

Ritualized Mesolithic Hoarding in Southern Scandinavia

An Under-Recognised Phenomenon

Mathias Børnevad-Ahlqvist 

Intentionally deposited groups of artefacts, here classified as hoards, form a relatively understudied aspect of the southern Scandinavian Mesolithic. Here analysis of 124 southern Scandinavian Mesolithic hoards is used to further the concept of ritualization, applying a holistic approach to the observed variability and patterning in their biographies. Contrary to the common assertion that hoarding began in the Neolithic, the results indicate that hoarding practices can be traced back to at least the Early Maglemose and extend throughout the Mesolithic. A catalogue of studied hoards is included in the supplementary online material, as well as a separate catalogue of use-wear analysis findings from a subset of the hoards.

Keywords: hunter-gatherer, northern Europe, hoard, ritualization, practice theory, object biography

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Department of Archaeology and Heritage Studies, Aarhus University
mathias.jensen@cas.au.dk

Introduction

The hoarding practices of the southern Scandinavian Mesolithic have received little archaeology attention (Karsten & Knarrström 2003:127; Larsson 1978:163–164). In general, the focus has rather been on the identification of waste disposal areas, which along with scatters and activity areas, are largely seen as the detritus from everyday life. This stands in contrast to research into the Neolithic, Bronze and Iron Ages, in which depositional practices, especially those deemed as ritual hoarding, have been the focus of intense discussions (Karsten 1994; Levy 1982; Müller 1886; Nielsen 1977; Rech 1979; Worsaae 1866). Research on Scandinavian Mesolithic ritual depositional practices has largely side-lined hoarding, being dominated instead by mortuary finds, deposition of single finds, intra-site patterning of particular forms of material culture, and unusual artefact assemblages found at a few key sites (e.g. Larsson 1988, 2003; Karsten 1994:166–170; Koch 1998:157; Hansen 2003; Karsten & Knarrström 2003; Nilsson Stutz 2003; Andersson et al. 2004:138; Carlson 2008:156–165; Toft 2009; Molin et al. 2014; Petersen, E.B. 2015; Pedersen & Petersen, E.B. 2017; Sørensen, S.A. 2020; Hallgren et al. in press). These diverging research trajectories, both within Mesolithic depositional research and between Mesolithic and Neolithic hoarding research, have limited our understanding of the scale and nature of Mesolithic hoarding practices. This has likely contributed to a widespread acceptance amongst many archaeologists that such hoarding practices are a phenomenon first witnessed in the Neolithic (Solberg 1989:284; Sørensen, L. 2014:129). Thus, the gap between our perceptions of the Mesolithic and the Neolithic has further increased. However, I would argue that this is more a symptom of the relatively under-researched nature of the Mesolithic hoards and the different terminology used to describe and interpret Mesolithic deposits, rather than a reflection of the actual material remains.

The present paper seeks to bridge the interpretive frameworks and discussions of previous Mesolithic and later prehistoric research by focusing specifically on hoarding in Mesolithic southern Scandinavia. The archaeological material drawn upon comes from Denmark, Schleswig-Holstein in northern Germany, and southern Sweden. The dataset includes archaeological evidence dating from throughout the Mesolithic, in particular material from the Maglemose (circa 9500–6400 BC), Kongemose (circa 6400–5400 BC) and Ertebølle periods (circa 5400–4000 BC). The dataset and analysis presented here represents the most extensive attempt so far to describe and understand Mesolithic hoarding, with 124 southern Scandinavian Mesolithic hoards included in the multi-scalar analysis¹.

1 A catalogue of the analysed hoards and details of use-wear analyses carried out on a selection are included in the online supplementary material as appendices 1 and 2.

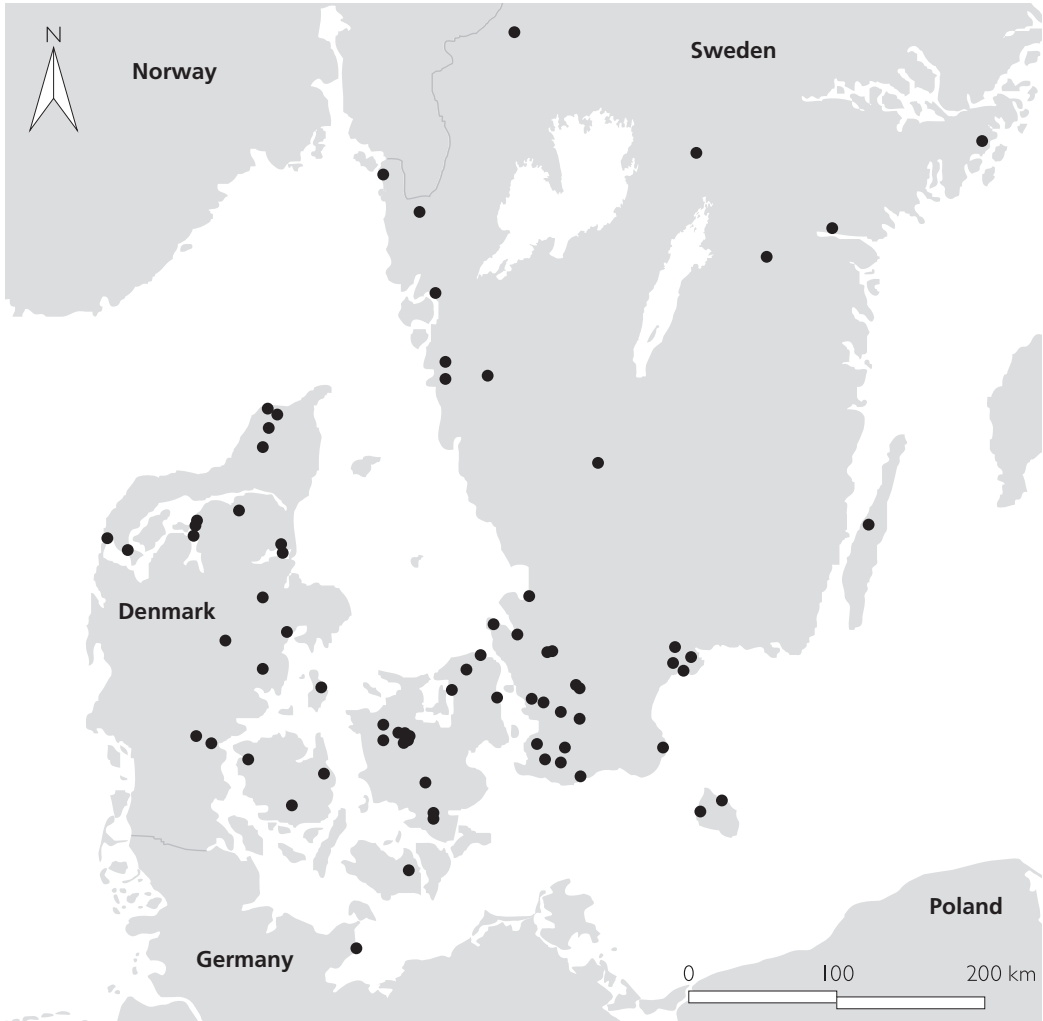


Figure 1. Map of Southern Scandinavian Mesolithic hoards analysed in this study. The sites include: Ageröd, Anderstorp, Arreskov Sø, Bjällvarpet, Björkeröds fällad, Bøgebakken, Bökeberg III, Dagstorp, Doverodde, Dybvadbro, Fladbro, Flækkemagle, Gammelrand Mose, Garbølle Mose, Gøngehusvej 7, Hasselfors, Havnø, Henriksholm-Bøgebakken Herlufmagle Mose, Hindbygården, Holbo, Horne Terp, Husted Mose, Hörninge Mosse, Ingersbyn Mosse, Klippan, Kongemosen, Kristian Isbaks Mose, Lundby Mose 5, Lystrup, Maglelyng XL, Maglemosegårds Vænge, Noresund, Norje Sunnansund, Näsum, Nørre Sandegård, Porsgaard, Porskjær Bakker, Revinge Bog, Revlen XI, Ringkloster, Ringsjöholm, Ronaes Skov, Rødkildegård, Rönneholm, Siggeneben Süd LA 12, Siggård, Simrishamn, Siretorp, Sjöholmen, Sjøvretten, Skal, Skamstrup, Skateholm II, Skummeslövsstrand, Snyggatorp, St. Havelse Strand, Stavns, Stora Sjögestad, Strandby, Svenstorp, Sværdborg I, Sølund, Timmerås, Tissø, Tolstrup Hede, Tuekæret, Tuve 18, Tågerup, Ud Stolpe, Ulkestrup Lyng, Ullerslev, Undløse, Vedbæk Boldbaner, Vegeholms Slot, Ytterby 185, Ängehagen, Øgårde, Ørvadgård, Östra Grevie, Åby, Åle Syd, Ålyst, Åmossen and Årup. Data from Appendix 1. Graphics: Anders Gutehall, Visuell Arkeologi.

The main objectives are to ask research questions on the foundational characteristics of southern Scandinavian Mesolithic hoarding: what kinds of objects and materials are found in the hoards, and what temporal and spatial variability is present? How were the objects treated prior to and during deposition, and in what environments and contexts were the hoards deposited? How should the hoards be interpreted?

The following section discusses definitions and analytical approaches to southern Scandinavian hoards used within this paper with reference to previous research. Next is a summary and critical assessment of the state-of-the-art understanding of Mesolithic hoarding, stressing especially the conceptual legacies of wider approaches to Mesolithic and Neolithic studies. This is followed by a discussion of practice theory and the concept of ritualization, which has already been successfully used to interpret and approach other forms of depositional practices in the Mesolithic, especially burials. These insights are intended to frame the applicability of ritualization in relation to Mesolithic hoards, in contrast to commonly assumed ritual-profane dichotomies.

Next, I present an overview of the general characteristics – including both commonalities and variability – based on the quantitative and qualitative analysis of 124 hoards (Figure 1 and appendix 1). This compilation is over seven times larger than the largest prior study (Larsson 1978), allowing for the identification of patterns and variability in Mesolithic hoarding practices. The analysis includes an examination of life-histories of the objects included in the hoards and the treatment of the hoards prior to and during their deposition. These different analytical lenses are intended to examine various temporal, social and spatial scales of the hoarding practices – from individual objects and hoard biographies to the long-term continuities and changes of the practice over the entire southern Scandinavian Mesolithic. Finally, based on these empirical results I explore several possible interpretive scenarios for Mesolithic hoards, including why the concept of ritualization may provide the best means of approaching, understanding and interpreting these hoards.

Defining, collating and analysing Mesolithic hoards

A wide variety of different terms have been used to describe the previously published Mesolithic hoards in this study (Table 1). There has been little consensus on how Mesolithic hoards should be understood, and consequently a wide variety of classifications have been put forward. Some hoards included in this study were simply described as objects being found together, or in a cluster, concentration or described by their arrangement

Table 1. Frequency of particular interpretations/classifications used for Southern Scandinavian hoards (data from references in Appendix 1). Many hoards are interpreted in different ways, within the same text or between different texts, so hoards and their respective interpretation/classification are counted each time they are mentioned in any of the referenced texts.

| Interpretation/classification | Number |
|--|--------|
| Ritual (sacrifice, offering, votive) | 78 |
| Neutral (depot, deposition, deposit) | 76 |
| Find description (collection, found together, toolkit) | 36 |
| Cache (store, storage) | 33 |
| Hoard | 27 |
| Lost (accident, dropped, leister-set) | 8 |
| Waste | 5 |
| Grave (cenotaph and emptied grave) | 2 |
| Belongings of a crime victim | 1 |

(Andersen, K. 1983:38; Henriksen 1976:80; Simonsen 1952:214–215) without any further interpretation. Other studies have interpreted these deposits as various types of profane storage, for example economic caches (Pedersen & Petersen, E.B. 2017:245; Salomonsson 1968), representing waste dumps (Andersen, S.H. 1998:28, 2009:93), toolkits (Andersen, S.H. 2013:245), or ritual deposits (Andersen, K. 1983:94; Karsten & Knarrström 2003:91–101, Larsson & Sjöström 2011:460–462). In some cases both ritual and profane interpretations are stated as possibilities (Andersen, S.H. 1978:54; Larsson 1978:164). Similarity, in some publications a single deposit is described both as a cache and a hoard in different parts of the text (Hernek 2005:267–268; Stafford 1999:70, 130; Sørensen, S.A. 2017a:38). Two hoards have also previously been considered as either cenotaphs or as emptied graves (Petersen, E.B. 2015:90; Larsson 1988:15), whereas others have been regarded as accidental losses (Andersen, S.H. 1978:54; Mathiasen 1943:91), and even as the personal effects of a victim of violent crime in one case (Avnholt 1944:56).

Hoards have often been treated in isolation and without extensive comparative analysis. This restricted research makes it difficult to assess general patterning and variability, and it effectively hinders attempts at a comprehensive interpretation of these practices. In the present paper, I aim to address some of these issues by using consistent terminology and systematic criteria to identify and classify Mesolithic hoards.

The term hoard is used in this paper, rather than cache, depot or deposit, as it is intended to as a bridge between the Mesolithic and Neolithic research traditions, where hoard is more commonly applied. However, the term is not meant to imply continuity between the Mesolithic and Neo-

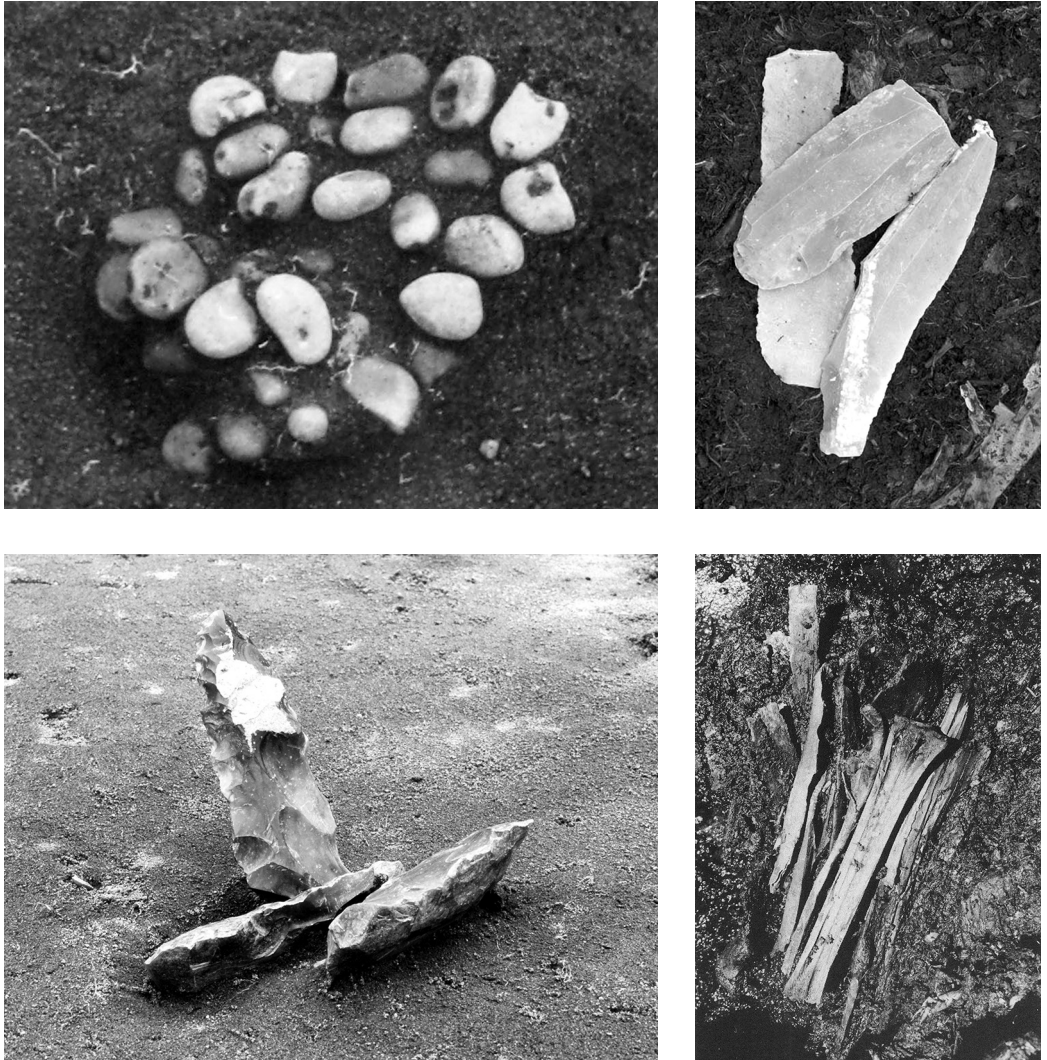


Figure 2. Examples of in situ hoards Nørre Sandergård V (Photo: Carl Johan Becker, National Museum), Rönneholm 10.3 (Sjöström 2011:62, fig. 69), Arreskov SØ (Photo: Mogens Bo Henriksen, Odense Bys Museer) and Ageröd V (Larsson 1983:79, fig. 45).

lithic or *a priori* notion that these deposits were strictly profane or ritual in nature. Hoard is regularly used in wider European research for material interpreted as profane storage as well as ritual or sacrificial offerings (e.g. Bradley 1990; Levy 1982).

In this paper, a hoard is defined as an intentional single deposit containing multiple objects found in a discrete cluster (Figure 2). Deposits that include debitage, unworked faunal or flora remains or human remains are,

however, excluded. This is done to distinguish hoards in a strict sense from other depositional practices, such as production or consumption waste, accidental losses or mortuary remains, and due to the difficulty of determining the level of intentionality behind deposits of organic unworked raw material in particular. It should be noted, however, that the *a priori* exclusion of these materials is not to imply that deposition of these materials could not be related to hoarding. Rather their exclusion was for analytical reasons and to prevent a categorization too broad to be analytically useful. Thus, the categorization of the included deposits as hoards is intended as an operational analytical definition, not necessarily representing an emic one.

Data were collated from published reports and museum accession records; many of the hoards presented here have not previously been published. A large number were found during old excavations or during peat digging or agricultural activities. This legacy material suffers from numerous source-critical caveats, chiefly a lack of contextual information. This represents challenges regarding the classification and interpretation of these assemblages. On some occasions (N=16), I relied on prior interpretations that had classified a given deposit as a hoard or similar (for example depot, offering, or cache). These 16 hoards vary in composition, context, and location, but fit the observed patterning of the more certain hoards.

The catalogue was analysed both quantitatively and qualitatively to identify the general characteristics as well as the variability of southern Scandinavian Mesolithic hoards: the object composition, observable continuities and changes of the composition at different temporal and spatial scales, the pre-depositional life-history of the objects, the peri-depositional treatment of the objects and the assembled hoards, and finally the depositional contexts in which these hoards are found. As part of the biographical analysis of these objects, a subset was subjected to detailed macro- and microscopic visual examination. This examination primarily consisted of use-wear analysis using either a Dino-lite AM 4815ZTL portable USB microscope or a standard Nikon eclipse LV150 metallurgical microscope, depending on the accessibility of the material, supplemented with macroscopic observations of the objects themselves or published images.

A brief history of research into southern Scandinavian Mesolithic hoarding

The first southern Scandinavian Mesolithic hoards were found as early as the mid-nineteenth century with a slow trickle of similar deposits identified over the next 150 years. However, many of these early hoards, especially of blades, were originally considered Neolithic or even Bronze Age (Ebbesen

Table 2. Summary of key references discussing Southern Scandinavian Mesolithic hoards.

| Key texts | Number of hoards | Number of pages | Interpretations |
|-------------------------------------|------------------|-----------------|--|
| Rydbeck 1918 | 4 | 1 | Closed finds, depots, votive |
| Larsson 1978 | 14 | 5 | Depot, hoarded treasures and ritual hoards |
| Karsten 1994 | 7 | 5 | Depot, offering, hoard, axe offering, collection offering, ritual finds, votive |
| Koch 1998 | 2 | 0.5 | Offering finds |
| Karsten & Knarrström 2003 | 11 | 6 | Votive finds and also profane storage |
| Sjöström 2004 | 12 | 3 | Samlinger: including in situ knapping areas, the deposition a selection of knapping material, waste disposal, storage for later use, hidden treasure, ritual, depot, blade depot |
| Sjöström & Hammarstrand Dehman 2015 | 9 | 15 | Depot, ritual, offering, profane, blade collections, blade depots |
| Petersen, E.B. 2015 | 6 | 1 | Deposits and cache |
| Pedersen & Petersen, E.B. 2017 | 6 | 9 | Cache, tool cache, tool fabrication cache, dress offering |

1982:21; Karsten 1994:95–97; Nielsen 2017:126–127; Salomonsson 1957). The earliest publication that specifically includes Mesolithic hoards was by Rydbeck (1918) on bog and dryland hoards held in the Lund University Historical Museum. However, only four possible hoards of Mesolithic axes are briefly noted, whereas the main focus was on the much larger number of Neolithic wetland hoards. After Rydbeck's (1918) study, Mesolithic hoards went largely overlooked, except for the occasional brief note in site reports or regional archaeological publications (Avnholt 1944; Henriksen 1976:80; Mathiassen 1943:69–91, 1959:22; Salomonsson 1968:263–268). Spurred on by some of his discoveries at Ageröd, Larsson (1978) dedicated a short section in the Ageröd I:B and I:D site report to discussing 14 Mesolithic 'depots' found in Scandinavia. Just over one page in length, until the early 2000s this text represented the most extensive discussion of this phenomenon anywhere in Europe (Karsten & Knarrström 2003:91–101; Sjöström 2004:43–44). Several other researchers, including Hammarstrand Dehman and Sjöström (2009:19–20), Karsten (2001:125–126, Karsten & Knarrström 2003:91–97), Kjällquist et al. (2016:256–259), and Petersen, E.B. (2015:77–79) all also mentioned, albeit briefly, Mesolithic hoards found during their excavations and contextualized them against findings from other sites. Table 2 summarizes the main texts discussing southern Scandinavian Mesolithic hoards.

Based on some of these more recently discovered hoards, especially from the Rönneholm-Ageröd bog complex, the assumption that such hoards dated to the Bronze Age or the Neolithic (Salomonsson 1957; Ebbesen

1982:21; Karsten 1994:97) has been reassessed (Sjöström 2004:44). Recently, a few researchers have even stated that hoards were not uncommon during the Mesolithic (Sjöström & Hammarstrand Dehman 2015:17; Kjällquist et al. 2016:270; contra, Solberg 1989:267; Koch 1998:158). Mesolithic hoards have also been mentioned alongside other Mesolithic practices interpreted as ritual (Bradley 1998; Strassburg 2000; Koch 2004:333–335; Toft 2009:614–620; Sørensen, S.A. 2017a:38; Pedersen & Petersen, E.B. 2017:237–258). Occasionally, Mesolithic hoards are used to contextualize Neolithic as well as later prehistoric depositional practices (Karsten 1994:166–170; Bradley 2017:72, 108), mostly in the service of an argument for the *longue durée* of such practices and, not least, a degree of continuity between Late Mesolithic and Neolithic hoarding practices.

Beyond the isolated studies mentioned above, Mesolithic hoards are neither robustly incorporated into our general understanding of the southern Scandinavian Mesolithic (for example: Price 1985; Larsson 1990; Sørensen, S.A. 1996; Grøn 2003; Blankholm 2007, Sørensen, L. 2014; Astrup 2018; Sørensen, M. et al. 2018), nor have they hitherto been directly compared to Mesolithic mortuary practices. In fact, and despite the recent increase in interest in Mesolithic hoards and hoarding, many researchers state that such depositional practices are either entirely unknown prior to the Neolithic (Solberg 1989:267; Sørensen, L. 2014:129) or are ‘almost non-existent’ (Grøn & Sørensen, L. 2018:960) and ‘did not become a definite, important feature of the rural life of the Danish people before the Neolithic way of life was established’ (Koch 1998:158). The reluctance by some researchers to acknowledge that hoarding was practiced in the Mesolithic has been argued to be at least partly due the difficulty of demarcating Mesolithic hoards from other forms of more quotidian practices that took place in similar contexts (Larsson 1978:164). For example, the wetland locations, in which hoards are often found, were seemingly a part of everyday life in the Mesolithic, compared to the Neolithic, where such areas are seen as being more liminal and ritual in nature. Furthermore, more generally Karsten and Knarrström (2003:127) have previously noted that ‘no systematic or penetrating study of ritual finds from this time has ever been carried out; the discussion has had the character of small forays concerning individual sites or objects’.

Exploring ritualization in the Mesolithic of southern Scandinavia

In contrast to Mesolithic hoards, Neolithic and Bronze Age Scandinavian hoards have been investigated extensively. Their interpretation has

remained largely consistent, generally seen as either profane storage intended for later retrieval or as a permanent ritual deposition (see Karsten 1994:9–31 and Berggren 2010:44–104 for extensive overviews of Scandinavian hoarding and depositional research). The concept of ritualization has seen relatively little use within Scandinavian hoarding research (however, see Larsson 2004; Sørensen, C. et al. 2020), but it has been successfully applied elsewhere, for example, to other Scandinavian Mesolithic and Neolithic practices (Nilsson Stutz 2003; Berggren & Nilsson Stutz 2010; Berggren 2010, 2015).

Ritualization as explored here has its roots in practice theory applied to the study of rituals in ethnographic settings by Bell (1992) and subsequently within Scandinavian Stone Age research (Nilsson Stutz 2003; Berggren 2010). In brief, this comes from the perspective that all actions lie on a spectrum of ritualization (Bell 1992:140–142; Berggren 2010:379). Thus, practice theory provides an alternative framework for understanding practices that moves beyond Durkheim's (1915) dichotomy between ritual and profane, now widely appreciated to be largely a post-enlightenment Western construct that is neither ethnographically nor historically attested (Brück 1999). Instead, the line between ritual and profane life is either blurred or non-existent in many societies. Thus, rather than dividing practices into strictly profane or strictly ritual, from this practice theory perspective the focus is on identifying and understanding the role of ritualized practices and the actions and processes that make up a practice (Bell 1992).

The emic meaning of practices is not only contextually and culturally dependent, but can vary between participants and between different performances of the same practice (Bell 1992; Bloch 2005; Keane 2008:111). Thus, discussing the meaning of a practice is of less importance than focusing on the attributes of the practice, and how and when these change, as well as the societal role and function the practice may have (Berggren & Nilsson Stutz 2010:176). In contrast to focusing on the meaning, ritualized practices are instead seen as establishing 'relations between people, things, places and anything else that plays a part in the act' (Berggren 2010:380). This marks a key aspect of practice theory in terms of how ritualization relationally integrates and differentiates not only practices but also communities of participants, as well as the places and the things involved (Bourdieu 1977:120; Bell 1992:125).

In Bell's analysis, mechanisms of differentiation and integration are key attributes of ritualized practices: they are the very means by which a practice becomes ritualized, and their strategies of ritualization may set them apart from as well as connecting them to other societal practices (Bell 1992:74–93, 125). Strategies of ritualization represent individual or groups of actions, and aspects of those actions within a longer performance constitute

the entire practice. Many of the strategies of ritualization which Bell and other anthropologists have focussed on would leave no archaeologically identifiable traces; this would for example be the performance by particular people, the use of specific gestures, movements, sounds or words, and the use of specific clothing, food or other substances (Bell 1992:90, 204–207). Thus, much of the archaeological use of these concepts, especially in Scandinavian Stone Age research, has instead relied on either focussing on the use of certain forms of material culture, specifically axes (Larsson 2004; Sørensen, C. et al. 2020) or particular places or features, such as the offering fen of Hindbygården (Berggren 2010) or special transitional times such as death and burial (Nilsson Stutz 2003).

In this paper, the biographical approach, practice theory and the concept of ritualization and its prior archaeological uses (Nilsson Stutz 2003; Berggren 2010), are used to guide the analysis and interpretation on all observable life-stages of the objects and the assembled Mesolithic hoards. In this way the application of these approaches is pushed further back in time (both chronologically and in an object biographical sense) and is applied to a largely overlooked prehistoric practice. These perspectives are used to explore whether ritualization provides a likely explanatory scenario for the observable empirical results and the practice as whole, rather than focusing on the interpretation of individual hoards.

Characterizing southern Scandinavian Mesolithic hoards

COMPOSITION

A wide variety of object types are found in the Mesolithic hoards. The large numbers of hoards containing blades, axes, partially worked bone/antler, or cores/nodules are noteworthy (Figure 3). This suggests that generic tools (blades or axes) or raw material (flint nodules and cores, or partially worked bone and antler) were most commonly deposited. Occasionally, more activity-specific objects were also hoarded, such as bone points, beads and arrowheads. The domestic tools so common on Mesolithic sites such as scrapers, burins and borers are rarely or never included in the hoards, suggesting a selection process underlying the composition of the depositions, yet this selection process appears not to be dictated by either functionality or time/material investment. Likewise, some patterning may also be present in the types of objects generally found in single-object type or mixed hoards (Table 3). For example, it is notable that bone points, blades and partially worked antler/bone are rarely deposited with other object types, whereas cores/nodules, hammerstones, flakes and to an extent axes are

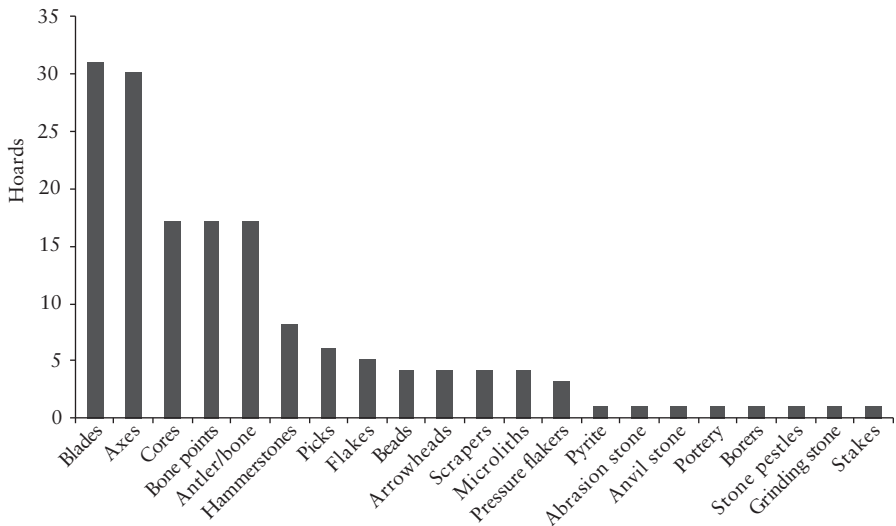


Figure 3. Frequency of different objects found in Mesolithic hoards in southern Scandinavia.

comparatively often deposited with other object types. Thus, the selection of objects deposited together also appears to have been influenced by normative ideals regarding the role, importance or relationship different objects had with each other.

In general, the hoards consist of quotidian objects, although a few contain rare or even unique artefacts. One interesting example is an unparalleled large conical-shaped chalk-covered flint nodule that was found together with two extremely long bone points in the refuse layer at Tågerup. These bone points have been interpreted as a possible tattooing needle and a clothes/hair pin (Karsten & Knarrström 2003:91). Likewise, it is also possible that the apparent bead hoards, all found in wetlands, should be considered as having a special significance. They contain beads in such great numbers that similar concentrations are only known from later burials. For example, 21 tooth beads from a variety of different animals were found in a bog (Sørensen, S.A. 2017b:226) at Skamstrup. Near another Maglemose settlement at Øgårde, 98 tooth beads were found in a tight cluster (Mathiassen 1943:91), and on the outskirts of the settlements of Ageröd IV and Ageröd V, a Kongemose hoard of 33 hazelnut beads was placed next to 13 blades and a large core (Larsson 1983).

Some of the hoards contain non-local objects or material. One of the most dramatic examples is the deposit of two Rössen shoe-last adzes and a flat stone axe found in a pit during peat digging at Ud Stolpe (Lomborg 1962). These axes likely originate from Thuringia or Lower Saxony (Sørensen, L. 2014:129), and had thus travelled over 300–500km before they were depos-

Table 3. Frequency of specific object types deposited in single object type or mixed hoards.

| Object type | Total | N | Single | % | N | Mixed | % |
|------------------|------------|-----------|--------|------------|-----------|-------|------------|
| Blades | 31 | 23 | | 74 | 8 | | 26 |
| Axes | 30 | 18 | | 60 | 12 | | 40 |
| Cores | 17 | 3 | | 18 | 14 | | 82 |
| Bone points | 17 | 15 | | 88 | 2 | | 12 |
| Antler/bone | 17 | 13 | | 76 | 4 | | 24 |
| Hammerstone | 8 | 1 | | 13 | 7 | | 88 |
| Picks | 6 | 3 | | 50 | 3 | | 50 |
| Flakes | 5 | 0 | | - | 5 | | 100 |
| Beads | 4 | 3 | | 75 | 1 | | 25 |
| Arrowheads | 4 | 3 | | 75 | 1 | | 25 |
| Scrapers | 4 | 1 | | 25 | 3 | | 75 |
| Microliths | 4 | 4 | | 100 | 0 | | - |
| Pressure flakers | 3 | 2 | | 67 | 1 | | 33 |
| Pyrite | 1 | 0 | | - | 1 | | 100 |
| Abrasion stone | 1 | 0 | | - | 1 | | 100 |
| Anvil Stone | 1 | 0 | | - | 1 | | 100 |
| Pottery | 1 | 1 | | 100 | 0 | | - |
| Borers | 1 | 1 | | 100 | 0 | | - |
| Stone pestles | 1 | 1 | | 100 | 0 | | - |
| Grinding stone | 1 | 1 | | 100 | 0 | | - |
| Stakes | 1 | 1 | | 100 | 0 | | - |
| Total | 124 | 94 | | 76% | 30 | | 24% |

ited during the Late Ertebølle on Lolland. At least three other hoards from Snyggatorp (Salomonsson 1957), Flækkemagle (Fischer 2004a) and Rönneholm FP 878 (Sjöström 2011:14–16) contain non-local material – flint in the first two hoards and shell beads in the latter – indicating the movement and curation of material across regions. Two of these hoards (Snyggatorp and Rönneholm FP 878, see Table 5) have macroscopically visible evidence of use, suggesting that they were not transported and curated solely for deposition, but rather their deposition was the end phase of a longer use-life. In contrast, it has also been noted by Larsson and Sjöström (2013:494–495) that many of the blade hoards found in the wetlands at Rönneholm may have transported for deposition, as they were not produced on any of the known sites in the area and rarely show evidence of wear.

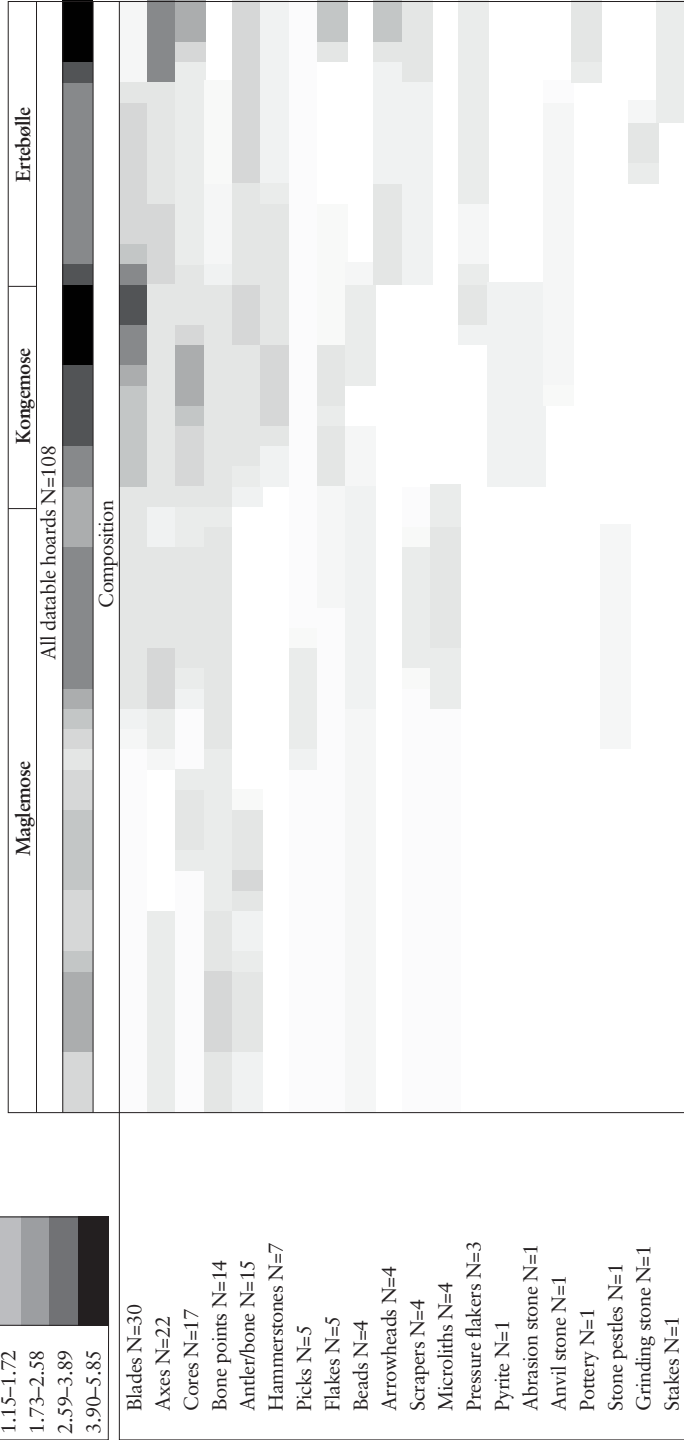
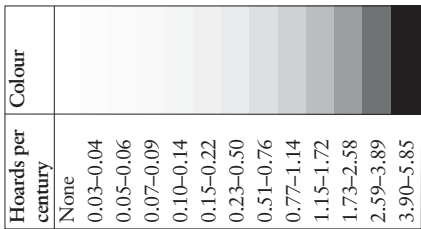
A few hoards, all dating to the Maglemose or Kongemose, contain unusually large tools. The aptly named site of Flækkemagle (big blades) in particular demonstrates this, as hoard of 13 blades that were 18–20cm long

was found tightly bundled together (Fischer 2004a:30). A similar hoard, dating to the Early Mesolithic, was found wave dispersed in the refuse layer at Norje Sannusund and contained 37 blades up to 18cm long (Kjällquist et al. 2016:256–259). The aforementioned Maglemose hoard from Rönneholm 8 that was found deposited away from the main settlement area, contained 108 large flint blades up to 15cm long, many of which are of exceptional quality and show no traces of use (Sjöström 2004:28). A few bone point hoards also contain unusually long points, such as that at Horne Terp. Here, five bone points, all circa 30cm long, were found bound together during peat digging in a bog (Andersen, S.H. 1978). Two similar hoards were found within possible fishing areas at Øgårde 9 and 14, one hoard contained five points 14–26cm long (the shorter bone point has evidence of re-sharpening) and the other hoard from Øgårde 14 contained three bone points 20–28cm long, respectively (Andersen, K. 1983:165–166). In addition, the three flint picks (one 44cm and two 29cm) found together at the settlement at Sjöholmen, represent some of the longest flint objects in Sweden (Karsten & Knarrström 2003:94). Although these hoards contain unusually large objects, other than perhaps the hoard from Sjöholmen, they were likely fully usable objects and thus stand in contrast to the oversized, presumably ceremonial axes found in some Neolithic hoards (cf. Sørensen, L. 2014:176).

CHRONOLOGICAL AND REGIONAL VARIABILITY

In most cases, a chronological assignment is only possible by either typological dating of the artefacts found in the hoards themselves or those found at an associated settlement. In a few instances, radiocarbon dates are available from the associated settlement, but uncertainties as to the contextual association of hoard and settlement remain. Furthermore, many settlements may have seen repeated occupation over extensive time spans. In all 16 hoards could not be typologically dated more precisely than to the Mesolithic, and in some cases the hoards contain only artefacts that could date to either the Mesolithic or the Neolithic. These latter hoards have been omitted from chronological analysis. In many cases the difficult-to-date hoards contain either blades or *trindøkser* (round-butted pecked stone axes) as stray finds.

Figure 4. Chronological variability of southern Scandinavian Mesolithic hoards and their composition. The top row shows the chronology of all hoards, the lower rows show the chronology for different object types. The dating for the hoards is often either typological or based on the associated sites; thus many hoards may have broad date ranges. The timeline is divided into 100-year increments. Where a hoard has a date range over, for example, five centuries, each century is assigned a value of 0.2, as the one hoard is divided by five. In this way the colour scales indicate the number of hoards per century. The colour scales are near-exponential, to accentuate differences between periods containing only few hoards and periods where hoards are more significantly common. >



Based on the remaining 108 hoards that are either typologically datable or come from dated sites or contexts, there is notable chronological variability in the frequency as well as the composition of the deposits. Figure 4 shows that hoarding was least frequent in the Early Mesolithic. This rarity continues into the earlier Kongemose. At circa 6000 BC the number of hoards increases, peaking at the end of Kongemose with 43 hoards that likely date to this period. The number of hoards then drops again during the early phases of the Ertebølle only to grow once more during the middle and Late Ertebølle. The reason and significance of this variable frequency of deposition is unclear, but it is likely due to multiple taphonomic as well as societal factors. In addition, the increase of deposition in the later Maglemose to the Late Kongemose is skewed by the relatively large numbers of hoards found at Rönneholm-Ageröd that date within this phase.

Links may be made between some of the chronological changes in the hoard composition and wider changes within societal structure. The decrease in bone point hoards after the Maglemose could reflect a general change in fishing practices and settlement locations in the Kongemose and Ertebølle towards coastal regions, as well as an increasing reliance on terrestrial products rather than lacustrine fishing (Schilling 1997; Astrup 2018). Lacustrine bone point depositions may also be less exposed to dispersion than those on coastal sites, so the data may be skewed by such taphonomic conditions. General changes in lithic technology may explain the possible shift away from microliths in the Maglemose to an increased focus on blades in Kongemose hoards, which matches the greatly increased reliance on larger blades in the Kongemose compared to the microlithic industries in the Maglemose (Sørensen, S.A 2017a:37–38). Finally, the growing focus on axes starting in the Late Ertebølle may suggest that local Mesolithic practices were influenced by contact with Central European Middle Neolithic scouting groups that likewise hoarded axes, in line with previous studies (Karsten 1994:166–170; Koch 1998:158; Sørensen, L 2014:129). By the same token, these results reveal that hoarding of axes was known from the earliest Maglemose and occurred, albeit sporadically, throughout the Mesolithic. This challenges earlier studies that have suggested axe hoarding to have been introduced by contacts with external Neolithic groups. Notably there is a shift in the focus towards axes, rather than the introduction of an entirely new practice in the later Ertebølle.

Regional variability in the composition as well as number of known hoards is also evident in the Mesolithic hoards (Table 4). Some of this may be a product of regionalised research history; in particular, the Swedish-dominated Mesolithic hoard research, as well as the relatively large numbers of hoards found in well-studied regions or sites such as the Rönneholm-Ageröd complex, Vedbæk fjord and Åmosen. Nonetheless, this does not

Table 4. Regional variability in composition of Mesolithic hoards.

| Object type | Total | Southern Sweden | | Eastern Denmark | | Western Denmark | | Schleswig-Holstein | | Bornholm | |
|------------------|------------|-----------------|------------|-----------------|------------|-----------------|------------|--------------------|-----------|----------|-----------|
| | N | N | % | N | % | N | % | N | % | | % |
| Blades | 31 | 18 | 31 | 3 | 10 | 10 | 31 | 0 | - | 0 | - |
| Axes | 29 | 17 | 29 | 7 | 32 | 6 | 19 | 0 | - | 0 | - |
| Cores | 17 | 10 | 17 | 3 | 10 | 2 | 6 | 0 | - | 2 | 100 |
| Bone points | 17 | 5 | 8 | 11 | 35 | 1 | 3 | 0 | - | 0 | - |
| Antler/bone | 17 | 6 | 10 | 5 | 16 | 6 | 19 | 0 | - | 0 | - |
| Hammerstone | 8 | 4 | 7 | 1 | 3 | 3 | 9 | 0 | - | 0 | - |
| Picks | 6 | 3 | 5 | 2 | 6 | 1 | 3 | 0 | - | 0 | - |
| Flakes | 5 | 4 | 7 | 0 | - | 1 | 3 | 0 | - | 0 | - |
| Beads | 4 | 2 | 3 | 2 | 6 | 0 | - | 0 | - | 0 | - |
| Arrowheads | 4 | 0 | - | 0 | - | 4 | 13 | 0 | - | 0 | - |
| Scraper | 4 | 1 | 2 | 0 | - | 1 | 3 | 1 | 100 | 1 | 50 |
| Microliths | 4 | 1 | 2 | 2 | 6 | 1 | 3 | 0 | - | 0 | - |
| Pressure flakers | 3 | 1 | 2 | 0 | - | 2 | 6 | 0 | - | 0 | - |
| Pyrite | 1 | 0 | - | 0 | - | 1 | 3 | 0 | - | 0 | - |
| Abrasion stone | 1 | 0 | - | 0 | - | 1 | 3 | 0 | - | 0 | - |
| Anvil Stone | 1 | 0 | - | 1 | 3 | 0 | - | 0 | - | 0 | - |
| Pottery | 1 | 0 | - | 1 | 3 | 0 | - | 0 | - | 0 | - |
| Borers | 1 | 0 | - | 1 | 3 | 0 | - | 0 | - | 0 | - |
| Stone pestles | 1 | 1 | 2 | 0 | - | 0 | - | 0 | - | 0 | - |
| Grinding stone | 1 | 1 | 2 | 0 | - | 0 | - | 0 | - | 0 | - |
| Stakes | 1 | 0 | - | 0 | - | 1 | 3 | 0 | - | 0 | - |
| Total | 124 | 58 | 47% | 31 | 25% | 32 | 26% | 1 | 1% | 2 | 2% |

fully account for the regionalised composition of hoards; note especially the proportion of hoards that contain blades, bone points and arrowheads. The regionalisation of hoarding is mirrored in tendencies of both micro- and macro-regionalization in other aspects of the Mesolithic; see for example microlithic technology (Larsson 1978; Andersen, S.H. 1983; Petersen, P.V. 1984; Blankholm 1990) and art (Toft 2017) varies across southern Scandinavia in the earlier Mesolithic. In the Late Mesolithic there is observable regionalisation in different types of material culture including T-shaped antler axes, bone rings, bone combs, Limhamn and flint flake axes (Petersen, P.V. 1984), ornamentation (Andersen, S.H. 1980, 1986; Nash 1998; Toft 2017:259–271) and pottery (Sørensen, L. 2015).

In addition, a degree of ‘localisation’ – site- or micro-regional patterning – is also observable. For example, all of the hoards from Siggård (three

hoards), Lystrup (two hoards) and Husted Mose (two hoards) contain blades, and an unusually large proportion of the hoards containing blades were found at the bog complex at Rönneholm (53 per cent compared to 20 per cent across the remaining hoards in southern Scandinavia). In contrast, only two out of the more than 16 hoards found at various sites around Åmosen contain blades. Instead, at these sites, the deposition of osseous objects (bone points, tooth beads and partially worked bone) is strongly represented. Where a site or micro-region contains multiple hoards, localised traditions can be discerned. This pattern of localisation suggests that certain persistent practices were often tied to particular sites, areas or groups (Barton et al. 1995). As the hoards in question were often found in sites with multiple occupation phases and have not been precisely dated, the temporality and longevity of these localised traditions must unfortunately remain unclear.

The variability suggests that although hoarding practices did occur throughout the southern Scandinavian Mesolithic, they were not static but varied temporally and spatially. Such variability is to be expected given the long duration and the relatively large study area, and it likely reflects changes in for example population structure, mobility or subsistence, economy, material culture or even ideological differences. However, in contrast to this expected variability, the observed localisation suggests that certain practices were closely linked to particular locales or were normative within the local groups. Thus, an interplay between notable variability on the one hand but also multi-scalar patterning is observable. This patterning is suggestive of driving forces behind the composition as well as the depositional contexts, and it therefore implies that these practices are not isolated occurrences but seem to be dictated by underlying normative ideals and habits, that are present at different spatial and temporal scales.

PRE-DEPOSITIONAL LIFE HISTORY

To understand Mesolithic hoarding practices more fully, the analysis of pre-depositional life-histories (including: the use-life and the treatment of the individual objects as well as the entire assembled hoard) constitute a key aspect of this study. In the present analysis, 15 of the 124 hoards were subject to use-wear examination. Those, as well as prior use-wear studies (Salomonsson 1957; Arbman 1954:6; Karsten 2001:126; Knarrström 2001; Sjöström 2004:44, 2011:61; Berggren 2007:116–117) show that Mesolithic hoards often contain used objects (Table 5 and Appendix 2). The degree of use and the type of material worked varies significantly, both between different hoards and between different objects found within the same hoard. Some of these objects have little usable life left, due to extensive prior use or extensive damage (see below), suggesting that they were

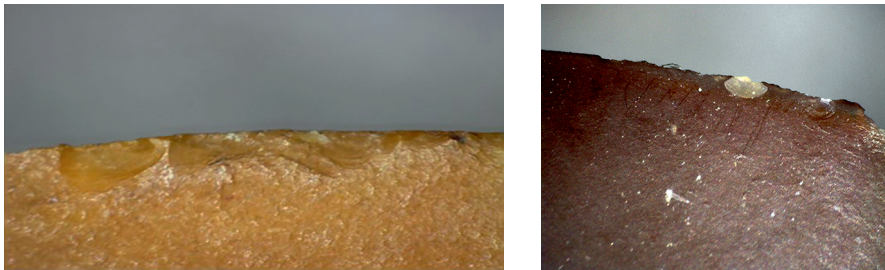
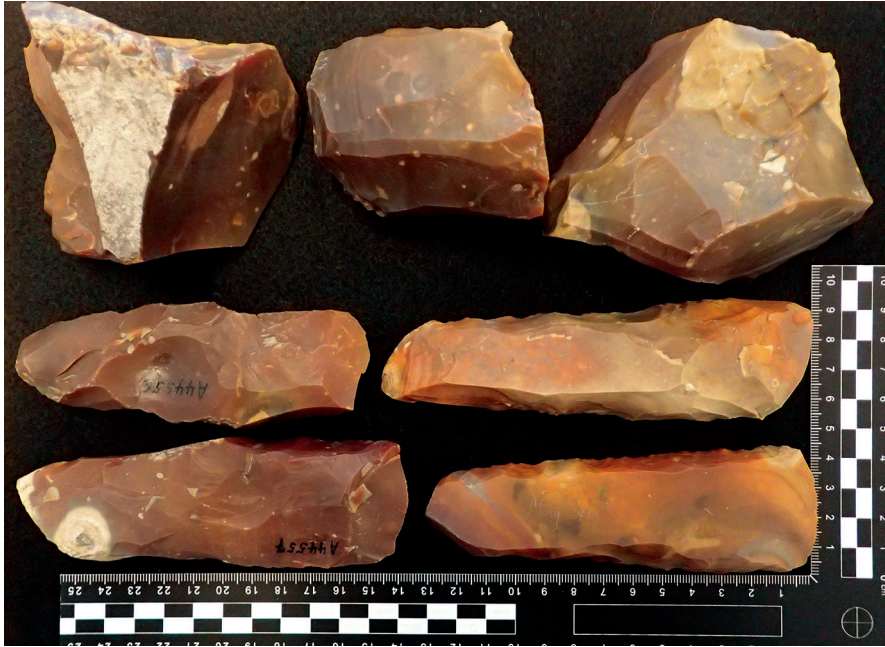


Figure 5. Examples of use-wear traces, including striations and edge damage on two of the axes (under) found in a hoard from Maglelyng XL, Zealand with two core axes, two flake axes and three cores (above). A flint nodule from this hoard is not pictured as it does not appear to have been handed in to the National Museum of Denmark.

not being cached for later use. Some of the objects within a hoard showed no use-wear traces, appearing entirely pristine and useable. These unused objects are however, often deposited with used objects. Whilst combining objects with different use-lives may have been a feature of the hoarding practice, there is no observable ‘idealised biography’ (Fontijn 2002) for the objects, nor an idealised combination of biographies that were deposited together in these hoards.

Many Mesolithic hoards contain fragmented objects, such as blades, axes, bone points and bones. In some cases, this may be explained by post-depositional disturbances including ploughing, peat extraction or excava-

Table 5. Synthesised use-wear results of Southern Scandinavian Mesolithic hoards. The use-wear analysis results are based on micro- or macroscopic observation of the artefacts themselves and in some cases just photographs. In these latter two instances, marked with Δ , where the use-wear observations are based on available photos, there is obviously more uncertainty. A more complete description of the use-wear results is given in Appendix 2.

| Hoard | Period | Composition | Used | No traces | Reference for analysis |
|-------------------|---------------------|--|------|-----------|--|
| Hindbygården | Ertebølle | Two core axes | X | | Berggren 2007:116 and Bjørnevad-Ahlqvist |
| Maglelyng XL | Ertebølle | Three cores, one flint nodule, two core axes and two flake axes (Figure 5) | X | X | Bjørnevad-Ahlqvist |
| Ullerslev | Ertebølle | Two t-shaped antler axes | X | | Bjørnevad-Ahlqvist |
| Stavns | Possibly Ertebølle | Six pecked round stone axes, including one being an edge fragment. | X | | Bjørnevad-Ahlqvist |
| Siggård | Ertebølle | Nine blades and one flake scraper | X | X | Bjørnevad-Ahlqvist and Helle Juel Jensen |
| Siggård | Ertebølle | Five blades | X | X | Bjørnevad-Ahlqvist and Helle Juel Jensen |
| Siggård | Ertebølle | Three blades and a flake core that may have been re-worked into a scraper | X | | Bjørnevad-Ahlqvist and Helle Juel Jensen |
| Gøngehusvej 7 | Kongemose–Ertebølle | 12 flint blades | | X | Petersen, E.B. 2015:79 |
| Lystrup | Ertebølle | Four patinated blades | | X | Bjørnevad-Ahlqvist and Helle Juel Jensen |
| Lystrup | Ertebølle | Eight partially patinated blades | | X | Bjørnevad-Ahlqvist and Helle Juel Jensen |
| Skummesløvsstrand | Ertebølle | Six core axes | | X | Arbman 1954:6 |
| Bøkeberg III | Kongemose | A core axe and an antler pressure flaker | | X | Karsten and Knarrström 2001:125 |
| Bøkeberg III | Kongemose | Five flint blades | X | X | Knarrström 2001:172–176 |
| Rønneholm 8 | Kongemose | 108 patinated flint blade | | X | Sjöström 2004:28 |
| Rønneholm 10:3 | Kongemose | Three flint blades | X | | Sjöström 2011:62 |
| Rønneholm FP 878 | Maglemose | Nine shell beads | X | | Sjöström 2011:14–16 |
| Björkeröds fällad | Kongemose | 72 flint blades – many have been retouched | X | | Sjöström 2004:44 |
| Näsum | Kongemose | 21 flint blades | X | | Karsten 1994:97 |

| | | | | | |
|-------------------------------|---------------------|--|---|---|--|
| Snyggatorp | Kongemose | 15 flint blades | X | | Salomonsson 1968:210–212 |
| Porskjær Bakke | Maglemose–Kongemose | Seven complete core axes and two fragments | X | | Klaus Hirsch pers. comm. |
| Husted Mose | Kongemose | 13 blades, sandstone pebble, flint hammerstone and two lumps of pyrite | X | X | Bjørnevad-Ahlqvist |
| Husted Mose | Kongemose | 14 flint blades | X | X | Bjørnevad-Ahlqvist |
| Arreskov Sø | Maglemose | Four core axes | X | X | Bjørnevad-Ahlqvist and Helle Juel Jensen |
| Øgårde 9 (Møsegården III øst) | Maglemose | Five bone points | X | X | Bjørnevad-Ahlqvist |
| Simrishamn | Ertebølle | Three Limhamn axes | X | | Bjørnevad-Ahlqvist, based off photo provided by Ulrika Wallebom, Österlens Museum |
| Anderstorp | Maglemose | Five pecked round-butted stone axes | X | | Bjørnevad-Ahlqvist, photo in Persson 1997:16; and those provided by Jörgen Gustafsson, Jönköping Läns Museum |

tion damage. In others, the damage may have occurred in prehistory, as part of manufacturing processes or during use. There are also indications that some objects in the hoards were damaged prior to deposition, to an extent that they likely would not have been usable. One of the Kongemose hoards from Tågerup offers an example: a core axe with a heavily burnt flint pick found lying parallel in the dryland area of the settlement (Karsten & Knarrström 2003:91). Of the nine axes found at Porskjær Bakke, two were found as fragments (Klaus Hirsch pers. comm.). Several other hoards also contain axes with edges so heavily damaged that their future functionality would have been compromised. Some objects appear to have been intentionally fragmented. For example, the four core axes that were part of the Late Maglemose hoard found in a pit at Arreskov Sø all had their edges removed by repeated flaking parallel to the edge (Figure 6). This left the axes likely too short to have been re-sharpened any further, and their edges too irregular and too obtuse to be used as axes. This modification, prior to the deposition of these objects, rendered them useless as axes, a treatment that is mirrored at the site of Ageröd I:B, Scania. This hoard, which was found in the refuse layer, contained 41 fragmented as well as intact microliths tightly bundled together (Larsson 1978:67; Figure 7).

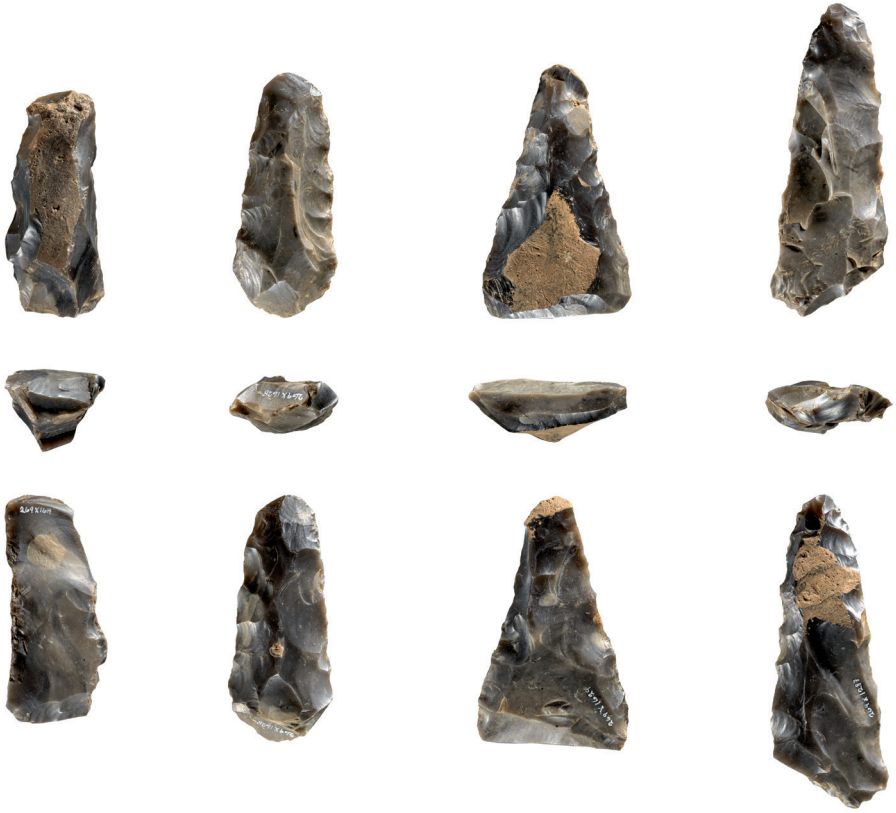


Figure 6. Four core axes with removed edges found lying together in a pit at Arreskov Sø (Photo: Media Moesgaard, Søren Vestergaard).

Due to the very careful excavation and stratigraphic recording of this hoard, it was possible to determine that the microliths had been broken, likely using percussion (based on Jennings 2011), prior to being wrapped in some sort of organic container and deposited on the periphery of the settlement (Larsson 1978:67). Seemingly intentional destruction of objects can also be seen at Bjällvarpet, where in a pit that lay underneath a hearth, a severely fragmented grinding stone was deposited with two rounded pebbles placed on either end (Hernek 2005:272) likewise, two intentionally fragmented stone pestles were found deposited on a hearth at Timmerås (Hernek 2005:268).

As some objects seem to have been intentionally fragmented and some even are unusable when deposited, it is unlikely that these hoards were used as storage for later use. Some object types, such as blades, were used very briefly but would have taken very little time or effort to produce, speaking against a need for storing large quantities of these objects.

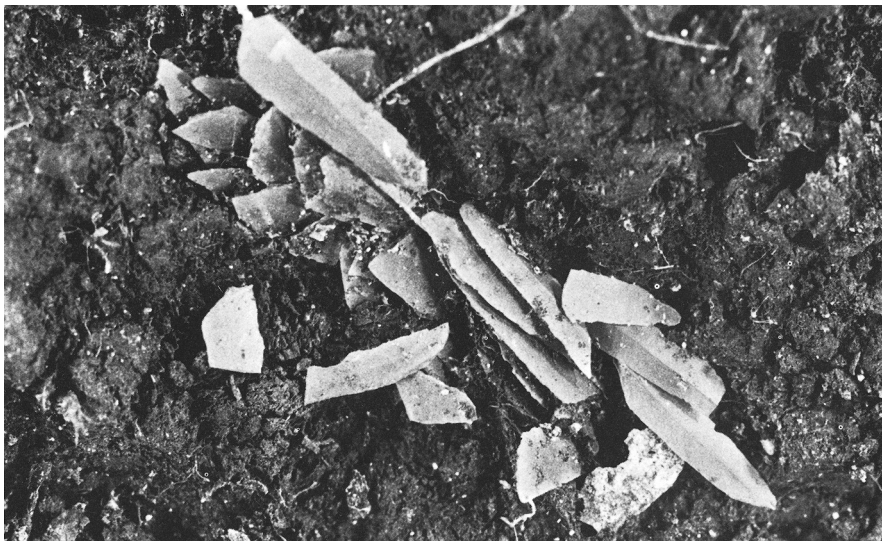
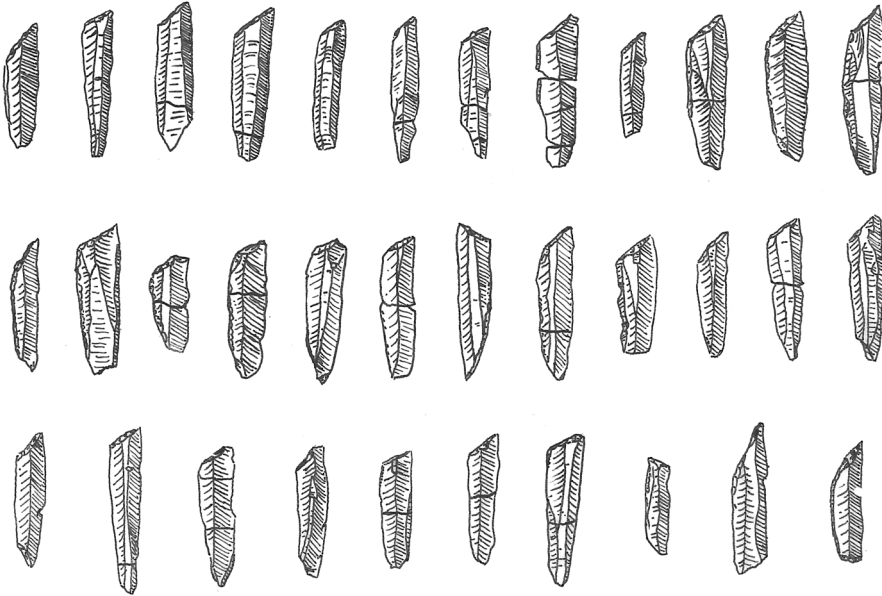


Figure 7. Above: fragmented microliths in hoard from Ageröd I:B, Scania, (redrawn by Helene Blichfeldt from Larsson 1978:68, fig. 35). Under: *in situ* photo of the same hoard (Larsson 1978:69, fig. 36).

DEPOSITIONAL TREATMENT

One of the most observable depositional practices is for objects in Mesolithic hoards to have been carefully arranged. Some objects are found stacked together, as seen in the flint cores and nodules at Nørre Sandegård



Figure 8. Examples of arranged in situ hoards (from left to right) from Maglemosegårds Vænge (Photo: Erik Brinch Petersen, Copenhagen University), Ringsjöholm (Photo: Arne Sjöström, Lund University), Rönneholm 8 (Photo: Arne Sjöström, Lund University).

(see Figure 2) and the bone and antler hoards found in the refuse layer at Ringkloster (Andersen, S.H. 1975:19, Figure 5a, b, 1998:28, Figure 12) and Ageröd V (Larsson 1983:79, Figure 49). Other objects are found lying parallel to each other, such as the two round-butted stone axes found at Sjövreten (Welinder 1977:47, Figure 29). A similar arrangement is seen in particularly wetland hoards with worked metapodials such as Ageröd V, see Figure 2 (Larsson 1983:79, Figure 45), Ringsholm (Figure 8) and Lundby Mose (Hansen 2003:526, Figure 65.13).

In some hoards objects were apparently deposited standing vertically. Examples of this, according to the finders, are the core axes and pick from Sølund (Kaj F. Rasmussen pers. comm.), two core axes from Dagstorp (Rydbeck 1918:7), some of the blades in a hoard from Husted Mose (NM A 48298–A 48302, National Museum of Denmark) and two bone points from Siretorp (Montelius 1917:107, Figure 46). *In situ* photos of the hoard from Arreskov Sø show one of the axes standing vertically, whereas two other axes lying parallel to each other but with the axes facing opposing directions with their edges facing up (see Figure 2). Even more striking is the hoard of twelve greenstone round-butted axes from Hasselfors placed, apparently, in the shape of a sun (Hermansson & Welinder 1997:70). The hoard of flint nodules from Maglemosegårds Vænge (Figure 8) and a hoard of flint blades from the shellmidden Doverodde may have been arranged in a circle, with the latter placed around a large stone (Klaus Hirsch pers. comm.). At Sværdborg, half of the microliths in a hoard were in a radiating fan shape (Henriksen 1976:80).

One of the most common arrangements found in hoards is tight packing of objects. This is particularly common in blade hoards, where the blades

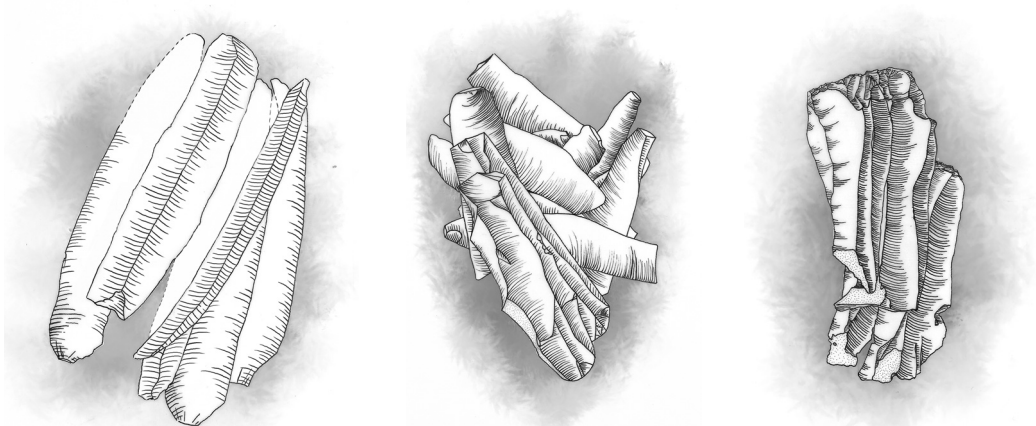
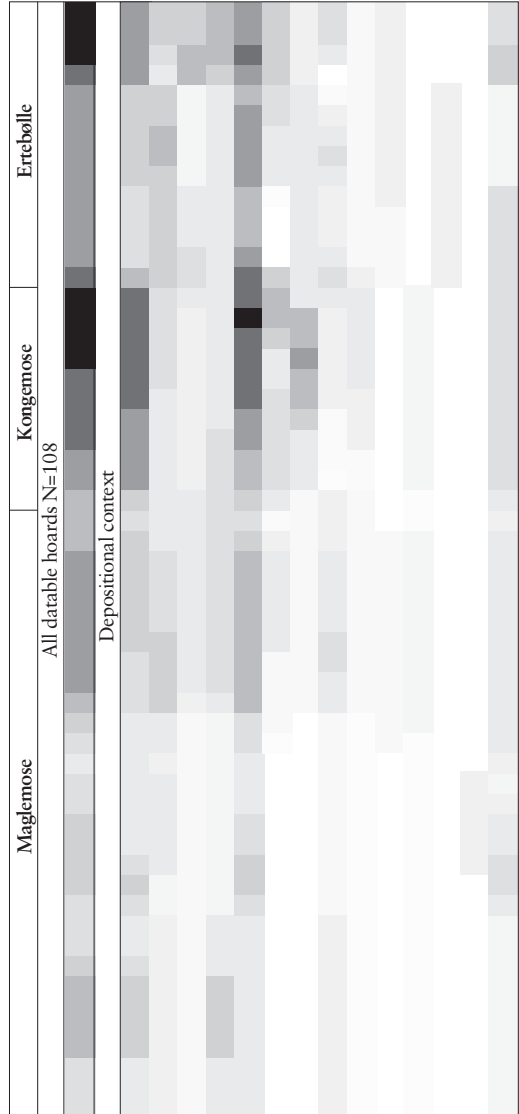
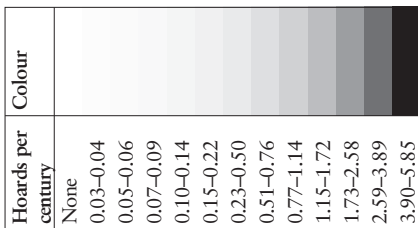


Figure 9. Examples of bundled blade hoards (from left to right) from Lystrup (redrawn from photo provided by Søren H. Andersen, Moesgaard Museum), Gøngehusvej 7 (redrawn from drawing provided by Erik Brinch Petersen, University of Copenhagen), Bökeberg III (Karsten 2001:126). Drawings: Helene Blichfeldt.

on top often have the dorsal side facing up and the blades on the bottom, the ventral side facing up (Figures 8 and 9). This is seen in *in situ* photographs of some blade hoards, but also likely in a few other examples of blade hoards based on their find descriptions. For example, the hoard from Snygatorp was described by the finder as ‘lying together like the segments of an orange and sorted according to size’ (Salomonsson 1957). The blades in the hoard from Revlen XI were said to be found lying neatly on top of each other next to two parallel elk and red deer bones (Andersen, K. 1983:94), and an Ertebølle blade hoard from Skal is described in a similar way, with five blades lying neatly on top of each other (Simonsen 1952:214).

The tight arrangement of objects in many hoards, including the aforementioned blade hoards, suggests that they were wrapped or bound in an organic material (Larsson 1978:70; Salomonsson 1968). A few hoards had such wrapping remains still preserved at the time of discovery, such as 13 large flint blades from Flækkemagle (Stafford 1999:70), five bone points from Horne Terp (Andersen, S.H. 1978), and a bundle of split red deer and elk bones from Ageröd V (Larsson 1983:79) were originally wrapped with plant material such as bast and birch bark. Similarly, the 20 or so bone points from Garbølle Mose were apparently wrapped in hide (NMA 42158–42159, Danish National Museum), and a hoard of microliths were found packed in a broken bone in an area of Maglemose flint at Kongemosen by Anders Fischer (pers. comm.). Although comparatively few hoards have their wrappings or containers preserved, it is deemed likely that Mesolithic hoards were often originally wrapped or placed in containers, given the tight clustering of many of the hoards.



- Wetland N=65
- Dryland N=31
- Unknown environment N=12
- Settlement N=79
- Extramural N=26
- Refuse area N=17
- Surface of settlement N=15
- Pit N=13
- Ouskirts of settlement N=5
- Hearth N=3
- Fishing area N=3
- Midden N=2
- Posthole N=1
- Unknown settlement context N=21

DEPOSITIONAL CONTEXT

Throughout the Mesolithic, hoards are primarily found in wetland contexts (58 per cent) or within settlement areas (65 per cent). Often these two contexts overlap, as most Mesolithic settlements are near bogs, lakes, rivers and along the coast. Unfortunately, the published records of these hoards are often not reliable for determining if the wetland areas were wet or dry at the time of deposition or how accessible they were. Furthermore, as many hoards have been found in or near the wetland edges of settlement, differentiating between these two depositional context categories is almost impossible.

Chronological variability in depositional context is observable (Figure 10). The reasons behind these changes are unclear. However, in some cases it may be due to over-representation of certain objects deposited during particular stages of the Mesolithic and preferentially found in certain contexts (see below), such as hoards of bone points dating to the Maglemose and one Kongemose found in wetland fishing areas (Figure 4 and Table 6). Temporal changes in depositional context can also be impacted by localised trends. However, the increase in extramural hoards, particularly axes (six out of eight in the later Ertebølle) may be attributable to influences from contacts with Central European Neolithic groups (Kaufmann 2012; Pétrequin et al. 2012).

The extramural hoards are frequently made up of stray finds, discovered during peat digging or agricultural work. It cannot be determined if these represent hoards placed away from settlements or if settlement material around these hoards was not observed or collected. There are only two examples of excavated hoards that were found away from any known settlements: the four flint picks from Tissø (Fischer 2004b) and two used core axes from the Late Ertebølle hoard of Hindbygården (Berggren 2007). In addition, some of the blade hoards from Rönneholm, have been considered extramural (Larsson & Sjöström 2013:494–495), but as they are found in the vicinity of settlements their context is more questionable. Nevertheless, given the large number found away from any known settlements, the results do support the notion that hoards were occasionally deposited extramurally in the Mesolithic.

< Figure 10. Chronological variability of the depositional contexts of southern Scandinavian Mesolithic hoards. The top row shows the chronology of all hoards, the lower rows show the chronology for different depositional environments and contexts. The dating for the hoards are often either typological or based on the associated sites; thus many hoards may have broad date ranges. The timeline is divided into 100-year increments with the colour scales indicating the number of hoards per century. The colour scales are near exponential, to accentuate differences between periods containing only few hoards and periods where hoards are more significantly common.

Table 6. Depositional environments for specific object types found in Mesolithic hoards.

| Object type | Total | Wetland | | Dryland | | Unknown environment | | Settlement | | Extramural | |
|------------------|------------|-----------|------------|-----------|------------|---------------------|------------|------------|------------|------------|------------|
| | N | N | % | N | % | N | % | N | % | N | % |
| Blades | 31 | 21 | 68 | 9 | 29 | 1 | 3 | 22 | 71 | 9 | 29 |
| Axes | 30 | 10 | 33 | 10 | 33 | 10 | 33 | 14 | 47 | 16 | 53 |
| Cores | 17 | 8 | 47 | 6 | 35 | 3 | 18 | 16 | 94 | 1 | 6 |
| Bone points | 17 | 15 | 88 | 1 | 6 | 1 | 6 | 8 | 47 | 9 | 53 |
| Antler/bone | 17 | 15 | 88 | 2 | 12 | 0 | - | 13 | 76 | 4 | 24 |
| Hammerstone | 8 | 5 | 63 | 3 | 38 | 0 | - | 7 | 88 | 1 | 13 |
| Picks | 6 | 1 | 17 | 2 | 33 | 3 | 50 | 4 | 67 | 2 | 33 |
| Flakes | 5 | 2 | 40 | 3 | 60 | 0 | - | 5 | 100 | 0 | - |
| Beads | 4 | 4 | 100 | 0 | - | 0 | - | 3 | 75 | 1 | 25 |
| Arrowheads | 4 | 1 | 25 | 2 | 50 | 1 | 25 | 3 | 75 | 1 | 25 |
| Scraper | 4 | 1 | 25 | 3 | 75 | 0 | - | 4 | 100 | 0 | - |
| Microliths | 4 | 1 | 25 | 1 | 25 | 2 | 50 | 4 | 100 | 0 | - |
| Pressure flakers | 3 | 1 | 33 | 2 | 67 | 0 | - | 3 | 100 | 0 | - |
| Pyrite | 1 | 1 | 100 | 0 | - | 0 | - | 0 | - | 1 | 100 |
| Abrasion stone | 1 | 1 | 100 | 0 | - | 0 | - | 0 | - | 1 | 100 |
| Anvil Stone | 1 | 0 | - | 1 | 100 | 0 | - | 1 | 100 | 0 | - |
| Pottery | 1 | 1 | 100 | 0 | - | 0 | - | 1 | 100 | 0 | - |
| Borers | 1 | 1 | 100 | 0 | - | 0 | - | 0 | - | 1 | 100 |
| Stone pestles | 1 | 0 | - | 1 | 100 | 0 | - | 1 | 100 | 0 | - |
| Grinding stone | 1 | 0 | - | 1 | 100 | 0 | - | 1 | 100 | 0 | - |
| Stakes | 1 | 1 | 100 | 0 | - | 0 | - | 1 | 100 | 0 | - |
| Total | 124 | 72 | 58% | 33 | 27% | 19 | 15% | 81 | 65% | 43 | 35% |

The composition of the extramural hoards differs from those found within settlements (Table 6). Many object types, in particular blades, cores and partially worked antler/bone, are primarily found in settlement areas, whereas bone points and axes are found in settlements or extramurally in roughly equal proportions. These results may further suggest that, rather than just being discrete depositional events, the treatment of objects through their deposition was guided by relatively widespread accepted principles.

Although the exact depositional context is unknown for a large number of these hoards, they appear to be placed in a wide variety of different settlement contexts. Generally, throughout the Mesolithic there is a preference for settlement hoards to be placed in apparent refuse areas, on the surface of a settlement, and also often in pits (Table 7). The numbers of hoards found in refuse areas could suggest that these areas served more variable purposes

Table 7. Depositional context of Mesolithic hoards found associated with settlements.

| Context | Total | Unknown | Refuse | Surface | Pit | Outskirts | Midden | Fishing area | Hearth | Posthole |
|---------|-------|---------|--------|---------|-----|-----------|--------|--------------|--------|----------|
| Number | 81 | 22 | 17 | 15 | 13 | 5 | 3 | 3 | 3 | 1 |
| Percent | 65 | 27 | 21 | 19 | 16 | 6 | 4 | 4 | 4 | 1 |

than often assumed; this is in line with other discussions of such areas (see also Karsten 2001:144; Carlsson 2008:164–173; Sørensen, L. 2014:129).

Mirroring the localisation seen in the composition of the hoards, there also appears to be localisation in the depositional context. For example, all the hoards found at Lystrup (Søren Andersen pers. comm.), Bökeberg III (Karsten 2001:125–126), Ringkloster (Andersen, S.H. 1975:19, 1998:28), Ageröd V (Larsson 1983:79–81) and two of the three hoards from Tågerup (Karsten & Knarrström 2003:91–97) were found in the refuse layers. Whereas at Ulkestrup Lyng (Andersen, K. et al. 1982:42, 98) and Øgårde (Andersen, K. 1983:30, 165–166) the hoards are mainly placed away from main settlements, in areas interpreted as fishing places. The three hoards from Skal were found on the surface of the settlement, and at Rönneholm-Ageröd the hoards were often found away from the main area of the settlement or indeed away from any known settlement.

The location of several extramural and settlement-based hoards appears to have been physically marked. According to excavation reports or observations made by the finders, the hoards found at Gammelrand Mose (Mathiassen 1959:22), Ageröd V (Larsson 1983), Doverodde (Klaus Hirsch pers. comm.), Ageröd 1:29 (Sjöström & Hammarstrand Dehman 2015), Näsrum (Karsten 1994:97), Tuve 18 (Lundberg 1968:12; Welinder 1977:53), Tolstrup Hede (VHM 0093-94, Vendsyssel Historiske Museum) and one of the hoards from Tågerup (Karsten & Knarrström 2003:91) were found associated with, or covered, by large stones or nodules. In an exceptional example, twelve pecked stone axes were found in a bog, near Ingersbyn, next to a 40cm by 60cm stone apparently worked into the shape of a phallos (Nygren 1914:35; Hernek 2005:274).

Various forms of wooden markers may also have been used. For example, at the Maglemose site of Ålyst, eight large flint nodules were found in a posthole of a hut (Casati & Sørensen, L. 2012). Similarly, at Timmerås, two round-butted stone axes were found near to two postholes (Hernek 2005:273) and at Maglelyng XL two vessels were found lying up against a wooden post in the bog (Koch 1998:157). Furthermore, a few hoards, from Bøgebakken (Avnholt 1944:56), Rönneholm 9 (Sjöström 2004:33), Husted Mose (NM A 48298-302, Danish National Museum), and a hoard of flint nodules from Maglemosegårds Vænge (see Figure 8), have been found next to a preserved tree or roots. These forms of marking would have acted as a physical reminder of the events surrounding the deposition and the lo-

cation of the hoard. These may be important if the hoard was intended be retrieved and/or if the act of hoarding or the hoard itself was symbolically important.

Ritualized Mesolithic hoarding

The significant increase in the number of recognised and analysed hoards in this study has resulted in a more coherent understanding of southern Scandinavian Mesolithic hoarding practices. Although there are various biases (Larsson 1978:164; Sjöström 2004:43) and difficulties with data quality – most commonly derived from older and at times poorly published excavations – there is enough evidence to argue confidently that hoarding practices took place as early as the Early Maglemose, continued throughout the Mesolithic, and were common enough to be considered a marked feature of the southern Scandinavian Mesolithic. The results discussed here indicate a degree of continuity between the Mesolithic and Neolithic, particularly in the predominance of the axe hoards (see also Karsten 1994:166–170), with a shift to more extramural hoards in the Late Mesolithic and into the Early Neolithic.

Within particular attributes of Mesolithic hoarding practices, there is some degree of patterning and also high levels of idiosyncrasy (Table 8). This variability might initially seem to complicate interpretations of the practices, with some indicating a more profane interpretation of either storage or waste disposal, and others indicating a ritual role. For example, the propensity for hoards to be found within or close to settlement areas, and to contain raw material or useable objects, fits our expectations of profane caching: easily retrievable, usable material and everyday objects (Binford 1979; Schiffer 1987:78–93; Galan 2007:77–79). Other hoards, like those found at Ringkloster (Andersen, S.H. 1975:19, Figure 5a, b, 1998:28), fit what is normally assumed to be evidence of waste disposal: found in refuse layers and containing utilised or partially worked material. Yet, the careful arrangement, the wetland depositional context of many of the hoards, as well as the damaged, even intentionally destroyed, nature of some objects are not easily reconciled with a profane interpretation. Instead these attributes fit a classic archaeological interpretation of ritual (e.g. Levy 1982:17–25). These ‘ritual’ aspects fit how a number of Mesolithic archaeologists have interpreted other forms of depositional practices as part of some sort of tripartite Mesolithic cosmology – especially focussing on the wetland and liminal nature of the depositional contexts and a particular importance of axes (e.g. Bergsvik 2009; Glørstad 2010:229–247; Blinkhorn & Little 2018). However, the aforementioned seemingly ‘mundane’ characteristics

Table 8. Patterning and heterogeneity in Southern Scandinavian Mesolithic hoards

| Category | All hoards 100% | Most hoards 99–51% | Few hoards 50–1% | Single hoard | Number of hoards |
|---|--------------------|-----------------------|---------------------|-----------------|--------------------------|
| Composition | | | | | |
| Contain a single object type | | X | | | 94 |
| Contains multiple object types | | | X | | 30 |
| Non-local object or material | | | X | | 4+ |
| Pre- and peri-depositional treatment | | | | | |
| Use-wear traces | | X | | | 20 out of 26 analysed |
| Intentionally fragmented | | | X | | 4+ |
| Marked | | | X | | 9+ |
| Wrapped | | | X | | 4+ |
| Arranged | | | X | | 35+ |
| Depositional context | | | | | |
| Wetland | | X | | | 72 |
| Dryland | | | X | | 32 |
| Unknown depositional environment | | | X | | 20 |
| Settlement | | X | | | 81 |
| Away from known settlement | | | X | | 43 |
| Refuse area | | | X | | 17 |
| Surface | | | X | | 15 |
| Pit | | | X | | 13 |
| Outskirts | | | X | | 5 |
| Fishing area | | | X | | 3 |
| Hearth | | | X | | 3 |
| Posthole | | | | X | 1 |

of many of the Mesolithic hoards do not fit neatly into common conceptions of Mesolithic cosmologies. In sum, we are left with a somewhat conflicting picture of the hoarding practice, if we try to fit it into either category.

This conclusion is hardly surprising, given that such a dichotomy between ritual and profane appears to be a largely a post-enlightenment western construct, that it is neither ethnographically nor historically widely attested (Brück 1999). Thus, the Mesolithic hoards are seen here to be more in line with the concept of ritualization (Bell 1992), with this ritualized practice taking place in quotidian contexts and using quotidian materials that are often usable, well used or raw material.

Such ritualized practices may be archaeologically identifiable by material differentiation from other practices (Berggren 2010:379–380). Large-

scale deliberate structuration of wider practice is considered evidence of one such strategy, visible through ‘material cultural patterning’ (Garrow 2012). This may be observable in the localisation patterning of some traits of Mesolithic hoarding (for example in composition and depositional context) as well as *longue durée* of similar traits within the hoarding practice. For instance, there appears to be patterning in the type of objects that are included within the hoards (especially blades and axes). There is also patterning, in the types of objects deposited as either single object type (particularly bone points) or in mixed hoards (such as cores, hammerstones and flakes). In contrast, other objects, such as burins, flakes, scrapers and borers, are conspicuously absent or rarely found in hoards, even though they are common finds in settlements. This could suggest that strategies of ritualization focused on specific object types were in place, related to the differentiated use of object types in different spheres of Mesolithic life.

There also seems to be patterning within the object biographies. The overwhelming majority of the analysed hoards contain objects that were not only used, but had remarkably different use-life histories, in terms of curation, treatment and use. This suggests that the use-life and the combination of objects with different biographies appears to have been a key part of the practice – a feature that may be more difficult to fit with a storage/ based interpretation of these hoards. Instead, I argue that the differences in the objects’ use-lives may have served as a means of individualizing the ritualization of each hoard, reflecting different forms of social-temporal-spatial relationships formed during the objects’ lives, which became objectified and transformed through their participation in the hoarding practice (Bell 1992:216; Berggren 2010:280; Baires & Baltus 2016; Baltus 2018; Bjørnevad-Ahlqvist 2020).

Strategies of ritualization might have taken place at different levels of Mesolithic hoarding practices. Mesolithic hoards may have been part of a ritualized tradition, and they may also become ritualized on an individual level. Individual actions may have ritualized the hoard: the bundling or careful arrangement of some hoards, the intentional fragmentation of objects, perhaps the marking, as well as the assemblage of objects with particular and divergent biographies. Thus, the patterning and idiosyncrasies in Mesolithic hoarding practices might be explained by strategies of ritualization on a multiple scales, combining prior traditions with a high degree of individualization and flexibility as a part of the performativity of the practice (Berggren 2010:379–380; Berggren & Nilsson Stutz 2010:176).

Ultimately, the meaning of a given ritualized practice will largely lie outside the grasp of archaeology; it is anthropologically acknowledged that often the meaning of a practice may not be known within a given society (Bloch 2005) or may vary between different members (Keane 2008:111).

The theoretical framework employed here makes no attempt at identifying any specific meaning of a practice, rather the function of the practice is discussed. Ritualized practices are instead known to act as mechanisms for relationship construction, memorialization, and for increasing group sociality (Bell 1992; De Boeck 1995; McCauley 2001; Atran & Henrich 2010; Peterson 2013; Xygalatas et al. 2013; Watson-Jones & Legare 2016; Hobson et al. 2018). These functions may not be intended or even realized by the participants, but they are important by-products of the performance of such practices (Hobson et al. 2018). Thus, combining practice theory and ritualization with these cognitive science insights allows us to discuss the strategies of ritualization employed during the Mesolithic as well as the role of the ritualized practices. From this perspective, the production, use, curation, treatment, accumulation and subsequent deposition of these hoards are seen to have enchainned the objects, people, and moments in time and places together with these hoards, acting as mnemonic devices, place-making entities and mechanisms for increasing social cohesion.

Conclusions

The present study represents the first large-scale analysis focusing on southern Scandinavia Mesolithic hoards and the first to analyse this material in detail. It is now possible to understand the general characteristics and variability within the southern Scandinavian Mesolithic hoards and the practices behind them. Hoarding as a practice is not merely a Neolithic phenomenon, rather it stretches back to at least the Early Maglemose and can be identified throughout the entire Mesolithic (contra Solberg 1989:284; Sørensen, L. 2014:129). Southern Scandinavian Mesolithic hoards vary significantly in terms of their composition, biographies, and depositional treatment. At the same time, they also show notable object-based patterning as well as temporal, regional and even localised structuration. Some of the variability may be due to wider societal differences and demographic dynamics, whereas other differences may indicate localised traditions of certain groups at certain times.

Rather than representing the culmination of strictly profane or ritual actions, the hoards appear to emphasize the inseparable nature and interconnectedness of these spheres in Mesolithic daily life. The use of ritualization to interpret the everyday-type materials and contexts stands in contrast to the prior Scandinavian research into ritualized practices that has focused on more extraordinary sites (e.g. Hinbygården, see Berggren 2010), extraordinary life-stages (such as death and burial, see Nilsson Stutz 2003), or spectacular objects ('ceremonial' Neolithic axeheads, see Sørensen, C.

et al. 2020). The more quotidian nature of the Mesolithic hoarding thus stands in notable contrast to the well-known and often more spectacular Early Neolithic hoards. Yet based on the expanded data presented here, similarities and continuities of the hoarding practices across the Mesolithic–Neolithic transition are becoming more apparent.

The roles of ritualized practices such as Mesolithic hoarding are interconnected with the various traits of the practice – in particular the importance on object biographies (Kopytoff 1986) – as well as innate aspects of human cognition (Hobson et al. 2018), rather than being contextually or culturally dependent. From these perspectives ritualized hoarding is seen as integrating and differentiating not only the practice, but also the communities of participants, the places and the things involved with the practice – through the construction, maintenance, modification and demarcation of relationships (Bell 1992:130).

The hoards presented in this paper likely represent only a fraction all Mesolithic hoards that existed or have been found, given the biases that may have impacted the available material. It is nonetheless now clear that hoarding was indeed an important, but often overlooked, feature of the southern Scandinavian Mesolithic. The analysis of these hoards provides key insights into the treatment and perception of objects, materials and practices throughout the Mesolithic and how the intersection of objects, time and space helped shape Mesolithic worldviews and social relationships.

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PERSONAL COMMUNICATION

- Søren H. Andersen, Moesgaard Museum, email, March 2016.
- Anders Fischer, Sealand Archaeology, email, June 2018.
- Klaus Hirsch, Museum Sønderjylland, email, June 2018.
- Kaj F. Rasmussen, Museum Silkeborg, email, May 2016.
- Uffe L. Rasmussen, Moesgaard Museum, meeting, November 2015.

APPENDIX 1: ABRIDGED CATALOGUE OF MESOLITHIC HOARDS

| No. | Site | Composition | Region |
|-----|-------------------|--|-----------------|
| 1 | Ageröd 1:29 | Two blade fragments, three cores and two flint nodules. | Southern Sweden |
| 2 | Ageröd 1B | 33 intact and fragmented microliths. The microliths lay carefully bundled together and were broken prior to deposition and prior to bundling in an organic container. | Southern Sweden |
| 3 | Ageröd V | 14 partially worked and split animal bones, including two elk ulna, as well as two radii, two tibia, four metacarpals and two metatarsus from red deer. These bones seem to have been wrapped with birch bark strips and were placed all lying parallel with each other. | Southern Sweden |
| 4 | Ageröd V | Two partially worked red deer antlers, found stacked on top of each other. | Southern Sweden |
| 5 | Ageröd V | Two large flint nodules next to 33 hazelnut beads and 13 flint blades. | Southern Sweden |
| 6 | Anderstorp | Five round-butted stone axes. | Southern Sweden |
| 7 | Arreskov Sø | Four flint core axes, whose edges have been removed. Three of the axes were found lying next to each other, with one placed vertically. | Western Denmark |
| 8 | Bjällvarpet | Two rounded stones were placed with an intentionally broken grinding stone. The oval stones were placed on either side of the grinding stone. | Southern Sweden |
| 9 | Björkeröds fällad | 72 blades, 32 are retouched and only 8 have no use damage. | Southern Sweden |
| 10 | Bøgebakken | An antler tine on a stone next to a flint core axe, one flint flake axe and a hammerstone. | Eastern Denmark |
| 11 | Bökeberg III | An unused core axe and an antler pressure flaker. | Southern Sweden |
| 12 | Bökeberg III | Five flint blades, placed neatly bundled together. | Southern Sweden |
| 13 | Dagstorp | Two flint core axes. | Southern Sweden |
| 14 | Doverodde | 'A handful of nice blades'. | Western Denmark |
| 15 | Dybvadbro | More than 40 microliths. | Western Denmark |

| Date range | Depositional condition, location and context | Certainty | Reference |
|---|---|------------------|---|
| Late Maglemose–Kongemose | Wetland, Settlement, Outskirts | Confident | Sjöström & Hammarstrand Dehman 2015 |
| Late Maglemose (8020±80 [Lu-599]; 7960±80 [Lu-698]) | Wetland, Settlement, Refuse area | Confident | Larsson 1978:67, 144; Larsson & Sjöström 2011 |
| Kongemose (6860±70 BP [Lu-1623]; 6540±75 BP [Lu-697]) | Wetland, Settlement, Refuse area | Confident | Larsson 1983:79, 84 |
| Kongemose (6860±70 BP [Lu-1623]; 6540±75 BP [Lu-697]) | Wetland, Settlement, Refuse area | Confident | Larsson 1983:80–81, 84 |
| Kongemose (6860±70 BP [Lu-1623]; 6540±75 BP [Lu-697]) | Wetland, Settlement, Outskirts | Confident | Larsson 1983:72–74, 84; Sjöström 2004:44 |
| Middle Maglemose (8230±70 BP [Unknown lab code]; 7970±65 BP [Unknown lab code]) | Dryland, Settlement, Unknown | Confident | Hernek 2005:272; Pagoldh 1995:6, 7, 41–44; Persson 1997:15 |
| Early Maglemose | Dryland, Settlement, Pit | Confident | Danish national database of Monuments & Antiquities: 090428-23; pers. comm. Mogens Bo Henriksen |
| Lihult (5855±50 BP [Ua-26437]) | Dryland, Settlement, Pit under a hearth | Confident | Hernek 2005:272; Johansson 2006 |
| Kongemose | Dryland, Unknown, Unknown | Confident | Karsten 1994:97, 210 |
| Ertebølle | Wetland, Settlement, Outskirts | Confident | Avnholt 1944:56 |
| Late Kongemose (6555±65 BP [Ua-2680]; 6510±85 BP [Ua-2681]) | Wetland, Settlement, Refuse area | Confident | Regnell et al. 1995; Karsten 2001:126 |
| Late Kongemose (6555±65 BP [Ua-2680]; 6510±85 BP [Ua-2681]) | Wetland, Settlement, Refuse area | Confident | Regnell et al. 1995; Karsten 2001:126 |
| Mesolithic | Dryland, Unknown, Unknown | Confident | Rydbeck 1918:7 |
| Early Ertebølle | Wetland, Settlement, Unknown | Confident | Klaus Hirsch pers. comm. |
| Early Maglemose | Dryland, Settlement, Pit | Confident | Klaus Hirsch pers. comm. |

| No. | Site | Composition | Region | |
|-----|------------------------|--|-----------------|--|
| 16 | Fladbros | Four antler axes, at least one is engraved with a wheat sheaf design. | Western Denmark | |
| 17 | Flækkemagle | 13 long flint blades, found neatly bundled together and wrapped in some vegetal material. | Eastern Denmark | |
| 18 | Gammelrand Mose | An antler shaft hole axe, bone axe, and antler cutoff covered by flint core. | Eastern Denmark | |
| 19 | Garbølle Mose | Approximately 20 bone points wrapped in hide, but only two handed to the National Museum of Denmark. | Eastern Denmark | |
| 20 | Gøngehusvej 7 | Two flint nodules and a possible anvil stone in the bottom of a pit. | Eastern Denmark | |
| 21 | Gøngehusvej 7 | 12 blades found neatly bundled together near to an "alleged burial" and under the cultural layer. Some of the blades were pristine and others had been water-rolled prior to deposition. | Eastern Denmark | |
| 22 | Hasselfors | 12 round-butted pecked stone axes that were apparently found in the shape of a sun. | Southern Sweden | |
| 23 | Havnø | Three antler pressure flakers. | Western Denmark | |
| 24 | Henriksholm-Bøgebakken | A red deer antler, flint axe and a bone point. Originally interpreted as a disturbed grave. | Eastern Denmark | |
| 25 | Herlufmagle Mose | Seven bone points. | Eastern Denmark | |
| 26 | Hindbygården | Two flint core axes, one is pointed and one has a specialised edge. | Southern Sweden | |
| 27 | Holbo | Four core axes, one may have the beginnings of a specialised edge. | Eastern Denmark | |
| 28 | Horne Terp | Five unusually large bone spears. | Western Denmark | |

| Date range | Depositional condition, location and context | Certainty | Reference |
|---|---|--|---|
| Early–Middle Ertebølle | Wetland, Unknown, Unknown | Uncertain if it is a hoard, due to sparse find details. Reliant on prior interpretation as a votive find. | NM A 4900-3, National Museum of Denmark |
| Kongemose | Wetland, Settlement, Unknown | Confident | Stafford 1999:70; Fischer 2004a:30. |
| Early Maglemose | Wetland, Unknown, Unknown | Confident | Mathiassen 1959:22 |
| Unknown – possibly Mesolithic | Wetland, Unknown, Fishing area | Confident | NM A 42158-42159; Ebbesen 1982:26 |
| Kongemose–Ertebølle (6850±80 BP [K-5105]; 5829±105 BP [K-5992]) | Dryland, Settlement, Pit | Confident | Petersen, E.B. 2015:77, 79, 189 |
| Kongemose–Ertebølle (6850±80 BP [K-5105]; 5829±105 BP [K-5992]) | Dryland, Settlement, Surface | Confident | Petersen, E.B. 2015:79, 189 |
| Likely Mesolithic | Unknown, Unknown, Unknown | Confident | Hermansson & Welinder 1997:70; Hernek 2005:274; ÖLM 6611-6612, Örebro läns museum |
| Middle–Late Ertebølle | Dryland, Settlement, Hearth | Confident | Andersen, S.H. 2013:245, fig. 4.30 |
| Kongemose–Ertebølle (7280±90 BP [K-4155]; 5910±120 BP [K-1844]) | Dryland, Settlement, Pit | Confident | Petersen, E.B. 2015:90; Tauber 1981 |
| Maglemose | Wetland, Unknown, Unknown | Uncertain if it is a hoard, due to sparse find details. Reliant on prior interpretation as a depot. | NM A 31037-43, National Museum of Denmark. Danish national database of Monuments & Antiquities: 050705-13 A |
| Late Ertebølle | Wetland, Extramural, Wetland away from settlement | Confident | Berggren 2007:116 |
| Late Ertebølle | Unknown, Unknown, Unknown | Uncertain if it is a hoard, due to sparse find details. It has previously been considered as a 'typical sacrificial find' by Rydbeck. But the axes seem to have been found slightly dispersed. | Rydbeck 1918:49, NM A 16857-60, National Museum of Denmark |
| Early Maglemose | Wetland, Unknown, Unknown | Confident | Andersen, S.H. 1978:54 |

| No. | Site | Composition | Region |
|-----|----------------------|---|-----------------|
| 29 | Husted Mose | 14 blades including one retouched blade found in the middle of the bog c. 1km from dry land and 3m deep; has thus been interpreted as being deposited in open water. | Western Denmark |
| 30 | Husted Mose | 13 blades including two retouched blades, a small sandstone pebble with signs of abrasion, a hammerstone and two lumps of pyrite. The blades are coated in a black residue. Found near roots of birch tree, three of the blades were found vertical, found in stone free peat c. 3.5m deep. | Western Denmark |
| 31 | Hörninge Mosse | Two fine toothed bone points | Southern Sweden |
| 32 | Ingersbyn Mosse | Twelve round-butted pecked stone axes were placed next to a 40x60cm stone that had apparently been worked into the shape of a phallus. | Southern Sweden |
| 33 | Klippan | Two probable flint picks. | Southern Sweden |
| 34 | Kongemosen | Several microliths and microblades found within a broken bone. | Eastern Denmark |
| 35 | Kristian Isbaks mose | Two partially worked red deer antler. | Western Denmark |
| 36 | Lundby Mose 5 | Three tightly clustered partially worked metapodials, found as part of a larger animal bone deposit. | Eastern Denmark |
| 37 | Lundby Mose 5 | Two bodkins/bone pins found also as part of the larger deposit of elk bones. | Eastern Denmark |
| 38 | Lystrup | Four small flint blades found close together and all facing south. | Western Denmark |
| 39 | Lystrup | Eight flint blades, found neatly bundled together. Some of the blades are fragmented. | Western Denmark |
| 40 | Maglelyng XL | Two core axes and two flake axes, three flint cores arranged around a flint nodule. | Eastern Denmark |
| 41 | Maglelyng XL | Two pots found apparently leaning up against a wooden pole. | Eastern Denmark |
| 42 | Maglemosegårds Vænge | Several flint nodules, some of which appear to have been placed in a circle. The nodules were found next to a fallen tree trunk, it is unclear if this tree is contemporaneous with the hoard. | Eastern Denmark |
| 43 | Noresund | Five conical blade cores. | Southern Sweden |

| | Date range | Depositional condition, location and context | Certainty | Reference |
|--|--|---|---|--|
| | Kongemose | Wetland, Unknown, Unknown | Confident | Sjöström 2004:44; NM A 40301-314, National Museum of Denmark |
| | Kongemose | Wetland, Unknown, Unknown | Confident | Sjöström 2004:44; NM A NM A 48298-302, National Museum of Denmark |
| | Maglemose | Wetland, Unknown, Unknown | Confident | Montelius 1917:6, 107, fig. 52; Clark 1936:122, Plate VI; |
| | Likely Mesolithic | Wetland, Unknown, Unknown | Confident | Nygren 1914:35; Hernek 2005:274 |
| | Mesolithic | Unknown, Unknown, Unknown | Confident | Rydbeck 1918:8 |
| | Maglemose | Unknown, Settlement, Unknown | Confident | Anders Fischer pers. comm. |
| | Likely Mesolithic | Wetland, Unknown, Unknown | Uncertain if it is a hoard, due to sparse find details. Reliant on prior interpretation as a votive find. | VHM 22570-22571, Vendsyssel Historical Museum |
| | Early Maglemose (9585±50 BP [AAR-15635]) | Wetland, Extramural, Bone deposit | Confident | Jessen et al. 2015:80; Hansen, M. 2003; Pedersen & Petersen, E.B. 2017:245–246 |
| | Early Maglemose (9585±50 BP [AAR-15635]) | Wetland, Extramural, Bone deposit | Confident | Jessen et al. 2015:80; Pedersen & Petersen, E.B. 2017:245–246 |
| | Early–Middle Ertebølle (6550±105 BP [K-6012]; 6110±100 BP [K5730]) | Wetland, Settlement, Refuse area | Confident | Søren H. Andersen pers. comm.; Andersen, S.H. 1996 |
| | Early–Middle Ertebølle (6550±105 BP [K-6012]; 6110±100 BP [K5730]) | Wetland, Settlement, Refuse area | Confident | Søren H. Andersen pers comm.; Andersen, S.H. 1996 |
| | Late Ertebølle (5380±80 BP [KA-6446]) | Unknown, Settlement, Unknown | Confident | Larsson 1978:164; Fischer 2002:358 |
| | Late Ertebølle (5380±80 BP [KA-6446]) | Wetland, Settlement, Unknown | Confident | Koch 1998:157; Fischer 2002:358 |
| | Kongemose–Ertebølle (7090±110 BP [K-3262]; 5420±104 BP [K-4336]) | Wetland, Settlement, Unknown | Confident | Petersen, E.B. 2015:77, 189 |
| | Late Maglemose | Unknown, Unknown, Unknown | Confident | GAM 48032, Göteborgs Stadsmuseum |

| No. | Site | Composition | Region |
|-----|------------------|---|-----------------|
| 44 | Norje Sunnansund | 37 long flint blades found dispersed in the refuse layer. | Southern Sweden |
| 45 | Näsum | A bundle of 21 flint blades, 12 have black resinous substance that was ¹⁴ C dated to 605 AD. Found near a large stone. | Southern Sweden |
| 46 | Nørre Sandegård | 79 flint nodules, cores and two scrapers. | Bornholm |
| 47 | Porsgaard | 51 transverse arrows. | Western Denmark |
| 48 | Porskjær Bakker | Seven complete core axes and two axe fragments found both in situ and eroded out of a thin dark layer in a sandy cliff. A few other flint pieces were found nearby. | Western Denmark |
| 49 | Revinge Mose | Two bone 'clothing pins' or bodkins. | Southern Sweden |
| 50 | Revlen XI | Three blades found stacked together with two metacarpals and metapodials from elk and red deer | Eastern Denmark |
| 51 | Ringkloster | Three partially worked scapulars, used to make bone rings, found stacked on top of each other | Western Denmark |
| 52 | Ringkloster | Three antler cutoffs stacked on top of each other. | Western Denmark |
| 53 | Ringkloster | Antler cutoffs found clustered together. | Western Denmark |
| 54 | Ringkloster | Antler cutoffs found clustered together. | Western Denmark |
| 55 | Ringsjöholm | Three elk long bones, placed lying parallel with each other in a tight bundle. | Southern Sweden |
| 56 | Ronæs skov | A bundle of five wooden stakes that based on their arrangement appeared to have been tied together and placed in the refuse layer. | Western Denmark |
| 57 | Rødkildegård | Nine bone points, only two are complete and others are broken in different parts. | Eastern Denmark |

| | Date range | Depositional condition, location and context | Certainty | Reference |
|--|---|---|--|---|
| | Early Maglemose (8548±45 BP [UBA-23447]; 7845±49 BP [UA-30790]) | Wetland, Settlement, Refuse layer | Confident | Kjällquist et al. 2016:131–136, 256–259, 362 |
| | Kongemose | Wetland, Unknown, Unknown | Confident | Karsten 1994:97; Sjöström 2004:44 |
| | Maglemose | Dryland, Settlement, Pit | Confident | Brøndsted 1966:76; Becker 1990:25–27 |
| | Ertebølle | Wetland, Unknown, Unknown | Uncertain if it is a hoard, due to sparse find details. Reliant on prior interpretation by Uffe Rasmussen as a possible depot. | Uffe L. Rasmussen pers. comm. |
| | Late Maglemose–Early Kongemose | Dryland, Settlement, Unknown | Confident | Klaus Hirsch pers comm.; Liversage 1992:43 |
| | Early Maglemose | Wetland, Unknown, Unknown | Confident | Salomonsson 1962:6 |
| | Late Kongemose | Wetland, Settlement, Unknown | Confident | Andersen, K. 1983:94 |
| | Middle–Late Ertebølle (5820±95 BP [K-4367]; 4800±65 BP [K-43729]) | Wetland, Settlement, Refuse layer | Confident | Andersen, S.H. 1975:19, 70–71; Rasmussen, K.L. 1998:62; Rasmussen, P. 1998:69 |
| | Middle–Late Ertebølle (5820±95 BP [K-4367]; 4800±65 BP [K-43729]) | Wetland, Settlement, Refuse layer | Confident | Andersen, S.H. 1998:28; Rasmussen, K.L. 1998:62; Rasmussen, P. 1998:69 |
| | Middle–Late Ertebølle (5820±95 BP [K-4367]; 4800±65 BP [K-43729]) | Wetland, Settlement, Refuse layer | Uncertain, as found in area with apparent waste bone material | Andersen, S.H. 1998:28; Rasmussen, K.L. 1998:62; Rasmussen, P. 1998:69 |
| | Middle–Late Ertebølle (5820±95 BP [K-4367]; 4800±65 BP [K-43729]) | Wetland, Settlement, Refuse layer | Uncertain, as found in area with apparent waste bone material | Andersen, S.H. 1998:28; Rasmussen, K.L. 1998:62; Rasmussen, P. 1998:69 |
| | Early Maglemose (9145±40 BP [LuS-10785]; 9110±35 [LuS-10784]) | Wetland, Settlement, Unknown | Uncertain, as found in area with apparent waste bone material | Larsson 2015; Pedersen & Petersen, E.B. 2017:245–246 |
| | Late Ertebølle (5230±60 [AAR-5462]; 5210±65 [K-6780]) | Wetland, Settlement, Refuse layer | Confident | Andersen, S.H. 2009:39, 93 |
| | Possible Mesolithic | Wetland, Unknown, Unknown | Uncertain if it is a hoard, due to sparse find details. Reliant on prior interpretation as a possible depot | GIM 0997, Museum North Zealand |

| No. | Site | Composition | Region |
|-----|-------------------------|--|--------------------|
| 58 | Rönneholm 10:3 | Three flint blades placed with the blades on the top ventral side up and the blades on the bottom dorsal side up. | Southern Sweden |
| 59 | Rönneholm 10:3 | Four large flint flakes, a core and one nodule. | Southern Sweden |
| 60 | Rönneholm 10:3 | Two hammer stones found under a hearth | Southern Sweden |
| 61 | Rönneholm 14 | One flake, one core fragment and two cores. | Southern Sweden |
| 62 | Rönneholm 23:1 | Several microblades. | Southern Sweden |
| 63 | Rönneholm 23:1 | Nine microblades and microblade fragments. | Southern Sweden |
| 64 | Rönneholm 23:1 | 16 microblades and microblade fragments. | Southern Sweden |
| 65 | Rönneholm 8 | Two hammerstones and an axe, found near a tree stump. | Southern Sweden |
| 66 | Rönneholm 8 | 108 long flint blades from 5–7 cores. All the blades were neatly bundled together, mostly lying parallel to each other and with the blades on the bottom often placed ventral side up and the blades on the top placed dorsal side up. | Southern Sweden |
| 67 | Rönneholm 9 | A flint core, nodule and hammer stone found in roots of a tree. It is unclear if the roots are contemporaneous with the hoard. | Southern Sweden |
| 68 | Rönneholm FP 237 | 13 blades and fragments, found slightly dispersed. | Southern Sweden |
| 69 | Rönneholm FP 347 | 31 blades, microblades and fragments, found dispersed. | Southern Sweden |
| 70 | Rönneholm FP 510 | 10 flint blades. Three blades were found in situ placed ventral side up. | Southern Sweden |
| 71 | Rönneholm FP 878 | Nine snail shell beads, found slightly dispersed. | Southern Sweden |
| 72 | Siggeneben-Süd LA 12 | Four blades with concave retouch forming scrapers. | Schleswig-Holstein |

| Date range | Depositional condition, location and context | Certainty | Reference |
|--|---|------------------|---|
| Middle Kongemose (7020±55 BP [LuS-9605]; 6955±55 BP [LUS-9604]) | Wetland, Settlement, Surface | Confident | Sjöström 2011:62, 64 |
| Middle Kongemose (7020±55 BP [LuS-9605]; 6955±55 BP [LUS-9604]) | Wetland, Settlement, Surface | Confident | Sjöström 2004:36, 64, 2011:61 |
| Middle Kongemose (7020±55 BP [LuS-9605]; 6955±55 BP [LUS-9604]) | Wetland, Settlement, hearth | Confident | Sjöström 2011:61, 64 |
| Early Kongemose | Wetland, Settlement, Surface | Confident | Sjöström 2004:37, 64 |
| Late Kongemose (6820±55 BP [LuS-887]; 6630±55 BP [LuS-6660]) | Wetland, Settlement, Surface | Confident | Sjöström & Hammarstrand Dehman 2010:54, 58 |
| Late Kongemose (6820±55 BP [LuS-887]; 6630±55 BP [LuS-6660]) | Wetland, Settlement, Surface | Confident | Sjöström & Hammarstrand Dehman 2010:54, 58 |
| Late Kongemose (6820±55 BP [LuS-887]; 6630±55 BP [LuS-6660]) | Wetland, Settlement, Surface | Confident | Sjöström & Hammarstrand Dehman 2010:54, 58 |
| Kongemose (7075±100 BP [LuA-4917]; 6810±105 [LuA-4600]) | Wetland, settlement, Surface | Confident | Sjöström 2004:30 |
| Kongemose (7075±100 BP [LuA-4917]; 6810±105 [LuA-4600]) | Wetland, Settlement, Outskirts | Confident | Sjöström: 2004:28 |
| Middle Kongemose (7005±95 BP [LuA-4923]; 6915±105 BP [LuA-4925]) | Wetland, Settlement, Surface | Confident | Sjöström 2004:33 |
| Late Maglemose to Early Kongemose | Wetland, Extramural, Away from any known settlement | Confident | Hammarstrand Dehman & Sjöström 2009:19–20 |
| Late Maglemose to Early Kongemose | Wetland, Extramural, Away from any known settlement | Confident | Sjöström & Hammarstrand Dehman 2010:18 |
| Late Maglemose to Early Kongemose | Wetland, Extramural, Away from any known settlement | Confident | Sjöström & Hammarstrand Dehman 2010:22 |
| Early–Middle Maglemose | Wetland, Extramural, Outskirts | Confident | Sjöström 2011:14 |
| Late Ertebølle | Wetland, Settlement, Refuse layer | Confident | Meurers-Balke 1983, Taf. 62 4–7, Meurers-Balke 1994:241–242 |

| No. | Site | Composition | Region | |
|-----|-------------------|--|-----------------|--|
| 73 | Siggård (FX) | Three flint blades and a flake core. | Western Denmark | |
| 74 | Siggård (EGS) | Nine blades, six with distal breaks as well as two medial blade fragments, one flake used as a scraper. Two of the blades refit together. The blades and flake are produced from at least three cores. | Western Denmark | |
| 75 | Siggård (FVJ) | Four blades with distal breaks and one proximal blade fragment. This hoard was found c. 5 cm above Siggård-EGS. | Western Denmark | |
| 76 | Simrishamn | Three Limhamn axes. | Southern Sweden | |
| 77 | Siretorp | Two bone points found standing vertical in the gyttja next to each other. | Southern Sweden | |
| 78 | Sjöholmen | Three huge flint picks and a flint core. | Southern Sweden | |
| 79 | Sjövreten | Two stone axes. | Southern Sweden | |
| 80 | Skal | Five blades. | Western Denmark | |
| 81 | Skal | 26 transverse arrows and two roughouts (9 arrowheads in 10cm by 10cm pile and 17 arrowheads found in a pile 10cm away). | Western Denmark | |
| 82 | Skal | Three hammerstones. | Western Denmark | |
| 83 | Skamstrup | 21 tooth beads from fox, otter, badger, wildcat, moose, aurochs, red deer and other small predators. A Maglemose settlement is found in the same area. | Eastern Denmark | |
| 84 | Skateholm II | Three red deer antlers, found in a pit that has been interpreted as a possible cenotaph. | Southern Sweden | |
| 85 | Skummeslövsstrand | Four core axes found at an Iron Age settlement. | Southern Sweden | |

| | Date range | Depositional condition, location and context | Certainty | Reference |
|--|--|---|--|---|
| | Early–Middle Ertebølle | Dryland, Settlement, Midden | Confident | Søren H. Andersen pers. comm. |
| | Early–Middle Ertebølle | Dryland, Settlement, Midden, Pit | Confident | Søren H. Andersen pers. comm. |
| | Early–Middle Ertebølle | Dryland, Settlement, Midden | Confident | Søren H. Andersen pers. comm. |
| | Late Ertebølle | Unknown, Unknown, Unknown | Confident | Rydbeck 1918:51–52 |
| | Maglemose | Unknown, Unknown, Unknown | Confident | Ekhoﬀ 1913:271, 291, fig. 1; Montelius 1917:107, fig. 46 |
| | Kongemose | Unknown, Settlement, Unknown | Uncertain if it is a hoard, due to sparse find details, but apparently found together. Reliant on prior interpretations of the picks being a hoard, depot, sacrifice or votive deposit, however these prior interpretations do not mention the flint core. | Karsten 1994:166; Sjöström & Hammarstrand Dehman 2015:17, SHM 1314–1317, Swedish History Museum |
| | Ertebølle (4600–4200 BC [unknown radiocarbon BP date and lab code]) | Unknown, Settlement, Unknown | Confident | Kennebjörk 2016:8; Welinder 1977:47 |
| | Ertebølle | Dryland, Settlement, Surface | Confident | Simonsen 1952:214–215 |
| | Ertebølle | Dryland, Settlement, Surface | Confident | Simonsen 1952:214–215 |
| | Ertebølle | Dryland, Settlement, Surface | Confident | Simonsen 1952:214–215 |
| | Possibly Maglemose | Wetland, settlement, Outskirts | Confident | Sørensen, S.A. 2017b:226–227 |
| | Late Kongemose–Early Ertebølle (6910±70 BP [Lu2113]; 5470±105 [Lu-1956]) | Dryland, Settlement, Pit | Confident | Håkansson 1983:887; Håkansson 1984:406; Larsson 1984:32 |
| | Mesolithic | Unknown, Unknown, Unknown | Uncertain if it is a hoard, due to sparse find details. Reliant on prior interpretation as a possible depot. | Laholms kommun 2013:10 |

| No. | Site | Composition | Region |
|-----|--------------------|---|-----------------|
| 86 | Skummeslövsstrand | Four core axes and two axe shaped tools, possible preforms or chisels. | Southern Sweden |
| 87 | Snyggatorp | 15 flint blades, many have gloss and retouch. | Southern Sweden |
| 88 | St. Havelse Strand | Two round-buffed pecked stone axes, found nearby to each other but may be from a grave or even settlement. | Eastern Denmark |
| 89 | Stavns | Six round-buffed pecked stone axes, one of which has been re-used as a hammerstone. One of the axes is still with the finder. | Western Denmark |
| 90 | Stora Sjögestad | 24 quartz microblade cores with a quartz scraper. | Southern Sweden |
| 91 | Strandby | Nine transverse arrowheads | Western Denmark |
| 92 | Svenstorp | Seven flint blades, two flakes and one flake fragment. | Southern Sweden |
| 93 | Sværdborg I | Eight microliths. | Eastern Denmark |
| 94 | Sølund | Two core axes and flint pick found possibly standing vertically. | Western Denmark |
| 95 | Timmerås | Two intentionally broken pestles that were found lying in a hearth in the same level with the broken ends facing in opposing directions. | Southern Sweden |
| 96 | Timmerås | Two round-buffed pecked stone axes that were found in a pit a few meters away from a hut. Nearby to this pit were two postholes so it is possible it was within a construction or was marked. | Southern Sweden |
| 97 | Tissø | Four flint picks. | Eastern Denmark |
| 98 | Tolstrup Hede | 12 blades found under a rock. | Western Denmark |

| Date range | Depositional condition, location and context | Certainty | Reference |
|---|---|--|--|
| Ertebølle | Wetland, Unknown, Unknown | Confident | Arbman 1954:5–7 |
| Kongemose | Dryland, Unknown, Unknown | Confident | Salomonsson 1957:205; Larsson 1978:163; Sjöström 2004:44 |
| Likely Mesolithic | Unknown, Unknown, Unknown | Uncertain if it is a hoard, due to sparse find details, but apparently found nearby to each other. Reliant on prior interpretation as a possible depot, but it has also been interpreted as possibly coming from a grave or settlement | Danish National Museum Journal No. 3435/80; Danish national database of Monuments & Antiquities: 401255-16 |
| Likely Mesolithic | Dryland, Settlement, Unknown | Uncertain if it a hoard, due to sparse find details. Reliant on prior interpretation as a depot | SMT0215, Økomuseum Samsø; Danish national database of Monuments & Antiquities: 030504-73. |
| Maglemose (8177±47 BP [Ua-29332]; 7928±45 BP [Ua-29332]) | Dryland, Settlement, Pit | Confident | Carlsson 2012:19, 27, 29 |
| Ertebølle | Unknown, Settlement, Unknown | Uncertain if it is a hoard, due to sparse find details. Reliant on prior interpretation as a possible depot. | Danish national database of Monuments & Antiquities: 120212-111 |
| Maglemose | Dryland, Settlement, Pit | Confident | Salomonsson 1968:263–268 |
| Late Maglemose | Unknown, Settlement, Surface | Confident | Henriksen 1976:80; Larsson 1978:163 |
| Middle Maglemose (8634±41 [AAR-22049]; 8427±38 [AAR-22057]) | Dryland, Settlement, Unknown | Confident | Rasmussen 2015:1, 4; Rysgaard et al. 2016:60; Kaj F. Rasmussen pers. comm. |
| Sadarna (8365±90 BP [Ua-9587]; 8230±85 [Ua9589]) | Dryland, Settlement, Hearth | Confident | Hernek 2005:148, 267–268 |
| Sadarna (8280±60 BP [GrA-16548]) | Dryland, Settlement, Pit | Confident | Hernek 2005:148, 274 |
| Maglemose | Dryland, Unknown, Pit | Confident | Fischer 2004b:48 |
| Mesolithic or Neolithic | Unknown, Unknown, Unknown | Confident | VHM 0093-94, Vendsyssel Historical Museum |

| No. | Site | Composition | Region | |
|-----|------------------|---|-----------------|--|
| 99 | Tuekæret | Two skull attached elk antlers that have been worked so that they are 31–33cm long. | Western Denmark | |
| 100 | Tuve 18 | Three core axes and a round-butted pecked stone axe, a large flint flake and 45 flint and quartz flakes found within a 20cm area by a large stone. | Southern Sweden | |
| 101 | Tågerup | One burnt flint pick and one unburnt core axe. | Southern Sweden | |
| 102 | Tågerup | One large chalk covered worked conical-shaped flint nodule, one large bone needle and one large polished bone point. The hoard was found next to a large stone with the flint nodule covering one of the bone pins. | Southern Sweden | |
| 103 | Tågerup | Two partially worked skull attached antlers. | Southern Sweden | |
| 104 | Udstolpe | Two shoe-last axes and one pointed-butted flat stone axe. | Eastern Denmark | |
| 105 | Ulkestrup Lyng | Multiple deposits of three and five bone points. | Eastern Denmark | |
| 106 | Ullerslev | Two t-shaped antler axes. | Western Denmark | |
| 107 | Undløse | Two bog patinated flake borers. | Eastern Denmark | |
| 108 | Vedbæk Boldbaner | Two or several slotted bone points. | Eastern Denmark | |

| Date range | Depositional condition, location and context | Certainty | Reference |
|---|--|---|--|
| Likely Mesolithic | Wetland, Unknown, Unknown | Uncertain if it is a hoard, due to sparse find details. Reliant on prior interpretation as a possible offering. | VHM 1948/0069a–b, Vendsyssel Historical Museum |
| Middle Maglemose–Early Ertebølle (c. 7000–5000 BC) | Dryland, Settlement, | Confident | Lundberg 1968:12, 19, 36; Welinder 1977:47; Larsson 1978:163 |
| Kongemose (7460±70 BP [Ua-8635]; 6700±110 BP [Lu4637]) | Wetland, Settlement, Refuse area | Confident | Karsten & Knarrström 2003:91, 128–129 |
| Kongemose (7460±70 BP [Ua-8635]; 6700±110 BP [Lu4637]) | Wetland, Settlement, Refuse area | Confident | Karsten & Knarrström 2003:91 |
| Kongemose (7460±70 BP [Ua-8635]; 6700±110 BP [Lu4637]) | Wetland, Settlement, Refuse area | Confident | Karsten & Knarrström 2003:95 |
| Late Ertebølle | Wetland, Unknown, Pit | Confident | Lomborg 1962; Sørensen, L. 2014:129; NM A 48290-2, Danish National Museum |
| Middle–Late Maglemose (8370±130 BP [K-2175]; 8050±140 BP [K-1509]) | Wetland, Settlement, Fishing area | Confident | Andersen, K. et al. 1982:42, 77, 98 |
| Late Ertebølle | Wetland, Unknown, Unknown | Uncertain if it is a hoard, due to sparse find details. Reliant on prior interpretation as a possible sacrifice. | NM A 11058-59, Danish National Museum; Danish national database of Monuments & Antiquities: 090616-4 |
| Possibly Mesolithic | Wetland, Unknown, Unknown | Confident | Danish national database of Monuments & Antiquities: 030318-18 |
| Middle–Late Kongemose (7115±55 BP [Ua-23792]; 6510±110 BP [K-1303]) | Wetland, Settlement, Unknown | Uncertain if it is a hoard, due to sparse find details, but apparently the slotted bone points were found together. Reliant on prior interpretation as a depot. | Petersen, E.B. et al. 1977:160; Larsson 1978:164; Petersen, E.B. 2015:189 |

| No. | Site | Composition | Region |
|-----|-----------------------------------|--|-----------------|
| 109 | Vegeholms slot | Two round-butted stone axes, one may be a Limhamn axe based on published description as it is described as having flake scars still visible. | Southern Sweden |
| 110 | Ytterby 185 | Two Lihult axes found with a hammerstone. The axes were found lying parallel with the edges facing opposite directions. | Southern Sweden |
| 111 | Ängehagen | Six round-butted pecked stone axes placed in pairs facing each other that were found under a flat stone. | Southern Sweden |
| 112 | Øgårde | Two flint picks. | Eastern Denmark |
| 113 | Øgårde | 98 tooth pendants, from red deer, otter, fox and badger. | Eastern Denmark |
| 114 | Øgårde | 'Several finds of two or three fishing spears'. | Eastern Denmark |
| 115 | Øgårde 14 | Three bone points, 20–28cm long. | Eastern Denmark |
| 116 | Øgårde 8 | Three bone points, 15.7–21.3cm long. | Eastern Denmark |
| 117 | Øgårde 9 (Mosegården III east) | Five bone points, 14–26cm long | Eastern Denmark |
| 118 | Ørvadgård | 21 large transverse arrowheads with antler polish on the retouch, which is likely from production. | Western Denmark |
| 119 | Östra Grevie | One radius, two metacarpal and a metatarsal from one or more elk. | Southern Sweden |
| 120 | Åby | Five round-butted pecked stone axes found within roots of a tree trunk. It is unclear if the tree roots are contemporaneous with the hoard. | Southern Sweden |
| 121 | Åle Syd | Three antler pressure flakers. | Western Denmark |
| 122 | Ålyst A106 | Eight large flint nodules. | Bornholm |

| Date range | Depositional condition, location and context | Certainty | Reference |
|---|--|---|---|
| Late Ertebølle | Unknown, Unknown, Unknown | Uncertain if it is a hoard, due to sparse find details, it is even unclear if they were found together. The only known information is that they were found in a moat. Reliant on prior interpretation as a depot. | Rydbeck 1918:7–8 |
| Lihult (6515±95 BP [Ua-5629]; 6200±75 BP [Ua-5478]) | Dryland, Settlement, Surface | Confident | Hernek 1995:24; Hernek 2005:274–275 |
| Likely Mesolithic | Unknown, Unknown, Unknown | Confident | Hermansson & Welinder 1997:70; VM 04 492:a–j, Vänersborgs museum |
| Kongemose | Unknown, Settlement, Unknown | Confident | Mathiassen 1943:69; Karsten & Knarrström 2003:94 |
| Maglemose | Wetland, Settlement, Unknown | Confident | Mathiassen 1943:91 |
| Maglemose | Wetland, Settlement, Fishing area | Confident | Andersen, K. 1983:30, 166 |
| Maglemose | Wetland, Settlement, Unknown | Confident | Andersen, K. 1983:165, fig. 35 |
| Maglemose | Wetland, Settlement, Fishing area | Confident | Andersen, K. 1983:165, fig. 34 |
| Kongemose | Wetland, Settlement, Unknown | Confident | Andersen, K. 1983:165–166 |
| Likely Late Ertebølle (5205±55 BP [AAR-8535]) | Dryland, Settlement, Pit | Confident | Skousen 2008:98–101 |
| Early Maglemose (9035±55 BP [LuS-7733]) | Wetland, Settlement, Unknown | Confident | Wilhelmson 2008; Pedersen & Petersen, E.B. 2015:245–246 |
| Likely Mesolithic | Unknown, Unknown, Unknown | Confident | Hermansson & Welinder 1997:70; SHM number 1304, 55–59, Swedish History Museum |
| Ertebølle | Dryland, Settlement, Hearth | Confident | Andersen, S.H. 2013:245 |
| Early Maglemose (8925±65 BP [AAR-9876]) | Dryland, Settlement, Posthole | Confident | Casati & Sørensen, L. 2012:179 |

| No. | Site | Composition | Region | |
|------------|-------------|--|-----------------|--|
| 123 | Åmossen | 23 slotted bone points. | Southern Sweden | |
| 124 | Årup | 14 microblades and microblade fragments. | Southern Sweden | |

| Date range | Depositional condition, location and context | Certainty | Reference |
|------------------------------|--|---|---|
| Middle Maglemose–Kongemose | Wetland, Unknown, Unknown | Uncertain if it is a hoard, due to sparse find details. It is unclear if this is a single deposition or the accumulation of finds. Reliant on prior interpretations as a possible depot or ritual deposition. | Christoffersson 1918:517; Larsson 1978:163; Larsson 2001:163 |
| Early Ertebølle (6370±40 BP) | Dryland, Settlement, Pit | Confident | Hanlon & Björk 2003:21; Andersson et al. 2004:90; Nilsson & Hanlon 2006:157 |

APPENDIX 2: SUMMARY OF USE-WEAR ANALYSIS ON MESOLITHIC HOARDS

| Hoard | Period | Composition | |
|-------------------|-------------------------|---|--|
| Hinbygården | Ertebølle | Two core axes one with a specialised edge. | |
| Maglelyng XL | Ertebølle | Three cores, one flint nodule, two core axes and two flake axes. | |
| Ullerslev | Ertebølle | Two t-shaped antler axes. | |
| Stavns | Possibly Ertebølle | Six pecked round stone axes, including one being an edge fragment. One axe was not available for study. | |
| Siggård | Ertebølle | Nine blades and one flake scraper. | |
| Siggård | Ertebølle | Five blades. | |
| Siggård | Ertebølle | Three blades and a flake core that may have been re-worked into a scraper. | |
| Gøngehusvej 7 | Kongemose– Ertebølle | 12 flint blades. | |
| Lystrup | Ertebølle | Four patinated blades. | |
| Lystrup | Ertebølle | Eight partially patinated blades. | |
| Skummeslövsstrand | Ertebølle | Six core axes. | |
| Bökeberg III | Kongemose | Flint core axe and an antler pressure flaker. | |
| Bökeberg III | Kongemose | Five flint blades. | |
| Rönneholm 8 | Kongemose | 108 flint blades. | |

| Use wear results | Reference for analysis |
|---|---|
| Edge damage on both axes. | Berggren 2007:116 and the present author – macro and low power microscopic observations using the Dino-lite microscope |
| Two flakes have edge damage on both axes and striations on one axe. The two core axes have no observable use-wear traces. | Present author – macro and low power microscopic observations using the Dino-lite microscope |
| Both axes have macroscopically visible polish, although the extent of this polish varies significantly between the axes. One axe appears to have been re-sharpened and other axe is broken near the butt and the edge. | Present author – macro and low power microscopic observations using the Dino-lite microscope |
| Two of the axes had possible hafting polish, one had had been re-sharpened after an edge fracture, two of the axes had slightly rounded edges, and one had been reused as a hammerstone leaving an extremely rounded edge. Based on the photo supplied by the finder, the last axehead has a typical fracture on the centre of the edge suggestive that it also was used. | Present author – macro and low power microscopic observations using the Dino-lite microscope and high power microscopy using the Nikon Eclipse microscope |
| Most of the blades had evidence of use, but only two blades and the flake scraper had diagnostic traces. One blade appears to have been held in hide and used on an unknown material causing so-called polish-23 to form. The other blade had traces of use to cut a hard material and the scraper had been used to work dry-hide. | Present author and Helle Juel Jensen – high power microscopy using the Nikon Eclipse microscope |
| Four of the blades had evidence of use, but only one of these was diagnostic, which showed evidence of being held and used on dry-hide as well as on much harder material like wood or bone/antler. | Present author and Helle Juel Jensen – high power microscopy using the Nikon Eclipse microscope |
| At least two of the blades had been used on dry-hide, the other blade had undiagnostic use-wear traces. The core scraper was not analysed. | Present author and Helle Juel Jensen – high power microscopy using the Nikon Eclipse microscope |
| Several blades were water-rolled, the other half are 'pristine'. | Petersen, E.B. 2015:79 |
| Too patinated for use wear analysis and no macro-wear. | Present author and Helle Juel Jensen – high power microscopy using the Nikon Eclipse microscope |
| Too patinated for use wear analysis and no observable macro-wear. | Present author and Helle Juel Jensen – high power microscopy using the Nikon Eclipse microscope |
| None of the axes have any edge damage. | Arbman 1954:6 |
| The flint core axe has no traces of use, unclear if the pressure flaker was used. | Knarrström 2001:125 |
| Four flint blades had no use-wear traces, whereas the last blade had been used to cut plants. | Knarrström 2001:172–177 |
| Heavily patinated, no traces of edge damage. | Sjöström 2004:28 |

| Hoard | Period | Composition | |
|----------------------------------|-------------------------|---|--|
| Rönneholm 10:3 | Kongemose | Three flint blades. | |
| Rönneholm FP 878 | Maglemose | Nine shell beads | |
| Björkeröds fällad | Kongemose | 72 flint blades – many have been retouched. | |
| Näsum | Kongemose | 21 flint blades. | |
| Snyggatorp | Kongemose | 15 flint blades. | |
| Porskjær Bakker | Maglemose- Kongemose | Seven complete core axes and two fragments. | |
| Husted Mose | Kongemose | 13 blades, sandstone pebble, flint hammerstone and two lumps of pyrite. | |
| Husted Mose | Kongemose | 14 flint blades. | |
| Arreskov Sø | Maglemose | Four core axes. | |
| Øgårde 9 (Møsegården III øst) | Maglemose | Five fine tooth bone points made from rib. | |
| Simrishamn | Ertebølle | Three Limhamn axes | |
| Anderstorp | Maglemose | Five pecked round stone axes | |

| Use wear results | Reference for analysis |
|---|--|
| All three blades have edge damage. | Sjöström 2011:62 |
| Several of the perforations show evidence of the shell beads being strung on a string with the apex hanging down. | Sjöström 2011:14–16 |
| 32 have been retouched and only 8 show no edge damage from use. | Sjöström 2004:44 |
| All the blades have macroscopic traces of use and some have been retouched. | Karsten 1994:97 |
| Many have edge damage and macroscopically visible polish. | Salomonsson 1957:210–212 |
| At least one had had macroscopic signs of use. | Klaus Hirsch pers. comm. |
| The two analysed blades had macro- and micro-wear traces, whereas the other 11 blades had no observable macro-wear traces of use. The sandstone pebble had signs of abrasion on two ends. The flint hammerstone had extensive crushing edge damage as well as possible edge rounding on some of the crushed ridges, suggesting that it may have been used as a scraper. | Present author – macro and low power microscopic observations using Dino-lite microscope |
| One blade had macro and micro-wear traces, whereas none of the other blades had any observable macro-wear traces. | Present author – macro and low power microscopic observations |
| One of the axes had wood working traces. All of the axes may have possible hafting traces in the form of bright flat frictions, striations and rippling. However, given that these axes are highly lusted, it is unclear these traces could be post-depositional. | Present author and Helle Juel Jensen – high power microscopy using Nikon Eclipse microscope |
| One bone point appears to have been re-worked at the tip, perhaps broken during use and then re-sharpened. Two bone points have slightly broken tips. One point is broken midway. The causes of these breaks are unclear. | Present author – macroscopic observations |
| All three axes appear to have variable amounts of edge damage or re-sharpening, suggestive of use. These observations are based on unpublished photos. | Present author, based on photo provided by Ulrika Wallebom, Österlens Museum. |
| Based on the available published photo (Persson 1997:15–16) at least three of the axes have evidence of possible use including edge damage and edge rounding. | Present author, based on photo in Persson 1997:15–16; and those provided by Jörgen Gustafsson, Jönköping Läns Museum |