

A New System for Recording Tooth Wear on Pig Teeth And its application to the Neolithic assemblage of Durrington Walls (Wiltshire, UK)

Elizabeth Wright¹ and Umberto Albarella²

University of Sheffield,
Northgate house,
West street,
S1 4ET,
Sheffield, UK

¹ Elizabeth.wright@dunelm.org.uk,

² u.albarella@sheffield.ac.uk

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Abstract

The recording of tooth wear is vital to the exploration of age in zooarchaeological assemblages; however, most tooth wear systems currently only apply to mandibular teeth, meaning that information from maxillary teeth and jaws is not being used. For pig, the most commonly used system for mandibular teeth is that of Grant (1982). Bull and Payne (1982), however, laid out a different system which applied to both the upper and lower teeth, although the tooth wear stages distinguished only between initial enamel wear and dentine exposure. A modified version of this system was used to record teeth from the Durrington Walls 1966-67 excavations by (as mentioned briefly by Albarella and Payne, 2005), but was not ever fully published. In 2004 the establishment of the Stonehenge Riverside Project, meant that new material was available to record, and the relatively high number of maxillary teeth being uncovered clarified the need to use this data. In this dissertation a modified and expanded version of the recording system used to record wear from the 1966-67 excavations has been described and used to explore the topics of age at death and seasonality at Durrington Walls. The results provide an insight into seasonal killing at the site, as well as aspects of differential deposition of cranial elements which would not have been exposed through conventional studies of mandibular tooth wear. The author therefore encourages the use of the new system for recording the remainder of the Durrington assemblage and for the recording of other assemblages either to boost the information given by mandibles, or to gain information based on maxillae where mandibles are sparse or badly damaged.

INTRODUCTION

Durrington Walls is one of Britain's largest Neolithic henge monuments. It was first excavated in 1966-67 (Wainwright and Longworth, 1971), and then again more recently as part of the Stonehenge Riverside project (Parker Pearson et al 2006; 2007). High proportions of *Sus* maxillary teeth and jaws have been uncovered during both excavations, but the tooth wear information from these teeth was essentially 'lost' without the establishment of an appropriate recording system.

Grant (1982) is the most commonly used method for recording tooth wear on pig, but this applies only to the mandibular teeth. Bull and Payne (1982) laid out a different method which is applicable to both upper and lower teeth, but unfortunately the system lacks recording detail.

A modified version of Bull and Payne's method was used for the recording of pig teeth from Durrington Walls during the 1990s, but this was only partly published (Albarella & Payne 2005). When excavation resumed in 2004, and more maxillary remains were uncovered (such as the abundant remains in midden context 593), the need for an appropriate system for recording upper pig teeth became clear.

The aim of this project was to lay out a modified and expanded version of the system used during the 1990s, which is applicable to mandibular and maxillary jaws, and apply it to the new Durrington Walls material, in order to study seasonality at the site, and to assess its usability for continued recording at Durrington Walls, as well as on other sites.

METHODOLOGY

The tooth is split into a number of pillars (see fig. 1)

'/' signifies that tooth pillars are separated by an enamel bridge

'-' signifies that tooth pillars are joined by dentine exposure

Codes (for examples see fig. 2)

M1/M2/M3/dP4

w1	No dentine exposure - enamel wear only
w2	Dentine exposed as one or more small unconnected area(s) on the occlusal surface
w3	Dentine exposed as a single area occupying most of the occlusal surface
w4	Enamel on part or all of the pillar edge has worn away

Mandibular P4

w1	No dentine exposure - enamel wear only
w2	Dentine exposed but broken by enamel into more than one area
w3	Dentine exposed and unbroken by enamel, creating one larger area of exposure

Maxillary P4

w1	No dentine exposure - enamel wear only
w2	Dentine exposed on buccal side of tooth only
w3	Dentine exposed on both buccal and lingual sides of tooth

Pig teeth from the most recent excavations at Durrington Walls were re-recorded using this protocol.

RESULTS—Application of the new methodology

Age at death (fig. 3)

Results show a killing peak of immature animals. Subadult animals would be expected to provide more meat. If feasting activity was taking place, animals may be killed at a younger age after being fattened over the autumn.

Seasonality

Using the methodology outlined by Ervynck (1997) mandibular wear stage results could indicate seasonal killing peaks (fig. 4). However, on that basis it was unclear which seasons these peaks represent.

Seasonality was investigated further by comparing wear patterns to those from jaws of known ages, recorded at the museum for the study of domestic animals in Halle, Germany.

The results indicate two peaks of killing, in the first winter and second summer (fig. 5). In midden context 593 (where more maxillae than mandibles are represented) first winter killing was especially evident (fig. 6). Second summer killing is more prominent in non-593 contexts (fig. 7). In all contexts, maxillary results show a peak of killing during the first winter.

CONCLUSIONS

Activity on site

First winter killing could be associated with the feasting activity proposed for the site by Albarella & Serjeantson (2002). The high proportion of maxillae deposited in context 593 suggests that cranial remains were being differentially deposited, and may have had some special association with feasting.

Non-593 contexts show a larger spread of killing across the seasons, suggesting that these contexts may contain remains not related to feasting. This suggests that both ritual and domestic activity was taking place on site.

Stonehenge and Durrington Walls

Durrington Walls' southern circle is aligned to the midwinter sunrise, complimenting the alignment of the Stonehenge avenue and stone circle towards the midwinter sunset. The presence of midwinter feasting provides more evidence of the relationship between the two sites.

Usability of the method

The predominance of maxillary teeth made it necessary to establish a new wear recording system. This has allowed us to produce valuable new information that would have been missed had we relied only on mandibular teeth. Therefore, this methodology will continue to be used for the recording of the Durrington Walls material and may also have a potential for other sites.

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