

The Utility of Human Teeth in Investigations of Identity and Family in Anglo-Saxon England



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Introduction

In both the past and the present, the ideas of what constitutes a family are varied. The early Anglo-Saxon period (AD 410-660) in England has provided scientists with a breadth of material information from which to base interpretations regarding family and identity. Grave goods, laws from later phases of the period and spatial analyses have led to discussions on how family members may be recognised in cemetery based investigations.



Figure 1 – Overview of the UK locations of the four early Anglo-Saxon cemeteries used within this study.

Such ideas include women moving to new communities for marriage or returning to their father's homestead for birth (Sayer 2014). Metric data obtained from permanent tooth crowns can be used to help refine these theories further. The size and shape of dental crowns are heavily influenced by shared genetics (Townsend et al. 2012). As such, archaeologists can use the identification of similarly sized teeth to infer biological relationships within past populations. This project aimed to do this by using individuals from four early Anglo-Saxon cemeteries in the South-East of England (Figure 1).

Methodology

The permanent dentition of human remains from four early Anglo-Saxon cemeteries (dated to 5th-7th centuries AD) were analysed within this study. Individuals were included if they were aged 15 years +/- 36 months, biological sex had been estimated via skeletal approaches and had a known grave provenience. These criteria resulted in total of n=145 individuals from the four cemeteries having their dentition measured for analyses.

Teeth that were too worn or had pathological lesions affecting their crown morphology and those that could not be identified were excluded. Metric data was collected from the mesiodistal and buccolingual dimensions of each tooth (Figure 2). After data collection, 5988 measurements were analysed statistically using SPSS. Tests looked to determine the influence of biological sex and cemetery membership on tooth size before using hierarchical cluster analysis (HCA) to identify shared similarity in tooth size among individuals within the sample.

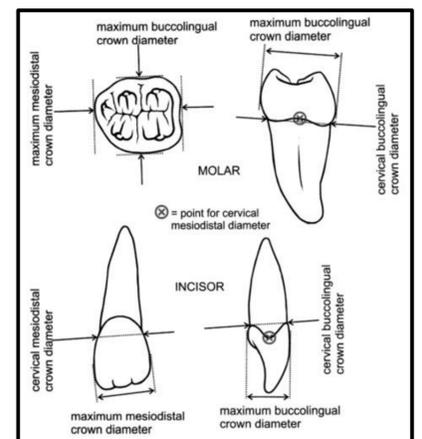


Figure 2 – Measurement guidelines for obtaining the mesiodistal and buccolingual dimensions from a tooth crown (Hillson 1986, 261).

Discussion: A Tale of Two Women

Results from statistical analyses revealed that variation in tooth size within the sample population could not be fully explained by cemetery membership (environment) or biological sex. Therefore, the majority of variation found was likely due to genetic inheritance, which made it possible to use HCA output to locate those in each cemetery who likely shared a biological connection based on similarity in tooth size. In order to meaningfully interpret what these connections could mean in terms of family during this time period, it was essential that contextual information in the form of grave goods and spatial organisation be considered alongside the biological data.

From Oakington cemetery, Grave 80 and Grave 57 present two case studies to highlight the utility of this approach for understanding family in the early Anglo-Saxon period. Grave 80 (Figure 3) contained the remains of a young adult female who was ornately decorated at time of death and buried with a nearly complete cow. This grave represents the only cow interment during this time period across Britain and Europe (Mortimer et al. 2017). Grave 57 (Figure 4) contained the remains of another young adult female, who was found with foetal remains in her pelvic area, indicating she was pregnant at time of death (Sayer and Dickinson 2013). The teeth of the female individual were found to be most similar to two other decorated adult females in the wider cemetery, who were all buried in close proximity within the cemetery.

As these cemeteries were thought to be based on paternal residence, these two female case studies show an interesting expression of family within this time period. Grave 80 contained a young adult female whose closest biological connections are to other females, whereas Grave 57 contained a young adult female who whose closest connections were to older males in the wider community. These cases each represent a different aspect of familial life; the female in Grave 80 likely represented a wife of an elite male within the community as she was buried in such an elaborate fashion. In comparison, it is likely the female in Grave 57 had returned to her father's homestead for the birth of her child, which is why she showed greater levels of similarity to older males in the community who could have represented her father, brothers or uncles.

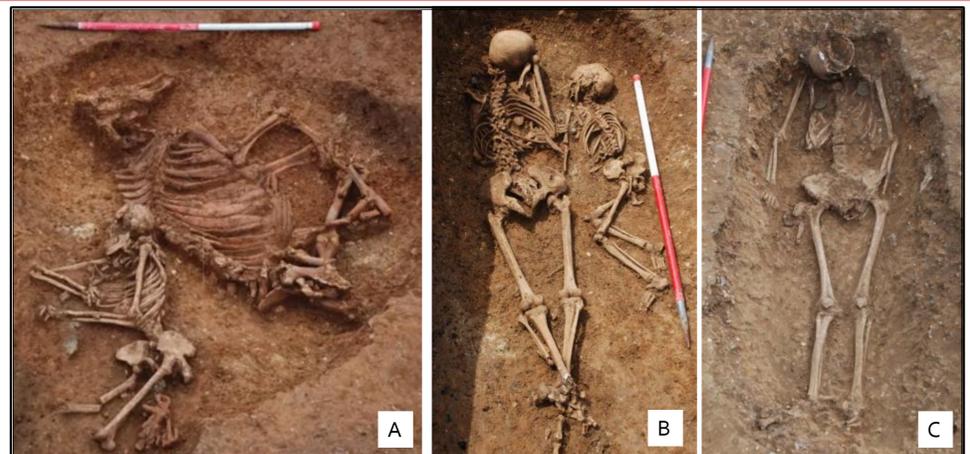


Figure 3 – Grave 80 (A) containing a young adult female who was buried with a cow (Mortimer et al. 2017, 312). Her closest biological connections were found to be adult females in Graves 78 (B) and 61 (C) (Sayer et al. 2013, 27, 39). These females were not found to be biologically similar to males in the wider group, suggesting they were likely wives within the community.

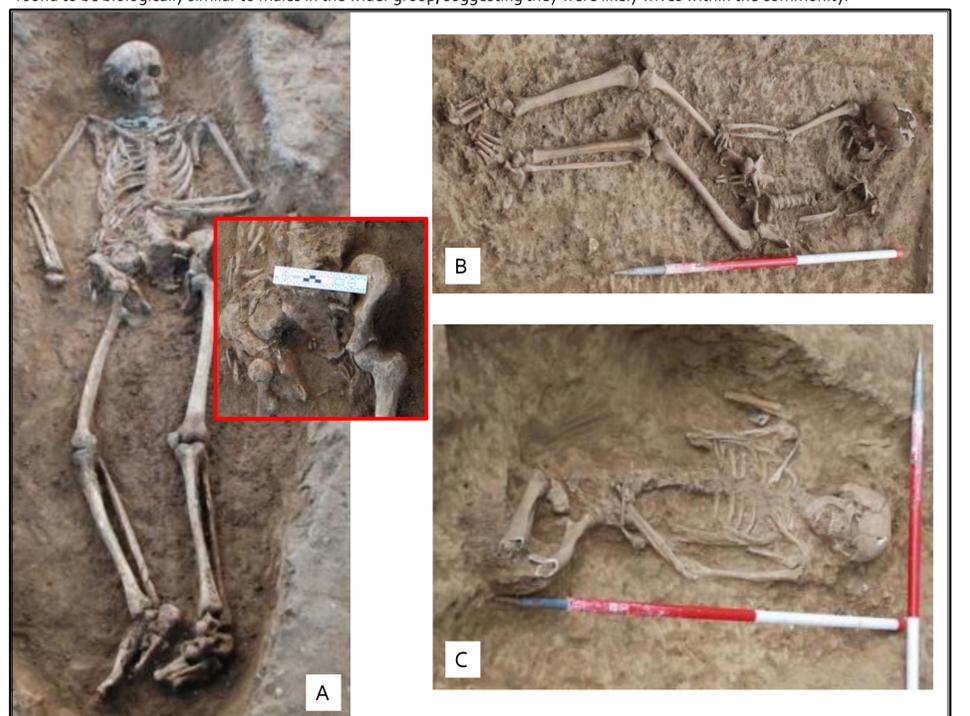


Figure 4 – Grave 57 (A) containing a young adult female who was likely pregnant at time of death (Sayer et al. 2013, 24). Her closest biological connections were found to be adult males in Graves 49 (B) and 52 (C) (Sayer et al. 2013, 18, 20). Due to the context surrounding this female, it is thought she returned to her father's homestead to give birth with her biological family.