

07 March 2022

FULL ANALYSIS OF HUMAN REMAINS FROM FIELD 157 OF THE A1 WIDENING SCHEME

Sophie Newman and Malin Holst

Introduction

During excavations in 2014, a single context of disarticulated human bone was recovered from an enclosure ditch in Field 157, within the Baines section of the A1 Leeming to Barton Joint Venture for widening of the A1. In total six fragments of human bone were recovered from the upper fill (6627) of the enclosure ditch [6582]. A single fragment of burnt bone was also recovered from (6115) from Field 157, but it could not be determined whether it was human or animal, so has been excluded from further analysis. This document presents the objectives, methods and results of the analysis of the disarticulated remains.

Objectives

The skeletal assessment aimed to determine age and sex, as well as any manifestations of disease from which the individuals may have suffered.

Methodology

The skeletons were analysed in detail, assessing the preservation and completeness, as well as determining the age, sex and stature of the individual. All pathological lesions were recorded and described. A summary of the osteological and palaeopathological data for the disarticulated skeletal material is provided in the Appendix, Table 1.

Osteological Analysis

Skeletal preservation depends upon a number of factors, including the age and sex of the individual as well as the size, shape and robusticity of the bone. Burial environment, post-depositional disturbance and treatment following excavation can also have a considerable impact on bone condition. Preservation of human remains is assessed subjectively, depending on the severity of bone surface erosion and post-mortem breaks, but disregarding completeness.

Preservation was assessed using a grading system of five categories: very poor, poor, moderate, good and excellent. Excellent preservation implied no bone erosion and very few or no post-depositional breaks, whereas very poor preservation indicated complete or almost complete loss of the bone surface due to erosion and severe fragmentation.

The disarticulated human bone was moderately preserved, with some loss of surface detail, and each fragment of bone only being representative of 10-30% of the original skeletal element.

A count of the 'minimum number of individuals' (MNI) recovered from a cemetery is carried out as standard procedure during osteological assessments of inhumations in order to establish how many individuals were represented by the articulated and disarticulated human bones (without taking the archaeologically defined graves into account). The MNI is calculated by counting all long bone ends, as well as other larger skeletal elements, such as the hip joints and cranial elements. The bones represented by the fragments were all long bones, namely two femora, at least one humerus, and two ulnae. There were no duplicates, therefore the MNI for the human bone recovered from Field 157 is one adult (see below) individual.

Age is usually determined using standard ageing techniques, as specified in Scheuer and Black (2000a; 2000b) and Cox (2000). Age estimation in adults relies on the presence of the pelvis and uses different stages of bone development and degeneration in order to calculate the age of an individual (Lovejoy et al 1985; Meindl and Lovejoy 1989). Age is split into a number of categories, from foetus (up to 40 weeks in *utero*), neonate (around the time of birth), infant (newborn to one year), juvenile (1-12 years), adolescent (13-17 years), young adult (*ya*; 18-25 years), young middle adult (*yma*; 26-35 years), old middle adult (*oma*; 36-45 years), mature adult (*ma*; 46+) to adult (an individual whose age could not be determined more accurately as over the age of seventeen). Due to the small quantity of human bone present, no skeletal ageing criteria were present for analysis, but due to the robusticity of the long bones they were all likely from an adult individual (17+ years).

Sex determination is usually carried out using standard osteological techniques, such as those described by Mays and Cox (2000). Assessment of sex in both males and females relies on the preservation of the skull and the pelvis and can only be carried out once sexual characteristics have developed, during late puberty and early adulthood. No skeletal criteria for the estimation of sex were present for any of the human bone fragments recovered from Field 157.

Despite the bones present all being long bones, stature could not be determined as these elements were not complete.

Non-metric traits are additional sutures, facets, bony processes, canals and foramina, which occur in a minority of skeletons and are believed to suggest hereditary affiliation between skeletons (Saunders 1989). The origins of non-metric traits have been extensively discussed in the osteological literature and it is now thought that while most non-metric traits have genetic origins, some can be produced by factors such as mechanical stress (Kennedy 1989) or environment (Trinkhaus 1978). Both femora present within the disarticulated sample had *hypotrochanteric fossae* (grooves on the back of the femora). This, combined with their similar size and robusticity, suggests that these femora came from the same individual.

References

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Appendix

Table 1 Osteological and palaeopathological catalogue – Disarticulated bone

ID	Context	Bone Element	Detailed Description	Side	%	SP	No. Frags	Age	Sex	Other
1	6627	Femur	Proximal third, missing proximal end	R	30	3	1	A	-	Hypotrochanteric fossa
2	6627	Femur	Proximal third, missing proximal end	L	20	3	1	A	-	Hypotrochanteric fossa. Likely paired with ID1
3	6627	Humerus	Distal quarter, missing distal end	L	20	3	1	A	-	-
4	6627	Humerus	Small section of proximal third	?	10	4	1	A	-	-
5	6627	Ulna	Distal third, missing distal end	R	20	3	1	A	-	-
6	6627	Ulna	Distal third, missing distal end	L	15	3	1	A	-	Possibly paired with ID5

Key: SP = Surface preservation: grades 0 (excellent), 1 (very good), 2 (good), 3 (moderate), 4 (poor), 5 (very poor), 5+ (extremely poor) after McKinley (2004)

Non-adult age categories: f (foetus, <38 weeks *in utero*), p (perinate, c. birth), n (neonate, 0-1m), i (infant, 1-12m), j (juvenile, 1-12y), ad (adolescent 13-17y)

Adult age categories: ya (young adult, 18-25y), yma (young middle adult, 26-35y), oma (old middle adult, 36-45y), ma (mature adult, 46+y), a (adult, 18+y)

R – right; L – left; OA = Osteoarthritis; DJC = Degenerative Joint Changes; DEH – dental enamel hypoplasia