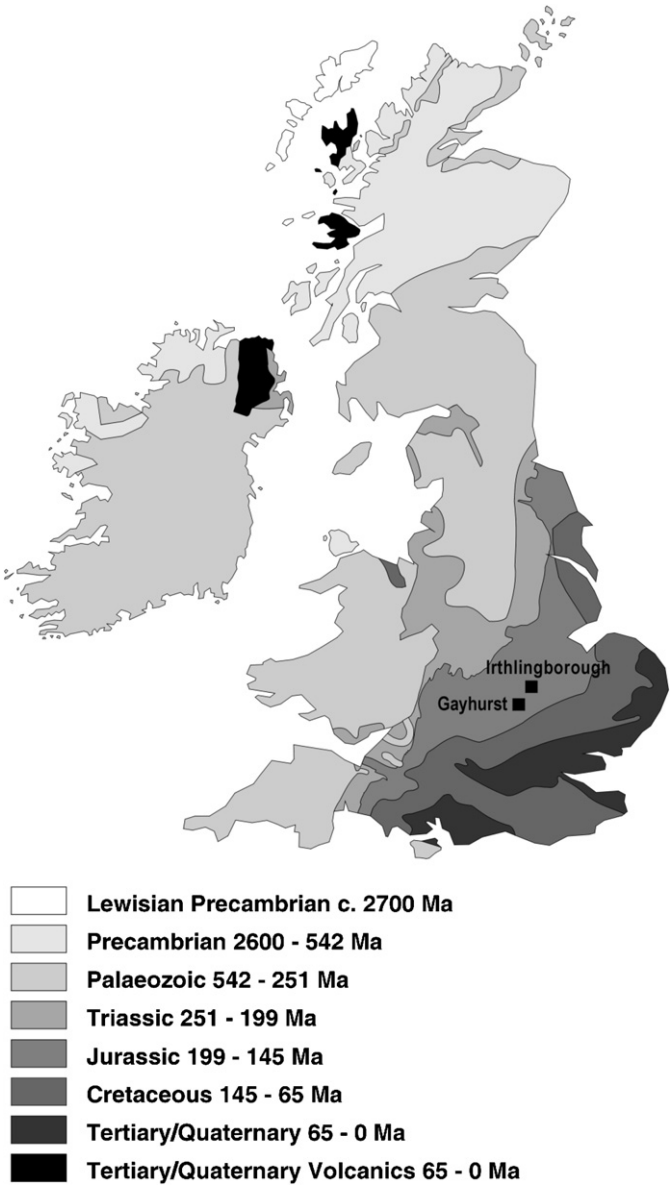

Fig. 1. Simplified geology map of Britain showing the locations of Irthlingborough and Gayhurst.

the poor preservation of most of the bones, it is not possible to estimate the full extent of feasting that might have taken place. One possible scenario is that around 40 animals were killed and consumed at the site while the remaining skulls were brought as tokens (Davis and Payne, 1993).

Amongst the assemblage were several aurochs (*Bos primigenius*) remains: five teeth, a fragment of horn core and two possible scapulae. The radiocarbon date of one aurochs tooth suggests it might have been several hundred years old when incorporated into the barrow, whereas radiocarbon date ranges obtained from a second aurochs tooth and two domestic cattle teeth overlap with that of the human skeleton (Harding and Healy, 2007). None of the dated teeth were included in this study.

1.2. Gayhurst

Barrow 2, at Gayhurst, Buckinghamshire, was the largest of seven barrows on the floodplain of the river Great Ouse excavated between 1997 and 2002. At the centre of this barrow was a burial of a single adult male in an oak-lined chamber. In this case, the only grave good present was the foreleg of a pig. Oak charcoal from the chamber walls was radiocarbon-dated to between 2200 and 1780 cal BC (95% confidence, 3640 ± 70 BP, Beta-132795) (Chapman, 2007).

The cattle remains found at Gayhurst were in a ring-ditch surrounding Barrow 2. Analysis of the bones suggests a minimum number of 300 animals with a wide-ranging age at death and a female to male ratio of nearly 4:1 (Deighton and Halstead, 2007). Such a demographic composition suggests the slaughter of a herd (or herds) rather than the deliberate selection of particular animals. Variation in bone dimensions indicates that the cattle might have originated from different herds (Deighton and Halstead, 2007).

The assemblage is composed mainly of three bone types – limb bones, skulls and mandibles – indicating deliberate selection of certain body parts. Deighton and Halstead (2007) proposed the following sequence of events:

1) the cattle were slaughtered away from the barrow, perhaps at several locations;
2) some meat was consumed but most of the carcasses were left to rot, a process that may have taken a few weeks or months;
3) after decomposition, limb bones were selected, disarticulated without the aid of a knife and spread across the surface of the barrow mound, in the area above the human burial;
4) they were later raked into the surrounding ditch as a single event.

A sample of cattle bone has produced a radiocarbon date of 2290–2010 cal BC (95% confidence, 3740 ± 50 BP, Beta-218227), which is broadly contemporary with the oak from the central chamber (Chapman, 2007).

1.3. The significance of cattle in the Early Bronze Age

Although the Early Bronze Age barrows at Irthlingborough and Gayhurst are unusual with respect to the large size of their cattle bone deposits, the association of cattle remains with human burials in southern Britain appears to have become established centuries before, in the Early Neolithic (Ray and Thomas, 2003). Cattle bones were generally the most common of the various animal species to be deposited in burials, barrow mounds and barrow ditches during the late 3rd and early 2nd millennia BC. Early excavators noted their presence from Early Bronze Age round barrows dug in the 19th century (Greenwell, 1877; Mortimer, 1905; Thurnham, 1869) and they have been recovered from numerous round barrow excavations across southern Britain (e.g. Ainsley, 2005; Clutton-Brock and Jewell, 2005). In some instances, they were placed within the burial pit, as at Hemp Knoll (Robertson-Mackay, 1980) and Durrington Down (Richards, 1990), both in Wiltshire. In others such as Hanborough and Barrow Hills, both in Oxfordshire, they were deposited within the barrow ditches (Barclay and Halpin, 1999; Case et al., 1964–65). However, none of these assemblages are anywhere near as large as those from Irthlingborough and Gayhurst. Mandibles and tooth rows are commonly represented among the cattle bones. Aurochs bones have been found in round barrow contexts at Hemp Knoll, Snail Down, Durrington Down, and Barrow Hills (Barrow 12).

The association of cattle remains with human burials suggests that cattle were symbolically important to the people of the Early Bronze Age. Grant (1991) has speculated that their symbolic significance may have been as important, or perhaps more important, than their economic significance, and that a major emphasis of cattle husbandry was to rear cattle for ritual feasting and funerary