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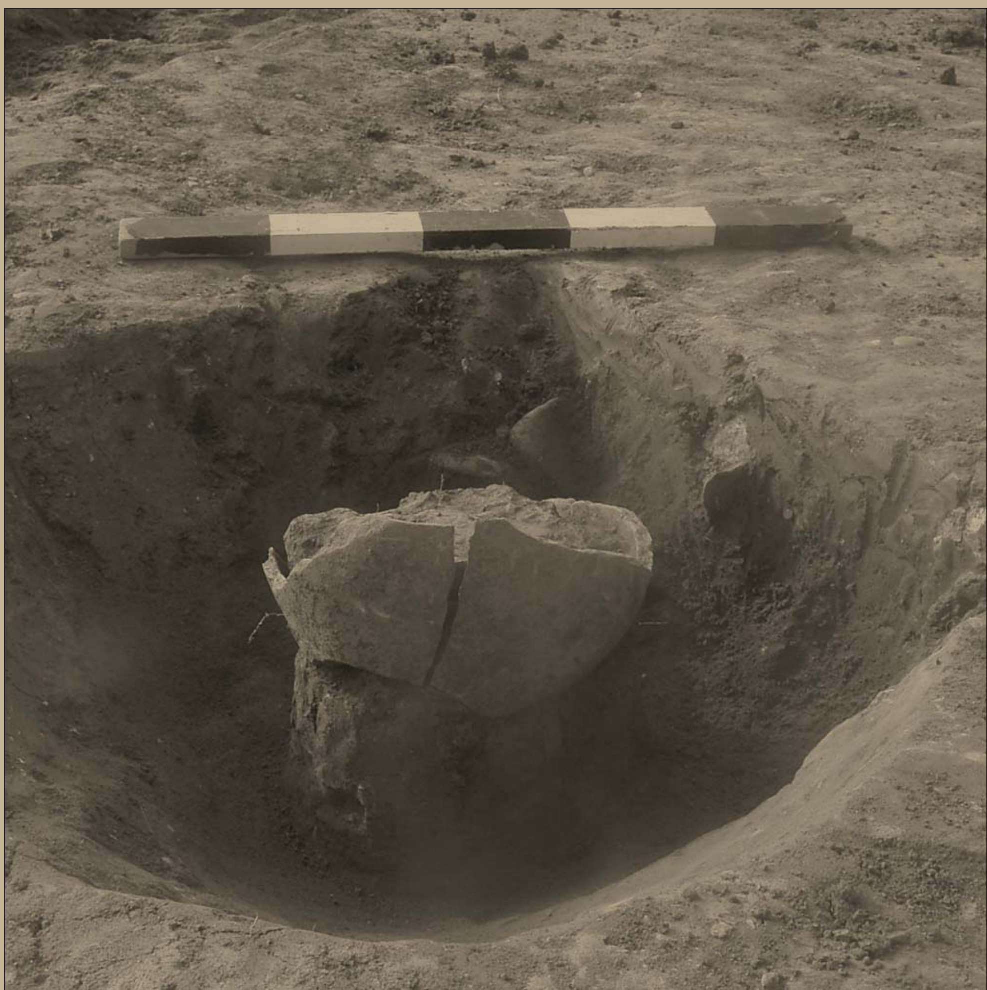
Human Bone Publication Report

By Kirsten Egging Dinwiddy



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A453, Nottingham (86081)
Human Bone Publication Report

Kirsten Egging Dinwiddy
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Introduction

Unburnt human bone from three contexts (remains of two inhumation burials and a redeposited fragment) was subject to analysis. Radiocarbon dating determined that one grave was of Late Iron Age-early Romano-British date and the other Romano-British (Table HB1). Adjacent to enclosure ditch 1392, the earliest grave was found *c*. 30m east of the later example which was located in the entranceway between ditches 1265 and 1048. The redeposited fragment was recovered from an early-mid Romano-British pit near the centre of the site, *c*. 30m from both graves.

Methods

Bone condition was recorded following McKinley 2004 (fig. 6.1-7). Age and sex were assessed using standard methodologies (Bass 1987; Beek 1983; Buikstra and Ubelaker 1994; Scheuer and Black 2000). Measurements were taken for the calculation of skeletal indices (Brothwell and Zakrzewski 2004; Trotter and Gleser 1952, 1958; Bass 1987) and Non-metric traits were recorded in accordance with Berry and Berry (1967) and Finnegan (1978).

Results

A summary of the results is presented in Table HB1. Details are held in the archive.

The grave cuts were poorly defined and shallow (0.06m and 0.10m), their contents being heavily plough-damaged and substantially fragmented. Most of the bone is in good condition (grades 0-2), with low skeletal recovery rates predominantly due to truncation rather than decay.

A minimum of three adults are represented, including one robust Late Iron Age-early Romano-British male and a fairly small Romano-British female (Table HB1).

The *c*. 1.67m stature estimated for the male is close to the average estimates for Iron Age and Romano-British males suggested by Roberts and Cox (1.68m and 1.69m; 2003, 106 & 163). Certain skeletal morphological variations may be linked to genetics, developmental abnormalities, or mechanical modification. Interpretative potential is complicated, particularly with regard to single traits and small samples (Tyrrell 2000, 292; Brothwell 1972, 92, 95-98; Molleson 1993, 156). Variations are comprehensively recorded in the archive; a selection is summarised in Table HB1. Non-fusion of the tip of the acromion process, *os acromiale*, was noted on the left scapula of the adult male. This variation has been linked to sustained biomechanical stress commencing in childhood (Stirland 2005, 121).

Pathological lesions were observed in the remains from both burials (Table HB1). The only observable dentition is that of the Late Iron Age-Early Romano-British male, comprising 24 teeth and 32 tooth positions.

Slight–moderate calculus deposits (calcified plaque; Brothwell 1972, fig. 58b) were observed (True Prevalence Rate - TPR 83.3%), together with moderate changes consistent with periodontal disease (TPR 34.4%; Ogden 2005) and carious lesions (TPR 51.2%), mostly originating at the tooth neck, though at least one is associated with heavy attrition. At least three (TPR 9.4%) of the observed apical voids (TPR 18.8%) were caused by infection i.e. dental abscess. Three teeth had been lost *ante mortem* (TPR 13%). The relatively high dental disease rates probably reflect a diet rich in carbohydrates, as well as the age of the individual

(>40 yr.) and poor oral hygiene (Hillson 1990, 286-99). Unevenness in the wear pattern may reflect irregular mastication, perhaps due to the discomfort caused by the dental disease. Enamel hypoplasia (defects in the tooth enamel indicating periods of severe nutritional or health stress during childhood; Hillson 1979) is evident as linear depressions on seven teeth (30.4%), indicating stressful episodes around 4-6 years (post-weaning to immune system maturation) and *c.* 10 to 12 years (puberty).

Partially healed moderate–severe pitting in the orbital roofs (*cribra orbitalia*) was identified in the adult male skull. The condition is understood to be linked to childhood iron deficiency anaemia, with poor diet, parasitic infestation and chronic disease potential contributory factors (Molleson 1993; Roberts and Manchester 1995, 166-9; Lewis and Roberts 1997).

Thick lamellar new bone within the male's maxillary sinuses indicates chronic sinusitis, undoubtedly associated with dental infection. A smooth linear deposit of new bone, observed within the left femur marrow cavity (shaft) of the Romano-British female, probably relates to irritation within the bone shaft, though the specific cause remains undetermined.

The various forms of joint disease represent the most frequently recorded conditions in archaeological human bone. Similar lesions – osteophytes and other new bone formation, and pitting – may develop as a consequence of one of several different disease processes, while some are reflective of age-related wear-and-tear (Rogers and Waldron 1995). Most of the male spine (22 vertebrae), and fragments of a female vertebra were available for observation. Extra-spinal joints comprised nine female (Romano-British) and 73 male (Late Iron Age-early Romano-British). The stated rates are TPRs, calculated by phase. Shallow Schmorl's nodes (defects in the vertebral body surfaces made by the protrusion of the intervertebral disc content) are present in the male spine (13.6%). All observed lesions indicative of osteoarthritis affect male joints, comprising three vertebrae (13.6%), two carpals (14.3% carpals; 33.3% right) and four ribs (22.2% ribs; 36.4% right). Lone osteophytes were recorded on 12 male vertebrae (54.5%) and 26 male extra-spinal joints, consisting of carpals (64.3% all; 100% right; 37.5% left), a metacarpo-phalangeal joint (14.3% all; 20% left), interphalangeal finger joints (100% proximal; 25% distal), and ribs (55.6% all; 45.5% right; 71.4% left). Lone pitting was observed on 12 male vertebrae (54.5%) and two male extra-spinal joints – acromio-clavicular (50%) and rib (5.6% all; 9.1% right). Slight pitting was seen on the right acetabulum of the Romano-British female (50%) (Table HB1).

Enthesophytes and cortical defects, which develop at tendon and ligament insertions, can be related to advancing age, traumatic stress, or disease (Rogers and Waldron 1995, 24-25). Lesions are summarised in Table HB1.

The small bony prominence on the male left frontal is probably a common (benign) button osteoma. Potential causes of the skull thickening and diploë densification seen in the same individual include Padget's Disease, hyperparathyroidism and osteopetrosis (Salter 1999, 31, 194-6, 199).

Concluding remarks

The small size of this assemblage restricts the value of detailed comparative discussion, though the osteological evidence suggests that the individuals represented led lives not dissimilar to those of their contemporaries.

The Late Iron Age-early Romano-British male probably had a physically strenuous lifestyle from a young age, and whilst it appears upper limb strength was predominant, much of the lower limbs are missing.

It is not unusual to encounter the remains of singleton burials from both the Iron Age and Romano-British period, particularly in association with boundary ditches. The occasional find of redeposited bone in contexts of these periods is similarly fairly commonplace.

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context	cut	deposit type	date	quantification	age/sex	pathology
1024	1018	inhumation burial	*RB	*c.* 25% a.u.l.	adult *c.* 45-50 yr. female	medullary new bone – left femur; pitting – right acetabulum
1137	1136	redeposited (pit)	early-mid RB	1 frag. s.	adult >18 yr.	
1247	1245	inhumation burial	*LIA-ERB	*c.* 35%	adult >40 yr. male	*ante mortem* tooth loss; apical voids; calculus; dental caries; enamel hypoplasia; periodontal disease; *cribra orbitalia*; skull thickening (dense diploë); button osteoma; osteoarthritis – C1-2 af, T11 c-v, 4 right ribs, right scaphoid & trapezium; Schmorl's node – T10-L1; osteophytes – C1-2 as, C3-7 apj, T6, T9-12 bsm, 5 right, 5 left ribs, left proximal humerus, right proximal radius, 6 right, 3 left carpals, left 1st MtC-P, 4 proximal & 5th distal IP (hands); pitting – C7, L1-3 apj, T1, T3-5, T7-10 c-v, 1st right rib, right acromio-clavicular; enthesophytes – left proximal humerus (rotator cuff), left ulna shaft, radii, right calcaneum; cortical defects – 1st distal phalanges (hands); morphological variation – metopic suture, plural mental foramen, palatine & mandibular tori, mylohyoid bridges; *os acromiale*

KEY: * radiocarbon dated; s. a. u. l. – skull, axial, upper and lower limb (indicated where not all regions are represented); C, T, L, - cervical, thoracic, lumbar vertebrae; af – articular facet; as – articular surface; apj – articular process joint; bsm - body surface margins; c-v – costo-vertebral; IP – interphalangeal joint; MtC-P – metacarpo-phalangeal joint;

Table HB1: Summary of human bone analysis results