Chapter 8

Patterns in the modification of animal and human bones in Iron Age Wessex: revisiting the excarnation debate

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Abstract

Social practices concerning the treatment of human and animal remains in the Iron Age have long been a focus of debate in archaeological literature. The absence of evidence of a formal burial rite and the regular retrieval of human remains from 'special' deposits or ABG's has led to widespread discussion surrounding what majority rite was practised in Iron Age Wessex and excarnation has been a popular explanation. The deposition of unusual configurations of faunal remains, often associated with human remains may be suggestive of an interrelated pre-depositional and depositional practise between the different classes of remains.

This paper explores how a holistic analysis of bone taphonomy can contribute to the understanding of social practises surrounding the pre-depositional treatment of humans and animals. In a case study of the sites of Winnall Down and Danebury, it was demonstrated that humans and animals were treated significantly differently. Human remains exhibited far less modification than faunal material, suggesting that excarnation was unlikely to have been the majority rite. However, results indicate that either exposure in a protective environment or exhumation was practised so that partial or total disarticulation could occur with little taphonomic modification. Taphonomic analysis of faunal material demonstrates that it is not only humans and animals that were treated differently, as dog and horse remains exhibit significantly different patterns of modification to other animals. Results are indicative of rigidly controlled culturally constituted social practices relating to the treatment of different classes of bone.

Introduction

The Iron Age archaeological record exhibits a clear lack of formal burial evidence, especially considering the quantity and size of settlements and hillforts of the period. Although formal rites were practised in certain areas, particularly in the late Iron Age (see Birchall 1965; Cunliffe 1988, 42; 1995, 72; Hey *et al.* 1999; Parfitt 1995; Stead 1991; Wait 1985, 83; Whimster 1977; 1981), most of the southern British Iron Age exhibits a scarcity of human remains. Finds of

skeletal remains account for only a small proportion of the inhabitants of sites on which they were found, with Wait (1985, 90) suggesting that an archaeologically visible rite was practiced for only 6% of individuals in the Early/Middle Iron Age. Remains are recovered as isolated bones, skulls, disarticulated joints, partially complete inhumations or complete inhumations associated with articulated or partially articulated faunal remains and a range of other cultural debris from ditches, ramparts, enclosure boundaries, and most commonly pits. In addition, faunal remains often occur (with or without human remains) in deposits in a manner uncharacteristic of domestic refuse, with the deposition of particular configurations of material (commonly skulls, mandibles, articulated material and right sided elements) and an over-representation of certain species (horses and dogs) compared to their overall number on sites (Cunliffe 1995; Cunliffe and Poole 1991; 1995; Grant 1984a; 1984b; Green 1992; Woodward 1993). Due to the atypical nature of various deposits some have been described as 'ritually significant' (Grant 1984b; Hambleton 1999; Wilson 1999) or 'special' (Grant 1984a; Hill 1996), as they do not conform to expected patterns of domestic waste or storage pit usage. However, for the purposes of this research, deposits will be referred to as associated bone groups or ABG's following the terminology of Hill (1995), so as not to presuppose their ritual significance.

No classical documents refer directly to practices involving the deposition of human remains. However, references have been made to the symbolic importance of skulls to the Celts (Polybius, Hist III, 67; Diodrius Siculus 29, 4-5; trans Tierney 1960, 250; Strabo IV, IV, 5, trans Tierney 1960, 209; Silas Italicus IV, 215; Lucan I, 447; Livy XXIII, 24) and these are a commonly occurring element in ABG's. In addition it is known from classical and Irish texts that the Celts believed in an afterworld and the efficacy of manipulating the relationship between the two worlds (Chadwick 1970; Piggott 1969; Ross 1967). Rites involving the curation or display of human remains prior to final deposition fit with such beliefs. Some of the first references to pit deposits were made by Pitt-Rivers (1888, 60), who believed human bodies in pits to represent the normal burial rite and explained scattered human bone as being from disturbed burials (Pitt-Rivers 1887, 16). A common theme of early research was that human remains were seen as 'casual' burials. Pitt-Rivers (1887, 11) described them as 'buried without care' and 'thrown in irregularly'. Cunnington (1933, 207) noted that remains were often 'deposited without care' and similar comments have been made by Richardson (1951, 131) who stated that remains were thrown into a convenient rubbish pit and Liddell (1935, 25) who described remains as deposited in an indiscriminate manner. Some researchers have even suggested that human bone fragments may have been treated as rubbish (e.g. Bersu 1940; Cunliffe 1991). Cunnington (1933, 207) supported this explanation in stating that the Druids taught that after death the soul passed from one body to another and therefore there may have been an indifference to what happened to remains after death. Similarly Walker (1984) suggested that pit burial could be explained from a functionalist perspective as the practice may be concerned with a minimum expenditure of energy.

The sporadic and relatively small number of finds of articulated human burials led some researchers to view the Early/Middle Iron Age as having an absence of any formal burial rite (e.g. Hodson 1964, 105). Cohesive re-examination of evidence by Whimster (1977; 1981) and Wait (1985) has however indicated that distinct patterns of treatment were evident for a small proportion of the population. Explanations beyond casual disposal have since been offered by researchers. A popular suggestion has been that pit burial may have been a minority rite for outcasts or people who had had an unclean life or death such as murderers, witches, suicide

victims and infertile women (Cunliffe 1995; Wait 1985, 120; Walker 1984, 461). However, Ucko (1969) suggested that the absence of formal graves was indicative of low status burial. Due to the common deposition of human remains in grain storage pits, a further explanation has been that practices could represent a fertility rite connected to grain (Barrett 1989; Bradley 1981, 234; 1984, 159; 1990; Cunliffe 1983, 164; Cunliffe and Poole 1995, 83), perhaps with deposits being made at important times in the agricultural cycle (Barrett 1989). A symbolic concern for fertility combined with processes of decay and degeneration has been highlighted as a common feature of liminality rituals (Turner 1967). Researchers have also suggested that deposits could represent sacrificial offerings to give thanks to deities for the safe storage of grain (Cunliffe 1992, 77, 1995, 75; Cunliffe and Poole 1995, 83; Glob 1969; Green 2002; Walker 1984, 462).

Various explanations have also been offered to account for multiple disarticulated, partially articulated and fragmented human bones. Dunning (1976, 116-117) and Stanford (1974, 220) have suggested that cannibalism was the cause of isolated bones and articulated limbs, although the scarcity of butchery marks renders this explanation unlikely. Other possible interpretations include scavenger disturbance (Carr and Knusel 1997, 170), curation of ancestral remains (Cunliffe 1992; Woodward 1993), a belief system concerned with the regeneration of life by scattering remains as fertiliser (Parker Pearson 1996) and human sacrifice and exposure (Wait 1985, 120). Sharples (1991, 87) suggested that disarticulation is symbolic of a tightly bonded community which limits the significance of the individual. However, others have suggested disarticulated remains to represent the massacre, dismemberment and disposal of enemies (Alcock 1972; Boyd Dawkins 1917; Clay 1924; Wilson 1981, 162). The deposition of human skulls has been interpreted as evidence for a headhunting cult, perhaps relating to enemy dead, whose deposition could provide symbolic protection (Wilson 1981, 147). A further possible explanation that has received considerable attention is the practice of excarnation, the exposure of corpses for defleshing and eventual disarticulation. It has been suggested that remains may have been excarnated prior to deposition, with the majority degrading to an archaeologically unrecoverable state (Carr and Knusel 1997; Cunliffe 1988; 1992; 1995; Ellison and Drewett 1971, 185).

The above explanations provide little more than speculative suggestions offered to elucidate these anomalous features in the archaeological record. Consequently the systematic analysis of taphonomic evidence to reveal the treatment of remains before and in deposition has the potential to cast considerable light on the subject.

Materials and Methods

Data collection involved the analysis of evidence of weathering, gnawing, abrasion and trampling through visual assessment of bones. This was undertaken using a 10x magnification hand lens under the light of a 60 watt lamp. Although taphonomic overprinting undoubtedly caused some modifications to be overlooked (Shipman 1989), every effort was made to study the entire surface of each fragment systematically. Feature type, depth, element, species, element side and age class were also recorded as these affect the prevalence of other processes and may have a role in dictating modes of treatment. Analysis focused on perthotaxic processes, those that affect the character of an assemblage after the death of an individual but prior to incorporation into a forming deposit (O'Connor 2000, 20), as these processes have the potential to elucidate pre-

depositional treatment of different classes of remains.

Weathering was recorded using Behrensmeyer's (1978) stages, as although these were produced using African material, research has demonstrated that weathering is a progressive and irreversible process that follows a linear pattern regardless of environment (Andrews 1995, 149; Behrensmeyer 1978; Brain 1967; Isaac 1967; Sokal and Rohlf 1969, 12; Tappen and Peske 1970; Voorhies 1969). As no accepted standards have been produced for gnawing, the author's own three stage scheme of severity was employed (Table 1). This scheme was produced after a pilot study on material from East Chisenbury. Trampling was identified following the descriptions and photographs from Andrews and Cook (1985). A presence/absence analysis was employed rather than grading severity as the degree of trampling evidence cannot be used to ascertain exposure duration. Abrasion was also scored as either present or absent, as it need not occur in a linear pathway. For example the rounding of ends of fragments cannot be compared to the polished appearance of a section of diaphysis in terms of severity. Fiorillo's (1989) abrasion indices were not used in this study as these stages were observed on Nebraskan material and are not experimentally determined in a British context (Cook 1995). Fragmentation was also recorded both zonally and in terms of percentage completeness. However due to the diverse aetiology of fragmentation (Outram *et al.* 2005), results proved to be of far less interpretative potential and are consequently not discussed within the confines of this paper.

Some researchers have suggested that preservation cannot be solely assessed on a macroscopic level (e.g. Behrensmeyer *et al.* 1989; Hanson and Buikstra 1987; Jans *et al.* 2002, 344; Locock *et al.* 1992; Lyman and Fox 1989; Nicholson 1998) and consequently favour the use of scanning electron microscopy (SEM). However SEM is expensive and time consuming and considerable disagreement exists about the level of microscopy needed to recognise different marks reliably (see Blumenschine 1995; Blumenschine and Marean 1993; Blumenschine and Selvaggio 1988; 1991; Bunn 1981; 1991; Bunn and Kroll 1986; Capaldo 1995; Potts and Shipman 1981; Shipman 1981; Shipman and Rose 1983). Research by Marean (1991) suggests that SEM is unnecessary, as long as analysts have some experience. Similarly tests of inter-analyst correspondence on the recognition of cut marks, percussion marks and carnivore tooth marks carried out by Blumenschine *et al.* (1996) showed that all marks were accurately recognised for 95% of fragments, when a hand lens with good light was used by novices with only three hours of training. The most crucial aspect in the recognition of modifications is that published diagnostic criteria are applied consistently. Therefore a repeatability test was carried out on Bronze Age/

Stage 1: Slight gnawing, with intermittent pits, punctures; furrows or square-edged grooves evident on the bone.
Stage 2: Moderate gnawing, with around half of the affected edge of a fragment covered with gnaw-marks. Ragged edges begin to appear in worst affected areas.
Stage 3: Severe gnawing, with at least 80% of the affected edge covered with gnaw-marks. This causes the removal of epiphyses on long bones and leaves a ragged edge at the affected end of the diaphysis.

Table 1 Stages for the identification of different levels of severity of gnaw-marks.

Iron Age material from East Chisenbury. On the basis of this test and previous research, low power magnification was considered sufficient for accurate data collection. However to ensure reliability a more comprehensive repeatability test was carried out on Winnall material. This provided excellent results with in excess of 95% agreement.

In total 9493 bone fragments were analysed of which 5183 (967 human, 4216 animal) were from Winnall and 4310 from Danebury (1934 human, 2376 animal). The sites were selected as they are both in the heartland of the central/southern region that has been the focus of so much research on ABG's in the past. A selection of features containing only humans, only animals and both humans and animals were sampled from Winnall. In addition two pits that were rich in both human and animal bone were sampled from Danebury, in order to boost the sample of human remains for statistical purposes.

Analysis and Results

Chi² and Mann-Whitney tests of difference were systematically applied to the data to reveal patterns of treatment. For weathering and gnawing tests, where samples were of sufficient size to produce large enough expected values, all stages were included in the statistical analysis. However when expected values were too low, data was pooled to conduct presence/absence analyses. All stage 0 modification was included in the testing, although graphs summarising gnawing and weathering do not show stage 0 modification, as the omission of this category increases the visual clarity of patterns in other stages. Exact significance levels are presented in brackets adjacent to the test number, as referred to in the appendix.

Initially tests were carried out to assess differences in the prevalence of each modification between humans and animals. Results reveal significant differences for weathering (T1, $p = 0.000$), gnawing (T2, $p = 0.000$), abrasion (T3, $p = 0.000$) and trampling (T4, $p = 0.000$), with animals more severely affected in each instance. A series of tests were undertaken to ascertain whether other factors (such as sampling bias involving a concentration of certain articulation levels, species, age categories, elements or feature contents, types and depths) could account for the apparent differences. Initial tests showed that, as expected, more modification was evident in disarticulated material (T5, $p = 0.000$). As significantly more articulated human remains were sampled (T6, $p = 0.000$), including articulated material in further analysis would skew results toward less modification in humans. Therefore further analysis was conducted on disarticulated bones only. Testing differences in disarticulated remains shows that animals are significantly more weathered (T7, $p = 0.000$), gnawed (T8, $p = 0.000$), abraded (T9, $p = 0.000$) and trampled (T10, $p = 0.000$) and consequently exhibit greater evidence of exposure. The clear difference in modification between disarticulated human and faunal material is summarised in Figures 1, 2 and 3. Although space restrictions do not allow details of all other negative tests to be presented in this paper, all other possible sampling biases were discounted from responsibility for trends in human/animal modification.

The above results clearly show that human and animal remains were subjected to significantly different modes of pre-depositional treatment, with humans showing significantly less evidence of exposure. The next stage of analysis investigated whether variation in treatment extend to different species. It has been widely reported that dog and horse are significantly over-represented in ABG's, compared to their overall number on site (Cunliffe and Poole 1995;

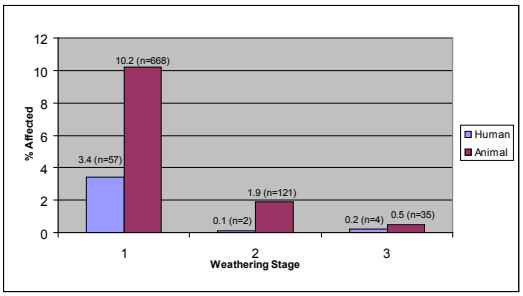

Figure 1 The percentage of disarticulated human and faunal remains in different gnawing stages (stage 0 not included in order to emphasise patterns in the prevalence of other stages).

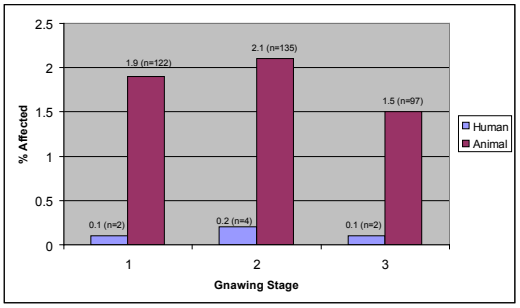

Figure 2 The percentage of disarticulated human and faunal remains in different gnawing stages (stage 0 not included in order to emphasise patterns in the prevalence of other stages).

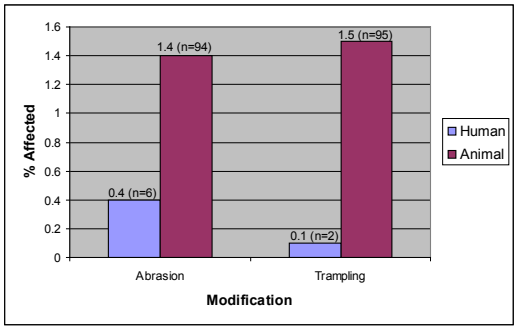

Figure 3 The percentage of disarticulated human and faunal remains affected by abrasion and trampling.

Grant 1984a; 1984b, 224; Green 1992) and consequently might be subjected to a different mode of treatment to that of other animals. This difference is significant in the sample with dog and horse showing more weathering (T11, p = 0.000). Although not all findings can be elaborated upon within the confines of this paper, during the course of the analysis a range of other variables including feature contents (in terms of human/animal or animal only), element category and site type were found to affect bone modification. Consequently additional variables were included in the analysis to ascertain whether sampling biases could account for patterns of treatment. The distinction in weathering between dog/horse and other animal remains is also significant when only long bones (T12, p = 0.038), bones from features containing both humans and animals (T13, p = 0.000, see Figure 4), and features containing animals only, were analysed separately (T14, p = 0.000). This is also the case when the remains from Danebury (T15, p = 0.000) and Winnall (T16, p = 0.000) were tested separately. Therefore dog/horse bones exhibit significantly greater evidence of sub-aerial exposure than those of other animals.

Differences concerning gnawing are more complex. Results demonstrate no significant difference when gnawing was analysed for pooled data (T17, p = 0.198). However, when only fragments from features containing humans and animals were analysed, dog/horse show significantly less gnawing (T18, p = 0.001, see Figure 5), whereas for features containing only animals, they exhibit significantly more (T19, p = 0.001). Bones from hillforts (T20, p = 0.095) and settlements (T21, p = 0.818) show no significant difference in gnawing evidence between dog/horse and other animals remains. Unfortunately every combination of feature contents, long bones

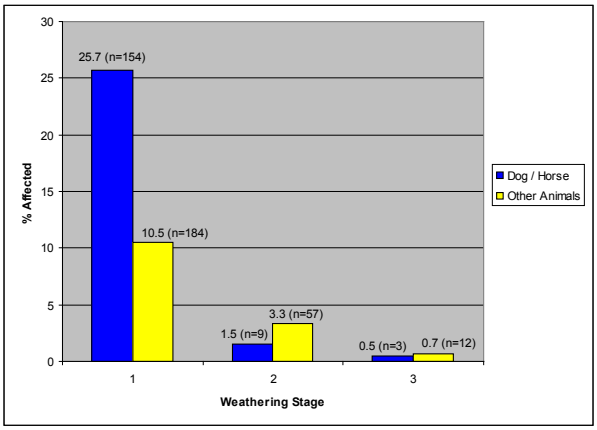

Figure 4 The percentage of dog/horse and other animal fragments from features containing both humans and animals in different weathering stages (stage 0 not included in order to emphasise patterns in the prevalence of other stages).

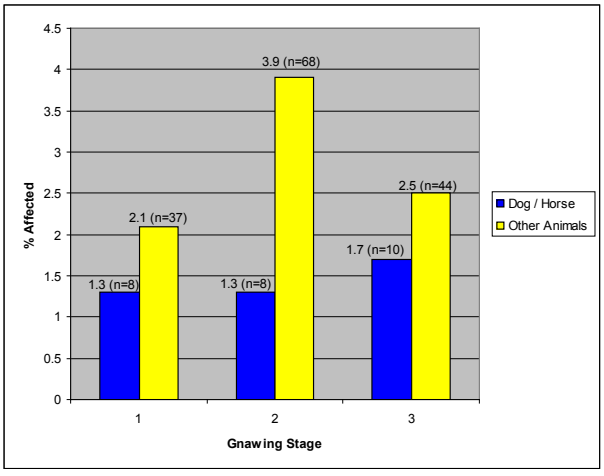

Figure 5 The percentage of dog/horse and other animal fragments from features containing both humans and animals in different gnawing stages (stage 0 not included in order to emphasise patterns in the prevalence of other stages).

and site type could not be analysed, as dividing the data further created prohibitively small samples. Nonetheless this analysis demonstrates a real difference between the weathering of dog/horse and other animals that transcends feature contents and site type, with the former species category exhibiting greater evidence of sub-aerial exposure. Tests relating to gnawing produced more complex results, with other animals exhibiting more in features containing only animals and dog/horse showing more in features which also contain humans. The latter results may be regarded as anomalous but the level of statistical significance suggests that there was intentional differential treatment of dog/horse remains in different features.

Discussion

Data analysis has revealed clear patterns in the taphonomic pathways of human and animal bones in the Iron Age. These findings emphatically refute the suggestion that human remains were indiscriminately disposed of (e.g. Bersu 1940; Cunliffe 1991; Cunnington 1933, 207) and demonstrate that specific considerations were given to the treatment of different classes of remains. Following this, it is clear that animal remains from the sample have been exposed significantly more frequently (and for significantly longer periods) than humans prior to final deposition. The implications of this are wide ranging and warrant detailed consideration.

Practices concerning the deposition of human remains were clearly diverse and heterogeneous in Iron Age Wessex. Previously excarnation has been offered as an explanation for the disarticulated state of recovered human material and also the general lack of human remains in deposits (Carr and Knusel 1997; Ellison and Drewett 1971), as research by Behrensmeyer (1978) and Morse *et al.* (1983) has demonstrated that if bones are exposed for extended periods they degrade to an archaeologically unrecoverable state. The scarcity of weathering and gnawing in human material from Iron Age Wessex indicates that if excarnation was the majority rite, it must have been very rigidly controlled. The vast majority of remains must have been allowed to deteriorate to an archaeologically unrecoverable state, in order for so few to have been found. If recovered remains represent the minority which have not degraded beyond recovery, modification would be prevalent on human material. Smith (2006) argues evidence of modification, particularly gnawing on human remains, as strongly suggestive of excarnation. However evidence of modification is very sparse on human remains from Winnall Down and Danebury and significantly more common in the faunal material. Human remains show significantly less weathering than all species for which more than 50 fragments have been analysed. The difference in modification transcends all analysed variables for all modifications in disarticulated material and sampling and taphonomic biases were systematically discounted from responsibility. Consequently these results strongly suggest that excarnation was not the majority rite in Iron Age Wessex.

Fully articulated burials could not have been exposed for any lengthy duration as this would cause bodily components to divide. Therefore these individuals must have been subjected to a separate practice to those remains which display any level of disarticulation. The state of partially articulated and disarticulated material was achieved naturally, as there is exceptionally little evidence of butchery and configurations of the articulated limbs, skulls, torsos or individual fragments (Wait 1985, 88; Walker 1984, 450-451; Wilson 1981, 128) fit expected patterns in the natural sequence of disarticulation (Haglund *et al.* 1989; Hill 1979; Toots 1965). It has been suggested that remains degraded in a location or manner that protected them from agents of gnawing, perhaps on a scaffold (Ellison and Drewett 1971). However if scaffolds were used, avian scavengers would be expected to modify bones, as experiments have demonstrated that the talons and beaks of raptors regularly leave marks on skeletal material (Anderson 1968; Guilday and Parmalee 1968; Hockett 1989). In addition platforms would enhance the weathering rate, as they would reduce the effect of shade from trees and undergrowth. However human material exhibits very little evidence of weathering and not a single instance of avian modification and therefore it seems unlikely that exposure platforms were used for excarnating human remains.

For disarticulated and partially articulated remains to exhibit so little modification, the material would have had to have degraded in a sheltered setting away from scavengers and

agents of weathering. Such practices involving protective structures have been shown to occur in ethnography (Huntingdon and Metcalf 1979, 68; Parker Pearson 2003). Partially articulated limbs and torsos would have been deposited before flesh and connecting tissue had totally degraded, but after some detachment occurred. Sub-aerial exposure is unlikely to have been practiced, as by the very nature of exposure, remains are likely to be disturbed by a combination of the elements and scavengers and therefore modified remains would regularly become incorporated into forming deposits. Consequently if exposure occurred prior to final burial, it must have taken place in a substantial protective structure, such as a roundhouse, for disarticulation to occur with such sparse evidence of modification. Ethnographic research in highland Madagascar provides a parallel for such a practice. The Malagasy wrap corpses in silk shrouds and lay them on benches in a stone structure. Months later remains are extracted, unwrapped, re-wrapped and re-interred as part of a secondary funeral known as *famadihana* (Parker Pearson 2003).

Exposure in protective structures is not the only possible explanation for the nature of the skeletal material recovered from Iron Age Winnall Down and Danebury. The lack of modification on partially articulated and disarticulated skeletal material could also be accounted for by practices involving decomposition in subterranean environments, followed by exhumation and re-deposition. Depending on the length of time buried, the body would degrade to a varied state of disarticulation and would be very unlikely to be affected by the modifications of weathering, gnawing, trampling and abrasion, all processes characteristic of sub-aerial exposure. Once disinterred, individual fragments, skulls, articulated limbs or torsos could be extracted and perhaps circulated and curated, thus maintaining the presence of the ancestors in the realm of the living prior to final deposition. Retaining the dead in the collective conscience of communities through curation or display of ancestral material is attested to both ethnographically (Bloch 1971; Graeber 1999; Huntingdon and Metcalf 1979; Parker Pearson 2003) and archaeologically (Baxter 1999; Parker Pearson *et al.* 2005). Practices did not involve the disarticulated or partially articulated remains of an individual being re-deposited in the same feature from which they were exhumed. Remains were rather divided and deposited separately. It may in fact be that only certain parts of the body (e.g. limb bones or skulls) were extracted for circulation and others bodily components would remain in their original context.

This minority practise, involving disarticulation by exhumation or protected exposure, followed by re-deposition, appears to be a very different rite to that employed by the majority of the population. The archaeological record indicates that the remains of most the population were made to disappear, whereas partially articulated and disarticulated remains would have remained in the collective conscience of Iron Age communities for longer periods, as a result of practices involving secondary burial. Throughout the liminal phase during which disarticulation occurs, deceased individuals would still exist in, or close to the realm of the living until their final deposition. Once partial or total disarticulation occurs different parts of the body are deposited in different locations. It seems that the remains are either distributed across a range of features, or parts of the body are disposed of in an archaeologically unrecoverable way. This is indicative of a complex minority practise, with a range of different phases (death, burial, decay, exhumation, curation/circulation, incorporation) and demonstrates a strong awareness of liminality.

The division of the body and the differential treatment of its constituent parts is indicative of a depersonalisation of the individual, emphasising strong communal bonds in society. However this is not to say that a disregard is shown for how the body is treated after death, as some researchers have suggested (e.g. Cunnington 1933, 207; Liddell 1935, 25; Pitt-

Rivers 1887, 11; Richardson 1951, 131; Walker 1984). Instead certain remains are utilised by the community as a symbolically loaded resource for curation and secondary burial. Secondary burial is likely to have been at the centre of elaborate communal ceremonies, as has been demonstrated in ethnography (Huntingdon and Metcalf 1979; Parker Pearson 2003). Ceremonies involving whole communities, surrounding the symbolic depersonalisation of the individual would serve to further reaffirm the tightly bounded nature of society. Following this, it seems unlikely that those individuals are outcasts or people who have led an unclean life or death as some researchers have suggested (e.g. Cunliffe 1995; Wait 1985, 120; Walker 1984, 461). This may however be the case for the articulated burials, as these individuals appear not to have been afforded the same rites as the majority of the population. It is the disarticulated and partially articulated remains (though not the individuals themselves) that were venerated and therefore seen as fit to be treated differently. However within the limits of the data, any interpretation regarding why remains of certain individuals and not others are selected for this treatment would be speculative.

As previously stated, recovered remains can only account for approximately 6% of the population (Wait 1985, 90). As explained above, for the remaining skeletal material to have been exposed to an archaeologically unrecoverable state, with hardly any modified remains being incorporated into the archaeological record is highly unlikely. Excarnation may have occurred away from settlement and therefore incorporation into features on occupation sites would be far less likely to occur. If this was the case, concentrations of weathered bone would be expected to have been recovered from prominent positions in the vicinity of settlements, perhaps associated with postholes. However no such finds are known to the author. Cremation could not have been the majority rite in Iron Age Wessex, as this practice leaves distinctive markers in the archaeological record and evidence is exceptionally rare in Iron Age Wessex (Whimster 1981). Disposal in seas or rivers provides a plausible alternative explanation. The sacredness of watery contexts in the Iron Age is well supported (see Green 2002; Ross 1967). Green (1992, 2) suggests that water sources were seen as supernatural beings, with wells, bogs, streams, seas and rivers being venerated and propitiated. A water connected depositional practice is in some ways similar to deposition in subterranean contexts as both water sources and pits penetrate the realm of the underworld (Green 1992, 95). In addition the journey that bodies undergo in rivers or the sea could represent a liminal phase in the same way as the disarticulation process. Van Gennep (1909) has highlighted water journeys as a recurring feature of ritual in ethnography. Similarly Wirz (1928, 51-105) and Hooykaas (1973, 22-23) have shown the importance of watery contexts in death ritual in ethnography. Such a practise would leave no archaeological trace and need not contaminate water supplies if only seas and larger, faster flowing rivers were utilised.

The significantly more prevalent modification of animals than humans is indicative of a greater degree of exposure. In discussing the implications of this, species categories are considered separately as they exhibit different patterns of pre-depositional treatment. It would have been desirable to analyse each taxon separately, but sample sizes were prohibitively small for such an analysis to be undertaken. Results indicate that weathering is significantly more common in dog/horse remains compared to other animals. This difference transcends other variables known to affect bone treatment such as site type and feature contents and therefore demonstrates that the distinction between dog/horse and other animals was an important classification in Iron Age Wessex, with dog/horse remains from all features exhibiting greater evidence of sub-aerial exposure. However results indicate more complex patterns of practise in features which contain both humans and animals. In these contexts dog/horse remains exhibit a greater degree

of weathering, whereas other animals show significantly more gnawing. Gnawing represents a distinct source of taphonomic information from weathering as it generally only occurs at ground level. Affected fragments must have been accessible to faunal taphonomic agents to be gnawed. Weathering by contrast is independent of living agents. As the analysis has (as far as is possible) ruled out taphonomic biases from responsibility for the patterns, it is clear that the treatment of different classes of remains was dictated not only by species, but also by the contents of features in which remains were to be deposited.

The distinction made in the treatment of remains of different species may relate to whether species were defined as food animals. Although dogs and horses were occasionally eaten in Iron Age society, unlike cattle, sheep and pigs, they were not economic staples (Hambleton 1999). However this is not to say that the main food animals were disposed of indiscriminately as waste. Distinct rules of treatment were applied to this material and these were largely dictated by whether human remains were deposited in association. Variation in the modification of dog/horse and other animal remains cannot be attributed to taphonomic biases relating to the cooking of remains of the main food animals. Boiling of bones for long periods causes protein loss and increased crystalinity and porosity (Roberts *et al.* 2002, 488-492; Von Endt and Ortner 1984), consequently accelerating diagenesis (Nicholson 1992, 80; Nicholson 1996, 513). However experiments by Roberts *et al.* (2002, 492) have demonstrated that at least nine hours boiling would be necessary for porosity to be affected, far longer than would usually be involved in food preparation. Other cooking methods have not been shown to have a substantial effect on porosity (Nicholson 1996: 513, 527). Consequently it would be surprising if the weathering rate was enhanced as a result of cooking. In addition the different taphonomic pathways of remains of other animals found in features with humans to those that are only associated with faunal material is indicative of intentional treatment rather than the effects of taphonomic biases.

Patterns described in this paper represent statistically significant trends within the sample. However interpretations must be qualified by a number of limitations of the research and the dataset. A larger, more diverse sample would provide more robust interpretation and has the potential to provide greater resolution to practices surrounding treatment of bone throughout Wessex. Analysis of gnawing would benefit from larger samples, as limiting the testing to zones most frequently gnawed would improve the accuracy of results. In addition the two features sampled from Danebury are not representative of the site as a whole, as features that were particularly rich in human bone were selected, in order to boost the sample of human remains. It would also have been desirable to incorporate all modifications at every stage of the analysis, although constraints of sample size prevented this.

Conclusion

The findings of this research make an important contribution to understanding the disposal of human remains in the Iron Age archaeological record. It is clear that diverse and heterogeneous mortuary rites were employed in Iron Age Wessex. The majority of the population were disposed of in an archaeologically unrecoverable manner. This paper proposes disposal in aqueous environments as a possible explanation. Articulated individuals may represent outcasts as they appear to have not been afforded the liminal rites of the majority of the population and are hidden from the community's collective conscience. Partially articulated and disarticulated material

represents more complex pre-depositional practices. Sub-aerial exposure could not be responsible for the level of disarticulation, as modification would be prevalent on remains. However burial and exhumation or degradation in a protective structure could both account for the varied state of articulation. Unfortunately the dataset does not allow confident interpretation of which practice was employed. Further research into the microporosity, geochemistry and histology of remains has the potential to elucidate whether the varied states of articulation were achieved in subterranean environments or in protective structures. However secondary burial, involving partially articulated and disarticulated material was clearly an important part of the minority rite in Iron Age Wessex. This is suggestive of a tightly bounded community that depersonalises and limits the significance of the individual.

Research has revealed a network of interrelating factors such as species category (with dog/horse being distinct from other animals) and feature contents (in terms of human/animal or animal only) to have been crucial to the way in which the treatment of animal bone was structured in central/southern English Iron Age society. Classification of animals may be considerably more complex than revealed in this dataset, not only with the possible differential treatment of different taxa (rather than species categories) but also of different age and sex individuals. Extending this, further distinctions may have been made that cannot be revealed within the limits of current zooarchaeological method, such as physical characteristics like colour. Practices relating to the treatment of bone were highly regulated and structured by in Iron Age Wessex. Although this research has only shown this to be the case for the bone handling, it is plausible that similar classifications played an important role in many more aspects of Iron Age life. Distinctions are likely to have encompassed all manner of factors (relating to time, space and material culture) and may have provided structure to a broad range of lifeways. This further reaffirms the notion that society was tightly bounded, as communities were unified by socially circumscribed, shared experiences of everyday life.

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Appendix – Statistical tests

Statistical tests employed a significance level of $p<0.05$. A key to the abbreviations used in the statistics table is presented below. The first entry in the description column in the table refers to the categories being tested for difference (e.g. H/A = humans and animals compared). Brackets denote the data selected for testing. For example (A) means only animal remains are included in analysis and (A,LB) means only animal long bones are included in the analysis. The final entry in the description refers to the variable being tested for difference (e.g. weathering, gnawing etc). In the direction of significance column, direction refers to which of the categories has a greater prevalence/severity of the variable in question, therefore H<A indicates that animal specimens

have a greater prevalence (of e.g. weathering) than humans. All tests from T7 onwards were conducted on disarticulated material only.

A –Animal
ABR – Abrasion
ARTP – Articulation levels (proportions of)
CA – Features containing only animal specimens.
CHA – Features containing human and animal specimens
CHI² – Chi² test
DF – Degrees of freedom
DH – Dog/Horse
DIS – Disarticulated
GNW – Gnawing stage (0-3)
GPA – Gnawing (presence/absence)
H – Humans
HF – Hillfort
LB – Long bones
MWU – Mann Whitney test
OA – Animals other than dog or horse
ST – Settlement
TRMP –Trampling
WETH – Weathering stage (0-3)
WPA – Weathering (presence/absence)

TEST NO.	DESCRIPTION	TEST	N	CHI²/MWU VALUE	DF	EXACT SIGNIFICANCE	DIRECTION
1	H/A - WETH	MWU	9493	8723752.000	3	**0.000**	H<A
2	H/A - GNAW	MWU	9493	9071550.000	3	**0.000**	H<A
3	H/A - ABR	CHI²	9493	27.549*	1	**0.000**	H<A
4	H/A - TRMP	CHI²	9493	36.140*	1	**0.000**	H<A
5	ART - WETH	MWU	9493	8723752.000	3	**0.000**	ARTC<DIS
6	H/A - ARTP	CHI²	9493	2970.309	3	**0.000**	A<H
7**	H/A (DIS) - WETH	MWU	8201	4962871.000	3	**0.000**	H<A
8**	H/A (DIS) - GNW	MWU	8201	4962871.000	3	**0.000**	H<A
9**	H/A (DIS) - ABR	CHI²	8201	11.951*	1	**0.001**	H<A
10**	H/A (DIS) - TRMP	CHI²	8201	19.095*	1	**0.000**	H<A
11**	DH/OA - WETH	MWU	2861	639136.000	3	**0.000**	OA<DH
12**	DH/OA (LB) - WETH	MWU	930	50283.000	3	**0.038**	OA<DH
13**	DH/OA (CHA) - WETH	MWU	2322	443281.500	3	**0.000**	OA<DH
14**	DH/OA (CA) - WETH	MWU	539	16343.500	3	**0.000**	OA<DH
15**	DH/OA (HF) - WPA	CHI²	1011	80.455*	1	**0.000**	OA<DH
16**	DH/OA (ST) - WETH	MWU	1850	273863.500	3	**0.000**	OA<DH
17**	DH/OA - GNW	MWU	2861	740682.500	3	0.198	-
18**	DH/OA (CHA) - GNW	MWU	2322	488379.500	3	**0.001**	DH<OA
19**	DH/OA (CA) - GNW	MWU	539	20256.500	3	**0.001**	OA<DH
20**	DH/OA (HF) - GPA	CHI²	1011	2.780*	1	0.095	-
21**	DH/OA (ST) - GNW	MWU	1850	302067.000	3	0.818	-

*continuity correction value used as values computed for a 2x2 table.

** tests conducted on disarticulated material only.

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