Journal of Human Evolution 82 (2015) 170–189

Contents lists available at ScienceDirect

Journal of Human Evolution

journal homepage: www.elsevier.com/locate/jhevol

Upper Palaeolithic ritualistic cannibalism at Gough's Cave (Somerset, UK): The human remains from head to toe

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ARTICLE INFO

Article history:
Received 26 June 2013
Accepted 23 February 2015
Available online 15 April 2015

Keywords:
Human skull-cup
Cut-marks
Bone-marrow extraction
Human tooth marks
Magdalenian

ABSTRACT

A recurring theme of late Upper Palaeolithic Magdalenian human bone assemblages is the remarkable rarity of primary burials and the common occurrence of highly-fragmentary human remains mixed with occupation waste at many sites. One of the most extensive Magdalenian human bone assemblages comes from Gough's Cave, a sizeable limestone cave set in Cheddar Gorge (Somerset), UK. After its discovery in the 1880s, the site was developed as a show cave and largely emptied of sediment, at times with minimal archaeological supervision. Some of the last surviving remnants of sediment within the cave were excavated between 1986 and 1992. The excavations uncovered intensively-processed human bones intermingled with abundant butchered large mammal remains and a diverse range of flint, bone, antler, and ivory artefacts. New ultrafiltrated radiocarbon determinations demonstrate that the Upper Palaeolithic human remains were deposited over a very short period of time, possibly during a series of seasonal occupations, about 14,700 years BP (before present). The human remains have been the subject of several taphonomic studies, culminating in a detailed reanalysis of the cranial remains that showed they had been carefully modified to make skull-cups. Our present analysis of the postcrania has identified a far greater degree of human modification than recorded in earlier studies. We identify extensive evidence for defleshing, disarticulation, chewing, crushing of spongy bone, and the cracking of bones to extract marrow. The presence of human tooth marks on many of the postcranial bones provides incontrovertible evidence for cannibalism. In a wider context, the treatment of the human corpses and the manufacture and use of skull-cups at Gough Cave have parallels with other Magdalenian sites in central and western Europe. This suggests that cannibalism during the Magdalenian was part of a customary mortuary practice that combined intensive processing and consumption of the bodies with ritual use of skull-cups.

Introduction

In Europe, the diversity of techno-complexes associated with anatomically modern humans is matched by a similar diversity in the treatment of the dead, which included periods when primary burials were often accompanied by a rich array of burial goods and phases when evidence of funerary rites is practically non-existent (Pettitt, 2011). Cut-marked and broken human bones seem to be a recurrent feature of Magdalenian (~15–12,000 years BP [before present]) sites (Le Mort and Gambier, 1992; Cauwe, 1996; Orschiedt, 2002a; Le Mort, 2003; Street et al., 2006), particularly in the Dordogne area in France and the Rhine Valley in Germany. Reviewing the French Magdalenian record, Gambier (1992) and Le Mort and Gambier (1992) have identified less than 10 fairly complete skeletons. The vast majority of the individuals (over 200), however, are represented by disarticulated and highly fragmented remains, of which about 40% bear evidence of defleshing. Cranial fragments are often over-represented, for example at Maszycka Cave, southern Poland

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http://dx.doi.org/10.1016/j.jhevol.2015.02.016
0047-2484/

(Kosłowski and Sache-Kosłowska, 1993) and Le Placard, France (Le Mort and Gambier, 1991), and there are at least three Magdalenian sites where cranial vaults have been modified for use as containers (Gough's Cave, Le Placard, and Isturitz; Boulestin, 2012).

The discovery of large numbers of fragmentary human remains from a Magdalenian context at Gough's Cave in Cheddar Gorge, Somerset (UK), provides important insights into mortuary practices at this time. This assemblage is one of the largest and best documented Lateglacial Interstadial human bone collections from Europe (summarised by Stringer, 2000). The collection has a long history of scientific investigation, most recently being the subject of taphonomic studies that have pioneered the application of scanning electron microscopy (Cook, 1986) and focus variation microscopy (Bello et al., 2011a) to the analysis of late Pleistocene human bone assemblages. Despite the almost total excavation of the cave interior, the only human burial recorded from the site dates to the early Holocene (known as 'Cheddar Man'; Tratman, 1975; Stringer, 2000). The Upper Palaeolithic human assemblage is characterised by scattered, highly-fragmentary postcranial bones and relatively complete cranial vaults, in most respects typical of contemporary Magdalenian assemblages from mainland Europe.

A case for cannibalism at Gough's Cave was originally proposed by Balch (1947) as early as the 1930s. Debates about possible cannibalism have oscillated over the succeeding 50 years, with the opinion shifting between rejection, possible mortuary defleshing, intensive processing of cadavers for nutrition, and ritual treatment of the skulls. Cook (1986) dismissed earlier descriptions of cut-marks and bone breakage (Tratman, 1975) and considered that the post-mortem damage was largely natural in origin. Subsequent analysis by Currant et al. (1989) and Cook (1991) of more recently excavated material showed that human corpses had been dismembered; they were, however, equivocal as to the significance of this activity in terms of human behaviour. Andrews and Fernández-Jalvo (2003) made a compelling case for 'nutritional cannibalism' but noted differences in skull treatment that they interpreted as an indication of possible ritual cannibalism. The nature of the cranial modifications was further investigated by Bello et al. (2011a), who deduced that the skulls had been carefully worked to make skull-cups. This brief review illustrates the importance of the Gough's Cave human remains in debates concerning the recognition of cannibalism from osteological remains, as well as broader issues concerning the social context of Magdalenian cannibalism and the intentions and motivations behind this behaviour.

Cannibalism continues to be an extremely contentious issue (Arens, 1979; Bahn, 1992; White, 1992; Turner and Turner, 1999; Stoneking, 2003; Conklin, 2007; Fausto, 2007; Anderson, 2008). In particular, opinion has differed regarding prevalence and the motivation for cannibalism in past societies, citing evidence for cannibalism in exceptional circumstances (survival cannibalism during famine periods) or as socially important events strongly embedded in cultural practices (e.g., Bahn, 1992; Turner and Turner, 1999). Most discussions, however, have focussed on establishing human body consumption through bioarchaeological analyses (Diamond, 2000). Genetic evidence, from the studies of transmissible spongiform encephalopathies (TSEs), has also shed light on the prevalence of cannibalism in the past. The global pattern of TSE polymorphisms suggest that prehistoric TSEs were a part of hominin life, and repeated exposure to the effects of TSEs, as a result of cannibalistic activities, may have prompted the polymorphisms as a natural selective advantage for ancient populations (Mead et al., 2003). Marlar et al. (2000) were able to find biochemical evidence for cannibalism in the form of human myoglobin protein in cooking pots and in human faeces from a Puebloan (1150 AD) site in the south-western United States. Such genetic and biomolecular techniques for identifying cannibalism are, however, dependent on exceptional circumstances and are unlikely to be widely applicable in most archaeological situations.

Recognising cannibalism in prehistoric societies more commonly relies on the analysis of skeletal element representation and the presence of cut-marks, breakage patterns, and cooking traces on bones (White, 1992). According to White (1992), Turner (1993), and Boulestin (1999), cannibalism can only be demonstrated when the context and bone modifications can be directly linked to nutritional exploitation of the body and its elements. More recently, the recognition of distinctive damage patterns from human chewing has been used as compelling evidence for cannibalism (White and Toth, 2004; Cáceres et al., 2007; Fernández-Jalvo and Andrews, 2011; Saladié et al., 2013a). The identification of human chewing damage is likely to be applicable to a wider range of palaeoanthropological situations than genetic or biomolecular evidence alone.

Identifying the motivation and social context of cannibalism in past societies poses additional problems. Cannibalism can be divided into two broad categories according to whether consumption of individuals took place within a group (endo-cannibalism), or it involved the consumption of individuals from outside the group (exo-cannibalism). Within this dichotomy, various types of cannibalism have been defined (e.g., nutritional, gastronomic or pleasure cannibalism, self-cannibalism, survival cannibalism, warfare cannibalism, and mortuary cannibalism) according to the motivations and circumstances under which it was practiced. Distinguishing among these possibilities relies on identifying signatures of the different cases of cannibalism and can be ascertained from the context within which human bodies were butchered (for a list of the characteristics of the different cases of cannibalism documented in European prehistory refer to Carbonell et al., [2010] and Saladié et al., [2013b]). Analysis of human bone assemblages from different phases and a number of sites within the same cultural group can identify whether cannibalism was both a regular and culturally encouraged practice (White, 1992). However, even with detailed taphonomic studies, recognising unambiguous cases of cannibalism as an expression of a customary prehistoric funerary practice remains problematic (Simon, 1992; Melbye and Fairgrieve, 1994).

In this paper we present results of a new taphonomic analysis of the Magdalenian human postcranial remains from Gough's Cave and discuss their implications for identifying ritualistic cannibalism. In order to reconstruct the total post-mortem exploitation and manipulation of the cadavers at the site, we present an element-by-element description of the postcranial modifications, supplemented by line drawings of every specimen showing human modification. The possible ritual aspect of the treatment of the bodies was investigated by looking for peculiarities in the type and frequency of modifications associated with the crania, which are known to have been deliberately worked to make skull-cups (Bello et al., 2011a).

Although wider comparisons are hampered by a lack of comparable studies on other Magdalenian human bone assemblages, the evidence suggests that Magdalenian cannibalism was culturally motivated and an important aspect of a mortuary tradition strongly embedded in Magdalenian cultural norms and belief systems.

Archaeological context

Gough's Cave (Long. 51.281869, Lat. −2.765523) is a large cave opening on the southern side of Cheddar Gorge, southwestern England. The cave, discovered in the 1880s, was developed for tourism with extensive excavations to open passageways through a thick wedge of late Pleistocene cave earth and breccia that filled the