

6. A Search Through the Archives: Looking for the Young and the Old in a Museum's Collections

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The chapter details research conducted as part of the BEVARES (Biological EnVironmental and Archaeological interdisciplinary REsearch on life-course, material and materiality in human depositions) programme at the Museum of Archaeology, University of Stavanger. Initially an attempt to gain a better understanding of the museum's archived bone material, as well as evaluate the information potential of analysing/re-analysing the (primarily) burnt/cremated bone within that material, the work moved towards identifying evidence for the young and the old in the burial record. This led to an interest in the intersection of the young and the old in the burial record as a potential new area of archaeological study. The current project focuses on burials of these two groups. Bronze and Iron Age bone assemblages from Rogaland county, southwestern Norway, are included in the study. A variety of factors were quantified, but the age of the individuals and the number of people per burial are of primary relevance here. Initial results have revealed some interesting trends – the number of sub-adults in the burial record is much greater than previously thought, and the mortality pattern seen in Rogaland is quite different from that evident in comparable material from Eastern Norway. The occurrence of young and old individuals in the same burial context does not appear to be a common phenomenon.

Keywords: Bronze Age; Iron Age; Norway; preservation; cremated bone; age determination

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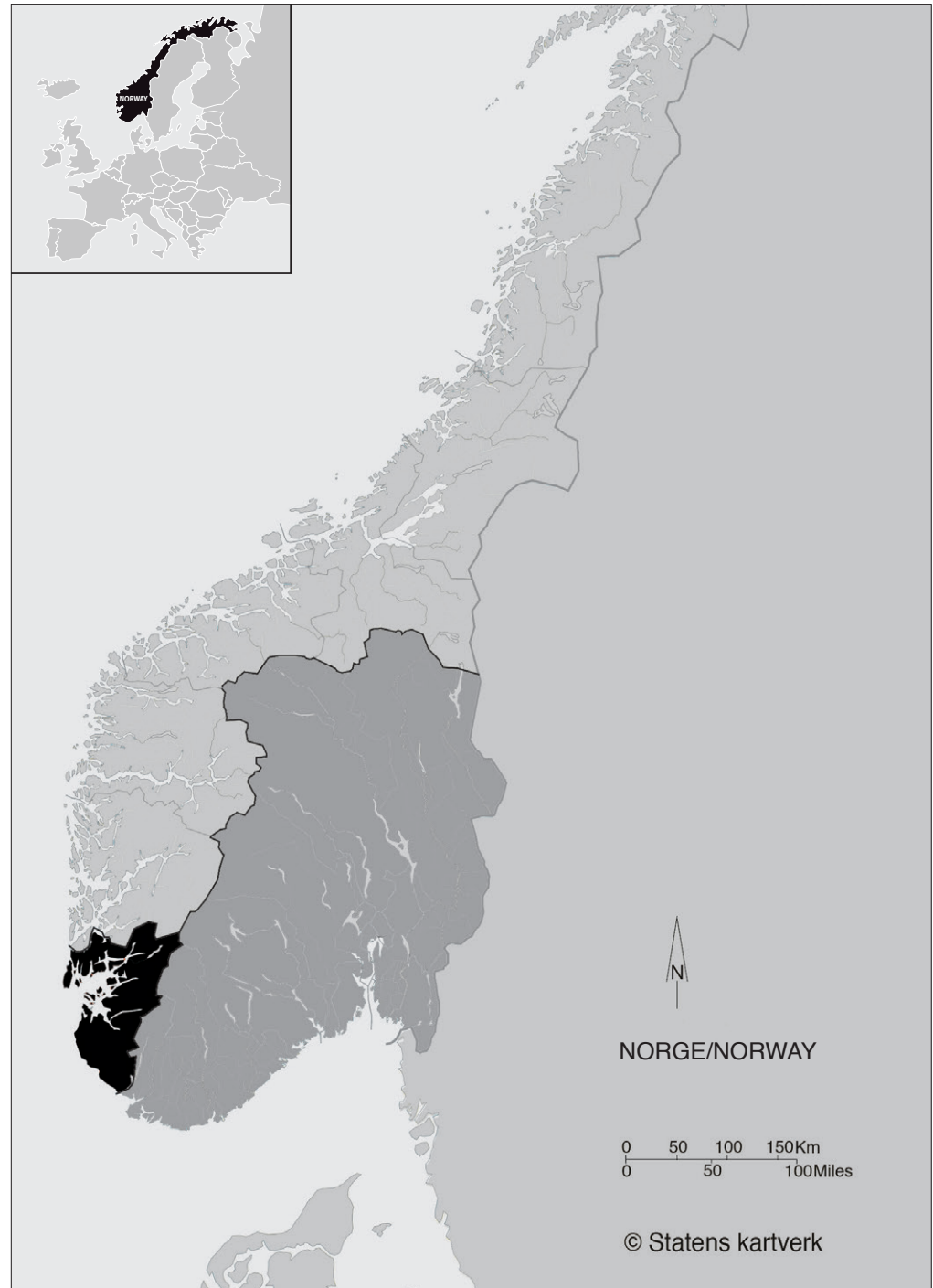
Introduction

The study of the interaction between the young and the old in the archaeological record is a new area of enquiry. The research detailed in this chapter looks at the topic from the standpoint of the burial record. The choice of dataset and topic is the result of two converging factors. The first of these was the BEVARES (Biological EnVironmental and Archaeological interdisciplinary REsearch on life-course, material and materiality in human depositions) research programme conducted at the Museum of Archaeology, University of Stavanger, between 2013 and 2016. The goal of the programme was to improve the museum's understanding of the preservation/degradation of organic materials both in situ at excavation sites and ex situ within the museum storage/exhibition environment. It was determined that one aspect of this effort would be to develop a clearer understanding of archived bone material. Consisting

of archaeological bone material from Rogaland county, southwestern Norway, much of the material had either not been systematically analysed or had been analysed prior to the development of modern standards of recording. In this project, the (re-) analysis was undertaken by one of the authors (Denham). The second factor was the research interests of two members of the BEVARES programme, the archaeology of childhood (Lillehammer) and the archaeology of the elderly (Høgestøl).

The appearances of the young/childhood (Lillehammer 1989; 2015; 2018; Crawford 1991; 2017; Sofaer Derevenski 1996; 2000; Kamp 2001; Baxter 2005; Thompson *et al.* 2014; Coşkunsu 2015; Cunnar and Högberg 2015) and the elderly (Welinder 2001; Lucy 2005; Appleby 2010) are topics that having developed slowly since the 1970s to include, among others, important advancements in the last decade of cross-disciplinary studies between

Figure 1: Maps showing Norway's (black in inset) location in Europe, in the upper left corner, as well as the two areas southern of Norway, Rogaland County (black) and Eastern Norway (dark grey), discussed in the text (© I. Svendsen, AM/UiS).



archaeology and bioarchaeology. The integration of studies of child skeletal remains with those of adults to provide a more complete picture of communities in the past (Mays *et al.* 2017, 38) is of particular interest here. There is good reason to investigate the two groups – the juveniles and the elderly – side by side. On one hand, archaeological interpretation has generally marginalised both or, more importantly, perceived them as having been marginalised in their own times (Lillehammer 2011; *in prep.*; Cave and Oxenham 2014; Murphy and Le Roy 2017). On the other hand, there is evidence of

the construction of age and agency, both from ethno-historical sources and from the modern world, of the elderly assuming roles as caregivers and cultural transmitters for the young (Lucy 2005, 59-61). Are the roles of these two groups visible in the archaeological record and, more interestingly, can the interaction between the two groups be identified? In the present context, that of human bone assemblages, this implies not only identifying evidence for younger and older individuals in the burial record but identifying burial contexts with evidence of both the young and the old.

A third issue of importance therefore concerns preservation – the discovery and recovery of the archaeological evidence of human skeletal remains. As unburnt archaeological bone is a rarity in southwestern Norway, the cultural contexts also make them unique. Take, for example, the inhumation recovered from a Mesolithic midden in a rock shelter, or a bog find, or a large Medieval burial assemblage from a city with relatively little Medieval archaeology (see below), these are not representative of the vast majority of the bone material in the museum's collections. Much more typical, in fact approximately 90% of the collections, are assemblages of burnt/cremated bone fragments from clear and not-so-clear burial contexts. The question then becomes, are the two focus groups represented in the collections, or can they be identified and analysed amongst the small, burnt fragments? To advance these questions, a comparative approach between the southwestern and eastern regions of Norway (Fig. 1) is taken, using P. Holck's (1986) work – *Cremated Bones: A Medicanthropological Study of an Archaeological Material on Cremation Burials* – as a base for comparison. In his study, Holck analysed over 1,100 cremation burials from Eastern Norway quantifying a range of variables, such as number of individuals per burial, age-at-death, sex and burning levels. This research provides not only an appropriate data set against which to compare the results of the present study, but a series of methodologies to compare with those employed here.

The following discussion starts with a general review of mortuary practices to provide a wider background for the archaeological evidence in southwestern Norway. This is followed by an introduction to the material used in this project, including the number of sites and their date. A brief description is also provided regarding the methodologies applied to the material, specifically the standards for securely identifying a burnt bone assemblage as a cremation burial, the categories into which agreeable material has been divided, and the standards for identifying multiple-individual burials. Finally, the results of both the ageing analyses and the search for multiple-individual burials involving younger and older individuals are presented and contrasted with analogous results from Holck (1986).

Mortuary Practice

A variety of cultural behaviours, processes, natural conditions and circumstances influence mortuary practices, i.e. treatment of corpse (burnt/unburnt), body arrangement, grave goods, and grave super- and/

or inferior structure, or the lack thereof (Parker Pearson 2003). Unburnt skeletal remains survive intact infrequently in Norway due mainly to regional variations in funerary rites, soil conditions and land disturbance. This is characteristic of all periods from the Stone Age (10,000-1800 BC) through to the Medieval period (AD 1050-1537). In particular, inferences of burial contexts from the Stone Age drawn from single or multiple collections of artefacts in terrestrial or marine deposits are fraught with uncertainty. In southwestern Norway, these finds, such as stone axes, pottery, traces of coal, and burnt/unburnt human or animal bone, are often discovered by chance at various types of settlement locality or prominent stones/rocks in the landscape (Lillehammer *et al.* 1990). To paraphrase the descriptions of mortuary practice in Norway (Solberg 2005), burials from the Stone Age are rare. The Neolithic (4000-1800 BC) is represented by low cairns covering graves (Thäte 2007, 169, table 11). Inhumation and cremation interments in single graves, as well as collective inhumation burials in stone cists from the Late Neolithic (2300-1800 BC), are known from Eastern Norway (Solberg 2005, 137-8).

According to Solberg (2005) and Thäte (2007), a distinctive change in burial rite appears during the Bronze Age (1800-500 BC). Though cremation is carried out in the Early Bronze Age (1800-1100 BC), the period is characterised by the organisation of solitary or cemetery inhumation burials in monumental grave mounds/cairns built around stone cists, generally with very little surviving bone. On the basis of grave goods, it has been suggested that stone cists contained single interments of high-ranking women and men with bronze accompaniments. In the Late Bronze Age (c. 1100-500 BC), we see a continuous shift towards cremation burial with burnt bone placed in vessels and associated with a few objects. These were often deposited in stone cists as secondary burials in earlier mounds/cairns, although only occasionally occurred as primary burials within small, low mounds/cairns, so called 'tue graves'. Cremation is the dominant practice amongst the elite in the pre-Roman Iron Age (500-0 BC), and a distinct difference separates the western and eastern areas of southern Norway. In the west, the burnt bone is cleansed and placed in a vessel, sometimes interred in an earlier burial mound/cairn, but usually in the ground without a surface marker. In the east, cremation patches or pits, with or without vessels, are placed beside a large stone or within a stone circle, stone packing or low mound/cairn. Such depositions are not easily identifiable and, consequently, the

earliest phase of the Iron Age is characterised by sparse funerary practices and a lack of burial evidence in most parts of the country. A slight change in funerary practice appears, however, close to the new millennium as more grave goods begin to accompany individuals buried in mounds/cairns or stone circles.

In the Roman Iron Age (AD 0-400), cremation burial continues to dominate, following a rigid pattern of vessels of wood, pottery or imported bronzes containing either burnt bone or, more regularly, hybrid patches or pits of charcoal, ashes, burnt bone from the pyre including grave goods. Inhumation interments in mounds and stone circles appear early in the period (first century AD), mainly in the east. In the Migration period (AD 400-550), particularly along the western coast, richer inhumation interments in stone or wooden cists and occasionally a boat occur more frequently while, in the inland areas of the east, cremation is the dominant funerary rite. These practices are less profligate during the Merovingian period (AD 550-750) although expenditure on grave goods increases at the end of the period. During the subsequent Viking era (AD 750-1050) the frequency of ship/boat burials is notable, and particularly rich inhumation interments occur, such as the Storhaug ship, Karmøy, Rogaland county, southwestern Norway (AD 680-720/30) (Opedal 1998), and the well-known Oseberg ship burial (AD c. 834) in Eastern Norway (Christensen *et al.* 1992).

Collective Burial

Collective burial, as both simultaneous and sequential double and multiple interments in the form of use/re-use of funerary monuments, is a pattern that occurs variously. This aspect of the burial record needs further investigation as it may affect the understanding and explanation of the contextual evidence, such as disturbance and preservation of monuments, as well as the recovery of the archaeological record and inferences drawn therefrom. The excavation of the Oseberg ship burial in 1904 did have an impact in this area, in particular in relation to the investigation of double interments (Olsen 2007, 4-7). The Oseberg burial contained the inhumed remains of two women, aged 30-40 years and 60-70 years, who had been interred simultaneously. The circumstances and social relationship of these women have long been topics of discussion on burial and human sacrifice – were they mother and daughter or ‘queen’ and slave? (Christensen *et al.* 1992; Parker Pearson 2003, 17).

In his study of Eastern Norway, Holck (1986) analysed cremation burials from the Bronze and Iron Ages

(1800 BC-AD 1050). Forty-eight (4.4%) of these were from double interments, mainly with two adult individuals in the grave. In the majority of the adult graves containing a man and a woman, the male is often the older of the two (Holck 1986, 166, 214). According to Holck, the burials do not seem to be contemporaneous. As 29.9% (n=14) of the bone finds displayed features such as perimortem cut marks, it is considered unlikely that the graves were related to social conditions, such as marriage (Holck 1986, 167) (*cf.* below).

In Rogaland county, southwestern Norway, collective burial and re-use appear irregularly from the Late Neolithic (see below), becoming more frequent in the Bronze and Iron Ages. Excavations have produced evidence of both re-use and later disturbances of ancient funerary monuments in the past. This has been suggested to represent a cosmology of ancestral legitimation or a genealogy of family relationships in Scandinavia (Thäte 2007, 277-80). To give some examples of these phenomena, a cairn from Ringen, in the Karmøy municipality, contained five burials interred over a period of 2,000 years, from the Bronze Age to the Early Iron Age. The primary burial was an inhumation of a juvenile in the Early Bronze Age, followed by three cremation burials of adults later in the Bronze Age, and finally the burial of an adult in the Migration period (Nordenborg Myhre 1998; Sjurseike 2001). A mound from Salte, in the Klepp municipality, is another example (Lillehammer 2008, 9, fig. 2) where re-analysis of the remains recently revealed the interment of at least five cremation burials over a period of around 500 years during the Early Roman and Migration periods. These included a newborn baby, a child of 10-12 years and three adults, two of whom were middle-aged. Another relevant monument type is the long barrow which appears in the Early Bronze Age (Barclay 1984; Gil Bell 2009), then reappears in the Early Roman Iron Age, bearing primarily female interments, and continuing in use to the end of the Viking period. In an Iron Age cemetery with 255 burial mounds at Kvasheim, in the Hå municipality (Lillehammer 1996), 129 monuments were excavated yielding primarily poorly preserved inhumations (n=123). One-quarter of the monuments were long barrows and, based on the analyses of cists and grave goods, nine of these were found to have contained double and triple inhumations from the Late Roman and Migration periods. The dating of the grave goods indicates that the individuals were buried either simultaneously, or within the same generation, or in directly following generations. Suggested to be the symbols of a long

house (Løken 1987), a boat (Farbregd 1988) or female genitals (Gustafson 1993), the interments in the long barrows may represent social relationships of family affiliation and/or polygamy.

To conclude, the Bronze and Iron Ages of the western and eastern regions of southern Norway see multiple modes of variation and change in the continuous/discontinuous traditions of mortuary practice until the onset of the Medieval period. Alternating between inhumation and cremation interments and the reduction or expansion of grave furniture, collective burial and re-use of monuments are known variously from the Late Neolithic period onwards. Some notable differences are apparent in the treatment of the corpse and the handling and arrangement of human bone with, or without, containers and grave goods. The Bronze Age is dominated by large mounds/cairns, but from the end of the Bronze Age onwards a variety of shapes and forms of monuments appear. Flat graves, round, long, and oval mounds/cairns or round, triangular or quadrilateral stone packing/settings and standing stones are erected in isolation or grouped or in cemeteries until the end of the Iron Age and the introduction of Christianity (AD 1050), when the pagan cremation rite became forbidden by law.

Regional Potentials and Limitations in Funerary Depositions

Single, simultaneous or sequential double and multiple funerary depositions of human individuals may have unique potentialities for the study of a variety of biosocial processes and interactions in the life and death perspectives of the past. Results from stable isotope and ancient DNA analyses of ten adults from single, double and triple burials from Viking Age (AD 750-1050), Norway, reveal evidence for changes in diet between childhood and adulthood as well as suggestions of differences in social strata between individuals interred together. These findings are indicative of different life histories between childhood and adulthood among each of the observations of individuals, suggesting some to be slaves or even burial gifts (Naumann *et al.* 2014). Furthermore, analyses of cremation and inhumation burials of young individuals, adults and elders show regional differences. Funerary patterns in cemeteries dated from the Late Bronze Age to Migration Age (1100 BC-AD 400) in Sweden, indicate different local traditions in which the younger members of society may be either inclusive or separate from adults (see Le Roy *et al.*, this volume). The burials of the young can be absent or spread amongst those of the adults

and elders or they may occur in cemeteries separate from the adults (Molin 1999, 53-4, 56).

In a regional study of archaeological finds from sixty-one collective burial monuments dated to Late Iron Age in Scandinavia (Norway, Sweden, Denmark) and Iceland (Olsen 2007), around 142-145 individuals have been identified based either on the analyses of skeletal remains and/or funerary equipment. The osteoarchaeological material represents scales of standard age categories in the human life course from foetus (below 0 years) to senilis (60+ years). The majority of the material evidence derives from Eastern Norway (Holck 1986, 257, 273; Olsen 2007, 110-12, appendix IV). A recent bioarchaeological study on the elderly indicates that age-at-death identification of adults declines after 45-50 years because of methodological issues (Cave and Oxenham 2016; see Maaranen and Buckberry, this volume). Therefore, to explore further the regional potentials and limitations in the archaeological evidence of the Olsen study (2007) from the perspective of looking for evidence of interactions between the young and the old, a revised classification of the material into two broad categories has been undertaken – Group 1: foetus, infans I, II and juvenis (ages 0 to 18/20 years) and Group 2: adultus, maturus and senilis (ages 35/40 to 60+ years). Focusing on the ritual functions of the dead and buried body, a selection of four variables – body treatment, age, sex and the nature of the interment – has been included in the analysis (Table 1).

The results in Table 1 include details of the various practices of mortuary interments that include young and adult individuals buried collectively based on the osteological analyses and/or identification of grave goods in the Olsen (2007) study. The graves are either inhumation (n=12) or cremation (n=2) burials, and they possibly represent both simultaneous or sequential double and multiple interments. Among the individuals are a small number of children and youngsters categorised as child/animal? (n=1), foetus (n=1), child? (n=2), infans II (n=5) and juveniles (n=6) buried together with adults, and two of the graves contain the remains of juveniles (14/15-18/20 years) and adults (34/40-50/60 years). The two cremations derived from mound burials, while the rest of the monuments comprised inhumations in four types of grave constructions: flat, mound, stone packing and a flat subterranean boat burial. The results indicate variations, difficulties and uncertainty in finding qualified data combinations representing Groups 1 and 2. The collective burial practices for the total number of interred individuals are difficult to assess due to

Table 1: Details of fourteen interments of burials containing the remains of more than one individual based on the results of osteological analyses and/or the nature of grave goods in twelve inhumation and two cremation burials from the Late Iron Age in Scandinavia and Iceland (cf. Holck 1986; Olsen 2007, appendix 4). Sex determination – normal letters: based on osteological identification, italics: based on grave goods identification.

Body treatment	Osteological age	Identified sex based on osteological or grave goods	Nature of Grave Number of individuals in brackets
Cremation	Juvenis/Maturus (Holck 1986)	1 unknown/ 1 male?	Mound, paired or double (2)
Cremation	Juvenis/Maturus (Holck 1986)	1 unknown/ 1 male?	Mound, paired (2)
Inhumation	1 infans II/1 unknown	1 unknown/ 1 male	Level ground, boat, paired? (2)
Inhumation	1 child?/1 maturus	1 unknown/ 1 female	Level ground, stone packing, boat, paired? (2?)
Inhumation	1 child/animal(?)/ 1 maturus/3 unknown	1 unknown/ 1 female/ 1 female/ 1 male/ 1 male	Level ground, boat, multiple (4–5?)
Inhumation	1 infans II/ 1 maturus/2 unknown	1 unknown/ 1 female/ 1 male/ 1 male	Level ground, boat, multiple (4)
Inhumation	1 infans II/ 1 adult	1 unknown/ 1 male	Level ground, stone packing, cist, (2)
Inhumation	1 foetus/ 1 adultus	1 unknown/ 1 female	Level ground?; pit/ paired (2)
Inhumation	1 infans II/ 1 adult	1 unknown/ 1 male	Mound?/ 2 stone cists (2)
Inhumation	1 child(?)/2 infans II/ 1 adultus-maturus/4 unknown	3 unknown/1 female/ 3 males/1 female	Mound, multiple (8)
Inhumation	1 infans II/ 1 unknown	2 males	Mound, boat, paired? (2)
Inhumation	1 juvenis/ 1 adultus	2 males	Level ground?; paired? (2)
Inhumation	2 juvenis/ 3 adultus/ 2 maturus	1 unknown/2 females/ 4 males	Unknown, boat, multiple (7)
Inhumation	1 juvenis/ 1 maturus	1 female/ 1 male	Unknown, coffin (?), (2)

differences in local/regional preservation conditions. However, it should be noted with reference to the first-born model of the Odal family (see Lillehammer and Murphy, this volume), that the buried individuals were not all males! Females and males were buried together, and sometimes with children or youngsters.

Olsen's study was inspired by an article of historic significance written by one of the grand figures of Norwegian Iron Age burial archaeology, Haakon Shetelig, in the early twentieth century (Olsen 2007, iii). His intention was to give a contribution to the history of marriage and the social conditions of women in earlier times. In conferring with the Saga literature to discuss the custom of *suttee*, he approached the collective burial practice broadly by applying a Scandinavian perspective of immigration and diffusion to the Stone Age and onwards. However, the research focused on a selection of forty-four cremation and inhumation graves from the Viking Age collected between 1866–1907 in Norway (Shetelig 1909, 180–208). In her study on the Late Iron Age, Olsen included five of the burials from Shetelig's list together with burial material excavated up to 1990. She discovered that children were among the social categories represented in the

collective graves. Among these were also four collective burials that contained only the remains of children – one neonate and seven infants (0–12 months) from the syncretic Fjälkinge cemetery in Sweden (cf. Helgeson 1996; Mejsholm 2008, Lillehammer in prep.). Olsen (2007, 87–8) devised seven explanations as to why some individuals were buried simultaneously or sequentially in the grave/cist:

- *Suttee* (wife or concubine)
- Coinciding deaths
- Family grave
- Coinciding bones from a common bonfire site
- Master and thrall (slave) relation
- Sacrifice of people at burial in connection with fertility ritual
- Incorrect interpretation due to methodological issues that result in the identification of more than one individual

Material

The Museum of Archaeology, University of Stavanger holds known examples of younger and older individuals from inhumation and cremation disposals/



Figure 2: Migration period burial from Sørbo in the Sandnes municipality. The cremated remains of one younger and one older individual were deposited in a bucket-shaped pot along with the third phalanx (claw) of a bear, fragments of both a bone comb and a possible bone spoon and rim sherds of a second bucket-shaped pot (© T. Tveit, AM/UtiS).

interments in its collections. Perhaps the best known and most well-preserved example is the 8,000-year-old skeleton of a youth of approximately 15 years of age, from the Middle Mesolithic period (c. 6000 BC), found in a rock shelter at Viste in the Randaberg municipality (Barber 2011; Schulting *et al.* 2016). In addition, a number of neonate crania, belonging to at least four individuals and dated to the Roman/Early Migration period (c. 0-400/400-500 AD), were recovered from a bog at Bø in the Hå municipality (Lillehammer 2011, 48-9). Well-preserved Medieval burials from beneath Stavanger Cathedral have produced a range

Table 2: The number of Bronze (A) and Iron Age (B) sites with graves and graves containing bone from Rogaland, excavated and archived by the Museum of Archaeology, University of Stavanger, Norway (A), as well as the number investigated in the BEVARES project (B).

Period	Number of sites with graves	Number of sites with graves containing bone	Number of sites investigated
Early Bronze Age	20	12	11
Late Bronze Age	45	16	2
Bronze Age	44	8	3
A. Total	109	36	16
Early Iron Age	714	406	89
Later Iron Age	392	79	33
Iron Age	56	63	22
B. Total	1162	548	144

of remains from both younger and aged individuals (Denham 2014). Finally, a slight variation on one of the project themes can be seen in a double burial from the Migration period (c. AD 400-550) from Skeie in the Klepp municipality (Møllerop 1959; Tysdal 1983, 14). The burial initially contained the remains of a young female, around 18 years of age when she died. At some point the grave was reopened, some of her remains were removed while the rest were pushed aside, and the body of a 60-year-old man was buried in her place. So there is a known example of a younger and an older individual found within the same burial context, but they were not interred contemporaneously. However, it should be remembered that these burials are known because of their unique nature and, as discussed above, most of the museum's bone collections consist of heavily fragmented, cremated remains. Are the two groups in question, the young and the old, represented in the more typical collections and, more importantly, can they be identified amongst these small, burnt fragments?

That this is possible is evident in two bone assemblages, one recovered from a Late Bronze Age/Early Iron Age (c. 1100 BC-AD 550) burial cairn at Hålandsmarka in the Time municipality (Frydenberg 2009), the other a Migration period (c. AD 400-550) burial cairn at Sørbo in the Sandnes municipality (Dugstad 2011) (Fig. 2). Both of these assemblages are typical of the museum's collections and are comprised of relatively small amounts of bone, cremated and heavily fragmented. Yet despite these limitations, there is evidence of multiple individuals of differing ages, one adult and one juvenile, in both (Denham 2009; 2011a). Unfortunately, due to the heavily fragmented and incomplete nature of the material, it is not possible to assign more specific ages to the adults in the burials, but their occurrence supports the basic premise behind this study.

Given the nature of the museum's collections, the available burial record is skewed towards the periods and contexts when cremation was a common burial rite (see Fig. 2). While the collection is not large, the fact that most of it comprises small fragments of burnt/cremated bone creates time/budget constraints. For the sake of the BEVARES programme, it would have been useful to analyse all the bone in the collection but this was not a realistic option. It was therefore decided to focus on material from assemblages belonging to the Bronze and Iron Ages in Rogaland (with one Late Neolithic, c. 2300-1800/1800-1100 BC, exception). Table 2 shows the number of Bronze Age and Iron Age assemblages available in the museum's collections. Assemblages assigned

generally to the Bronze Age or Iron Age, and not one of their sub-periods, derive from contexts that either are not or cannot be more precisely dated. The contexts themselves may be clear burials, such as the Hålandsmarka example mentioned above, or more ambiguous, such as pits/deposits whose only identification as a burial is the presence of burnt/cremated bone.

Of the thirty-six Bronze Age (Table 2, A) sites with graves containing bone, sixteen were included in the study, primarily from the Late Bronze Age. The amount of Iron Age material is clearly much larger than that from the Bronze Age, and 144 Iron Age sites out of a potential 548 (Table 2, B) were included in the study. The majority of collections were Early Iron Age in date.

Two points should be made regarding this material. First, although much of the discussion is presented within the framework of burnt/cremated bone analyses, not all the bone used in the study is burnt/cremated. Around 35% of the ageing results from the total sample material come from non-cremated remains and this number increases to around 60% if one looks solely at the Bronze Age material. While this is not surprising, since ageing evidence tends to be better preserved in unburnt bone assemblages, it perhaps gives an inaccurate impression of the frequency of unburnt bone in the museum's collections. In terms of absolute frequency, the number of ageing results from unburnt Bronze Age material is quite small. Furthermore, if one considers the total number of assemblages in the data set, irrespective of whether or not ageing results were obtained, burnt/cremated bone clearly dominates. Second, while it was mentioned above that little of the material has undergone systematic analysis, some of it has. In instances where assemblages have been analysed by qualified osteologists, the results of these analyses have been included. It must be stated that many of the age identifications on non-cremated human remains included in the study were performed by earlier osteologists. That little burnt/cremated material has been previously analysed is due primarily to the perceived lack of information potential in burnt/cremated bone. Thus, most of the material analysed during the course of the BEVARES project was burnt/cremated.

Test Analysis of Burnt/Cremated Bone

The following discussion of burnt/cremated bone is rooted in the project's goal of identifying evidence for younger and older individuals in the archived material

as well as burial contexts containing both young and old individuals and is not intended as a comprehensive review of the topic.

Species

One of the first questions which must be addressed when analysing burnt/cremated remains (or any bone assemblage, for that matter) is whether one is dealing with human or non-human remains. When analysing unburnt/non-cremated materials, this is more straightforward, unless fragmentation levels are exceedingly high. Burnt/cremated bone tends to suffer from much higher levels of fragmentation and erosion of surface features, making species identification more difficult. One way of circumventing the problem is to make an assumption based on context. Bone from presumed burial contexts may simply be assumed to be human irrespective of the lack of diagnostic features. This approach has flaws, however, the most obvious of which is that contexts can be misleading, another being that it is not uncommon for animal bone to be deposited in the burial as well. It was determined that context alone was not enough to identify remains as human, but that diagnostic features must be present.

The one exception to this criterion is the presence of curved transverse fractures, a fish gill-like fracture pattern that occurs as a result of both the thermal alteration of the bone and the shrinkage of the attached soft tissue (Symes *et al.* 2015; Ubelaker 2015). It is indicative of fleshed bone elements being exposed to cremation level temperatures. Animal bones which are exposed to such temperatures, such as in the use of bone as fuel or the burning of rubbish, will generally have been de-fleshed prior to burning. Although the possibility of a burnt animal carcass cannot be excluded from consideration, the presence of this fracture pattern, for the purposes of this study, is accepted as evidence of human cremation. Beyond the formation process, which supports this idea, extensive experience with burnt/cremated assemblages from both domestic refuse assemblages and burial contexts in southwestern Norway has demonstrated that this fracture pattern appears consistently in the latter, but never in the former (e.g. Denham 2009; 2011a-b; 2012a-b; 2013; in prep.).

The significance of identifying species has to do with establishing the number of burials actually represented in the record. Identifying various categories of burial is of limited use if one does not have a reasonable estimate of how many burials are present overall, and thus how frequent or rare these categories are.

Age-at-death

In this study, the standards provided by Buikstra and Ubelaker (1994) and Schaefer *et al.* (2009) have been used when estimating age-at-death. It is generally accepted that when estimating age-at-death multiple indicators should preferably be used. While this can be challenging enough when dealing with unburnt/non-cremated remains, the nature of burnt/cremated remains naturally limits the ability to adopt this approach. The heavier fragmentation associated with cremation deposits tends to destroy the areas of the skeleton commonly used for age-estimation (e.g. pubic symphysis, auricular surface), while survival of sufficient number of teeth to accurately estimate age via tooth wear is rare. In order to avoid false or misleading results when looking for burial contexts with younger and older individuals, it was decided to use strict standards when estimating age. This necessitated the use of relatively broad age categories and is somewhat at odds with the methodology employed by Holck, who chose to use much more specific age groups. Table 2 includes details of the age categories employed both in this study and in Holck's (1986, 99) analysis.

Sex/Stature/Palaeopathology

Factors such as sex, body size and evidence of pathologies, while treated by Holck (1986) in his work and identified as a component of the BEVARES project, are not of direct relevance to the current topic and will thus not be discussed further.

Burials with Multiple Individuals

The second issue of concern in the present study is identifying contexts with multiple individuals. As with all factors involving burnt/cremated bone, this is somewhat difficult. Holck (1986, 164), dealing with similar problems in his study, developed the following protocol for identifying multiple individuals in a single cremation assemblage:

1. Repeated elements, or fragments of elements (e.g. two right, proximal tibiae).
2. Clear differences in results of age/sex estimation.
3. Clear size differences between comparable element fragments.
4. Clear difference in burning evidence.
5. Cremation assemblages containing an exceptional amount of material.

Holck (1986, 164) presents these points in order of decreasing reliability. In terms of identifying multiple

individuals, the present study follows this system as far as Point 3.

Results

Age-at-death

The general ageing results of the test-analysis are reported in Table 3. The largest number of ageable individuals is derived from the Early Iron Age (n=60), as might be expected from the substantial body of sample material. A relatively even distribution was evident across all age categories (the 'General Adult' category is not considered in this discussion), although with slightly fewer older adults (28%). As mentioned above, the difficulty of assigning specific ages to heavily fragmented remains requires the sub-adult age category to cover a wide range, although in some instances it was possible to assign more specific ages. In the Early Iron Age assemblage, for example, six neonates, three children aged 6-12 years and two individuals of 13-18 years were identified, while the remainder could only be classified as sub-adult. If one sums up the Iron Age results, the age distribution changes fairly radically, with mortality peaking at 41% in the sub-adult category, steadily declining to 26% in the older adult category.

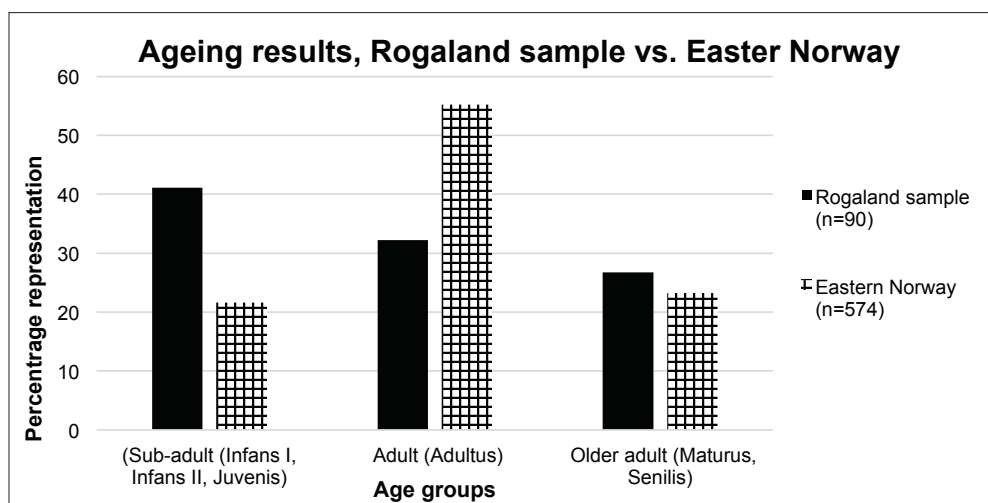
So, how do these results compare with those of Holck (1986)? Table 3 presents combined age-at-death results from his analysis of burials from the Bronze and Iron Ages of Eastern Norway. In his data set, mortality rises slowly across the sub-adult age categories (3.7%-13.1%), increasing greatly in the 'Adultus' category (55.2%), before steeply declining in the older age categories. Table 3 equates the age categories used by Holck to those used in the present study, and the two are compared in Figure 3 in which a clear difference can be seen. Even though some of the age categories have been pooled, Holck's (1986) results for Eastern Norway do not change greatly and sub-adult mortality and survivorship to older age are both low (21.6% and 23.1% respectively), while mortality still peaks in the adult category. This stands at odds with the combined Bronze and Iron Age results from Rogaland, which show mortality at its highest level amongst sub-adults (41%), and steadily declining across the remaining two age categories. Survivorship into old age is at similar levels in both areas.

The difference between these two age distributions is striking and, while further analysis is beyond the scope of this paper, a brief description of some possible explanations is appropriate. It must be noted that the sample size of the Rogaland material is small,

Table 3: Ageing results for Bronze and Iron Age burial contexts in Rogaland (BEVARES) and Eastern Norway (Holck 1986). The more general age categories used in the BEVARES study are equated with the more specific categories used by Holck and the actual age ranges presented. Individuals classified as ‘General Adult’ are skeletally mature but cannot have more specific ages assigned to them.

BEVARES project							
	Sub-adult		Adult	General adult	Older adult		
Bronze Age	5		3	4	4		
Early Iron Age	22		21	6	17		
Late Iron Age	5		4	2	3		
Iron Age	5		1	1	-		
Holck study							
	Infans I	Infans II	Juvenis	Adultus	-	Maturus	Senilis
	0-7 yrs.	7-14 yrs.	14-20 yrs.	20-40 yrs.	-	40-60 yrs.	60+ yrs.
Bronze & Iron Ages	21	28	75	317	-	126	7

Figure 3: Age distribution of the Rogaland burial sample compared to that of Eastern Norway (cf. Holck 1986).



however, and the explanations must be treated with caution. The first possibility is that this genuinely represents different mortality patterns between the two areas. This would mean that in Eastern Norway, the odds of surviving childhood were high, and the odds of reaching old age low, while in Rogaland, the likelihood of either surviving childhood or living to old age were low. Another possibility is that the findings represent differences in burial practices, rather than mortality patterns. This might suggest that the burial traditions in Eastern Norway favoured the survival of adult remains as opposed to those of younger and older individuals, while burial traditions in Rogaland perhaps more directly correspond to the actual mortality pattern. Finally, it may be the case that the two data sets are not comparable, whether due to the significant difference in sample size or different archaeological contexts (e.g. burial type).

Burials with Multiple Individuals

Although the questions that lead on from these results are quite interesting, they are not the focus of the current study, which primarily sought to identify evidence for older and younger individuals in the burial record. The second goal of this study was to identify instances of younger and older individuals in the same burial context. Some examples of burials containing multiple individuals from Rogaland were described above (e.g. Skeie and Hålandsmarka), although none of these quite fit the requirements in that they are either not contemporary multiple burials, or it was not possible to determine the ages of the older individuals in the burials with the necessary precision.

Holck (1986) identified eight individual cremation burials that contained multiple individuals and involved adults and children. Only one of these consisted of a child (0-7 years) and an older adult (40-60

years), while the rest involved adults in the 'Adultus' category. However, Holck (1986) chose to limit the definition of a child to individuals under 15 years of age (Infans I and II). His data set contains several examples (n=7) of individual burials containing multiple people and involving the Juvenis (14-20 years) and Maturus age groups. These fit the broader age categories (Sub-adult, Older adult) used in the present study, and thus also represent instances of younger and older individuals in the same burial context. Holck (1986, 167) refrains from speculating overly much on the relationship between the individuals in these multiple burials, although he does mention the possibility of human sacrifice. In this scenario, one of the individuals present in the burial would be a sacrifice or offering, whose role was to accompany the primary deceased individual in the afterlife. Holck goes on to suggest that it is likely that an older, rather than a young healthy, slave would be sacrificed for this purpose. He points to the presence of pathological, possibly age-related, traits in 29.2% of the bone finds from double graves as possible evidence in support of this idea.

Only one example of younger and older individuals in the same burial context was identified in the Rogaland material analysed in the test analysis of the BEVARES project. This is a multiple cremation Late Neolithic (1885-1745 cal. BC) burial/mass grave that contained the remains of at least five individuals and was excavated at Sømme in the Sola municipality. A stone cairn covered a large, rectangular burial chamber. The remains of at least one younger child, as indicated by the size of unfused metapodials, and at least one older individual, as indicated by tooth wear, were identified. It has long been believed that these individuals were beheaded, as suggested by A. Brinkmann of the Zoology Department of Bergen Museum (Brinkmann 1932; Høgestøl 2003), based on damage to several (n=4) second cervical vertebrae. Bilateral fractures were apparent across the laminae of the vertebrae (traumatic spondylolisthesis), separating the neural arches from the bodies of the vertebrae. The injuries are also known as 'hangman's fractures' and result from the violent hyperextension of the head (Mann and Hunt 2005) but they are not associated with decapitation. In addition to this rather dramatic evidence, the excavation plan suggests that the burial structure itself contained a series of seven short, upright stones inside the stone cist (Fig. 4), that may well have marked the placement of individual burials. The Sømme find may, therefore, be an example of a collective mortuary practice. So, while this burial does indeed fit the criteria sought

out in this aspect of the project, evidence of younger and older individuals in the same burial context, it can hardly be considered a typical burial.

Concluding remarks

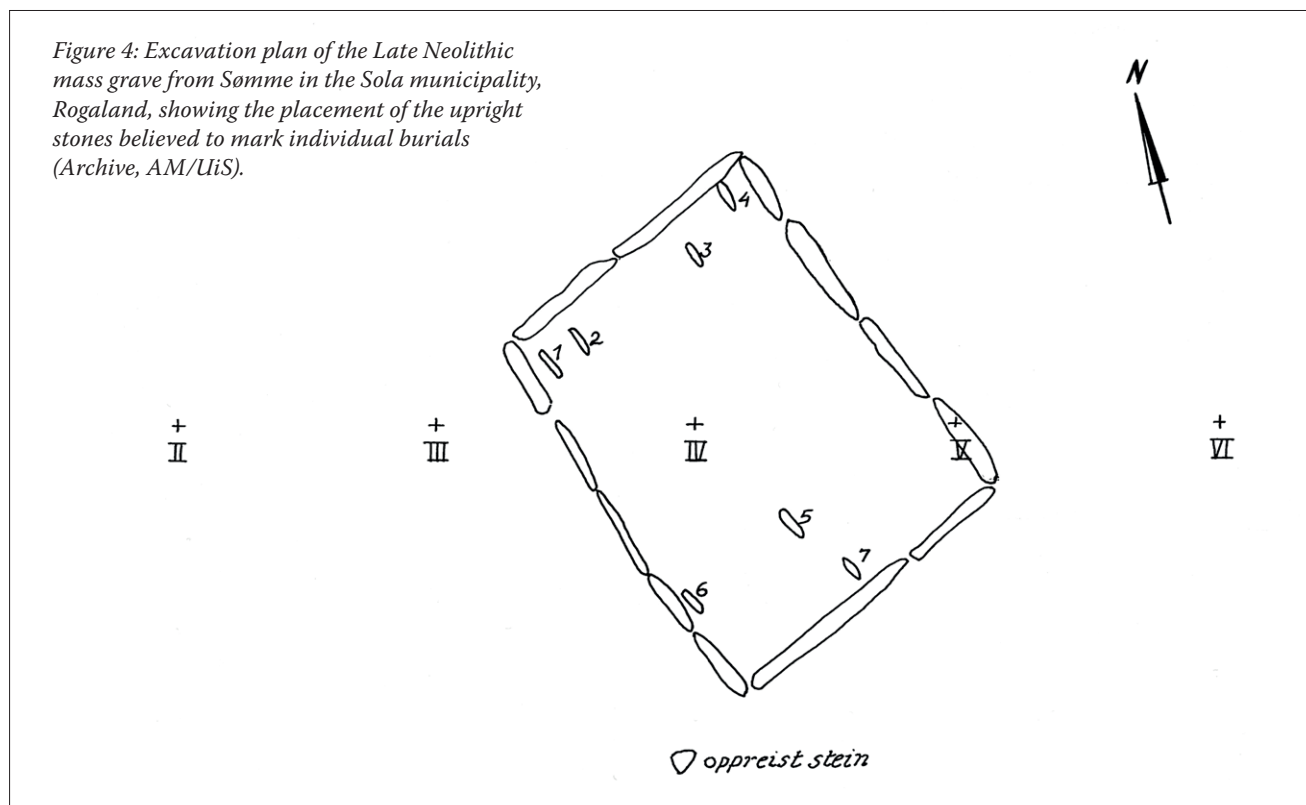
This study began as an attempt to better understand the bone material curated by the Museum of Archaeology, University of Stavanger, but quickly moved on to the task of activating the data recovered from the material. That the appearance of the young and the old in the burial record became the focus of this aspect of the BEVARES program can be attributed to the research interests of the individuals involved. The realisation that the archaeology of childhood and the archaeology of the elderly might benefit from a third dimension (i.e. the interaction of these groups) led to the second focus of this study. That this entailed a search for the intersection of younger and older individuals in the burial record is a consequence of the study material.

The attempt to identify the young and the old in the museum's archived bone material was at least partially successful. The number of sub-adults present in the burial record was much higher than expected. A relatively low number of older adults were identified but this may be due to the actual mortality pattern as opposed to any lack of visibility in the material. Although small in comparison to the available comparative material, the results were substantial enough to show a clear difference in Bronze Age and Iron Age mortality/burial patterns between Eastern Norway and Rogaland. This point will be further examined in future work.

The search for instances of younger and older individuals in the same burial context does not appear to have been successful. Given the two mortality patterns seen in this study, one would expect it to be more likely to find such evidence in Rogaland, since its sub-adult mortality level was much higher than that of Eastern Norway, while the level of survivorship to old age was similar in both areas. However, this pattern was not seen, and it may be the case that taphonomic factors have masked the necessary evidence, or that it was simply not a real phenomenon. The few examples of double and multiple burials which might fit the criteria and that have been mentioned in the text are either exceptional/unique contexts (Skeie, Sømme), or instances in which there was insufficient evidence to precisely identify the age of the adult/older individual (Hålandsmarka and Sørbo).

This certainly does not invalidate the idea that interactions between the young and the elderly might be

Figure 4: Excavation plan of the Late Neolithic mass grave from Sømme in the Sola municipality, Rogaland, showing the placement of the upright stones believed to mark individual burials (Archive, AM/UiS).



visible in the archaeological record. It merely means that the osteological record, in this instance, does not provide evidence of it. How are we to address the issue of missing empirical evidence? Are there any links or limits set by universals or variations in the ritual evidence that could lead us further into a land that at first glance seems more or less closed? Rather than give up on the human biological material, the comparison between the burials in western and Eastern Norway, briefly presented here, has revealed a new path for further investigation. A closer examination of archaeological material from Norway, including burial finds from Late Neolithic stone cists, and the mortuary practice of collective burial in Scandinavia and beyond, seem to be the next step. This situation requires, however, a broader dialogue about the application of analytical and interpretative models and/or techniques of an analogous or experimental nature in order to better explain and understand the archaeological evidence derived from human remains. We would therefore like to see the establishment of a working group focusing on relationships between the young and the old in past societies.

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