

UBAS



University of Bergen Archaeological Series

The Stone Age Conference in Bergen 2017

Dag Erik Færø Olsen (ed.)



UNIVERSITY OF BERGEN

12
2022

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Preface

This anthology is based on contributions presented as part of *The Stone Age Conference in Bergen 2017 – Coast and Society, research and cultural heritage management*. The conference was co-organized by the Department of Archaeology, History, Cultural Studies and Religion (AHKR) at the University of Bergen and the Department of Cultural History at the University Museum of Bergen (UM). The organizing committee included Dag Erik Færø Olsen (leader) and Tina Jensen Granados from AHKR, together with Leif Inge Åstveit and Knut Andreas Bergsvik from UM.

The Stone Age Conference in Bergen 2017 was the third instalment of the “Stone Age Conference” series to be organized in Norway. The first conference was held in Bergen in 1993 (Bergsvik *et al.* 1995) and the second in Molde in 2003. The purpose for the 2017 conference in Bergen was to gather archaeologists with common interest in the Norwegian Stone Age and from all parts of the national Stone Age community. Several prominent research communities exist in Norway today and representatives from all University departments and from the majority of the County Municipalities was gathered to share current results and to discuss common issues and strategies for future research.

Since the last conference in 2003, the cultural heritage management in Norway has made large quantities of new archaeological data accessible for research. Such extensive new data has provided new methodological and theoretical challenges and opportunities which is reflected in the scope of research published within the last 20 years.

The Stone Age Conference in Bergen 2017 wanted to reflect the new empirical, theoretical and methodological diversity, and to highlight how these developments could be integrated into the cultural heritage management and within future research. The conference was structured by current themes and approaches and divided into five main sessions (including a poster session) and seven session themes (see Sessions and papers at the end of this volume).

An increasing association with the *natural scientific approaches* was one important theme of the conference focusing on research on climate change, aDNA and new and improved methods for analysis and dating. Related to this was the general theme *technology* were studies on raw material and technological studies are used in mobility- and network analysis.

Managing and utilizing the large quantities of data generated over the last two decades was the basis for the themes *demography* and *subsistence changes*. The theme *methodological developments* included increasing digitalization and how this is used in rescue archaeology, with challenges and new possibilities. The conference also wanted to explore aspects of *ritual communication* where various forms of expressions, such as rock art, could elaborate and increase our understanding of several of the other main themes mentioned.

During the three days of the conference a total of 46 15 minutes presentations addressed various topics and aspects within the seven session themes. All sessions were led by session leaders and three of the conference sessions were introduced by key note speakers.

After the conference, it was decided to publish an anthology, inviting all participants to contribute including the poster participants. The publication was to be in the University

of Bergen Archaeological Series, UBAS, and with Dag Erik Færø Olsen as editor of the anthology. Ten papers were submitted from all the sessions and is representative of the topics presented and discussed during the three-day conference. The papers included in this volume are organized mainly geographically starting with Northern Norway moving southwards.

Kenneth Webb Vollan focuses on housepit sites in Arctic Norway using radiocarbon dates for distinguishing reuse or occupational phases. He presents a method for analysing dates following the Bayesian approach and shows that the housepits were reused to a much larger degree than previous acknowledged.

Skule Spjelkavik and *Axel Müller* explores similar topics in their paper about quartz crystal provenance. By using laser ablation inductively coupled plasma mass spectrometry (LA-ICP-MS) they were able to compare debitage from the Early Mesolithic settlement site Mohalsen I at the island Vega with samples from 19 known sources in Norway. This is especially interesting since there are no known quartz crystal occurrences at Vega and was consequently brought from the main land or other areas. This study shows the potential for using this method, even though no clear parallel to the Mohalsen debitage could be identified in the analysed material.

Jan Mangerud and *John Inge Svendsen* explores colonization processes from a geological perspective. They document how an ice sheet margin presented a physical barrier across the Oslofjord preventing human immigration until the onset of the Holocene, providing an interesting backdrop for discussing aspects of colonization processes in the Early Mesolithic.

Arne Johan Nærøy discusses the use of tools and behaviour patterns based on use-wear analysis of quartz assemblage from the site 16 Budalen in Øygarden, Hordaland County. He is able to distinguish two individuals operating at the site suggesting spatially segregated work operations. Nærøy shows through this study the potential for functional analysis of lithic material from settlement sites.

Astrid Nyland, *Kidane Fanta Gebremariam* and *Ruben With's* contribution represents both the new technological and methodological developments and the interdisciplinary nature of archaeology today. This paper explores the potential for using pXRF for regional provenance analysis of greenstone adzes in western Norway. This study revisits an older interpretation of the division of this region into two social territories in the Middle and Late Mesolithic. The results show that the method is robust and well suited for studying green stone and the authors can also largely confirm the original interpretations based on distribution networks of Mesolithic adzes.

Birgitte Skar discusses the early postglacial migration into Scandinavia based on aDNA studies on two Early Mesolithic Norwegian skeletons. Skar's results confirms the recent interpretation of a second migration into Norway from the Northeast thus contributing to the overall narrative of the colonization of Norway.

Almut Schülke revisits the topic of Mesolithic burial practises in Norway based on new data from recent excavations. Schülke highlights that human remains are often found at settlement sites, opening for discussions of various relationships between the living and the dead and human-nature engagement.

Krister Eilertsen presents results from an excavation of an Early Neolithic hut in Rogaland, Southwestern Norway. He discusses classical interpretative challenges where the lithic material and ¹⁴C-datings are not comparable. Eilertsen emphasise the importance of not dismissing difficult results but rather try to find an answer to the differences in light of a wider analysis of the area including various natural and cultural processes. He is thus able to explain the contrasting data and provide new insight into settlement patterns and economy at the start of the Neolithic.

Dag Erik Færev Olsen reviews the rock shelters in the mountain regions of Hardangervidda and Nordfjella. The previous interpretation of these settlement sites as primarily from the Late Neolithic and onwards is discussed based on a reclassification of archaeological material. The results show that rock shelters have been used from at least the Middle Mesolithic and in some cases with an intensification and stronger continuity after 2350 BC.

Gaute Reitan discusses the chronological division of the Mesolithic based on new data from excavations the last 20 years. Reitan presents a revised chronology for the Mesolithic in Southeast Norway dividing each of the three main phases into two sub-phases, adding two new phases to Egil Mikkelsen's original from 1975.

Acknowledgements

On the behalf of the organizing committee, we would like to thank all participants of *Steinalderkonferansen i Bergen 2017* for sharing their knowledge and for the discussions that followed at the conference. We also want to express our gratitude to the conference key note speakers, Prof. Kjell Knutsson (Dep. of Archaeology and Ancient History, Uppsala University), Assoc. Prof. Per Persson (Dep. of Archaeology, Museum of Cultural History, University of Oslo) and Prof. Charlotte Damm (Dep. of Archaeology, History, Religious Studies and Theology, The Arctic University of Norway) for introducing three of the conference sessions. This gratitude is also extended to five session leaders, Assoc. Prof. Arne Johan Nærvøy (Museum of Archaeology, University of Stavanger), Prof. Marianne Skandfer (The Arctic University Museum of Norway), Assoc. Prof. Birgitte Skar (Dep. of Archaeology and Cultural History, NTNU University Museum), Prof. Hans Peter Blankholm (Dep. of Archaeology, History, Religious Studies and Theology, The Arctic University of Norway) and Prof. Almut Schülke (Dep. of Archaeology, Museum of Cultural History, University of Oslo).

During the three-day conference the committee received assistance from voluntary students from The University of Bergen and they provided valuable help during the conference.

We would also like to thank the following institutions for their generous funding:

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The editor of this anthology would further like to express gratitude to all the anonymous peer reviewers whose valuable comments and insights has made this publication possible.

Last, but not least, thank you to the authors of this anthology for the patience and work on the papers that make out this volume.

Dag Erik Færø Olsen and Tina Jensen Granados – Oslo 2021

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Almut Schülke

Placing – fragmenting – circulating: Mesolithic burial and mortuary practices in Norway in a Northern European perspective

Abstract

This contribution investigates burial and mortuary practice in the Mesolithic period (9300–3900 BC) in what today is defined as Norway. This issue has received little attention, as poor preservation conditions for bone material in the forest zone of the North has led to a low number of finds. Recent excavations of single burials at e.g. Brunstad and Sømmevågen trigger off a reassessment of the topic. The twelve sites with human bones, which could be identified, dating to the Middle and Late Mesolithic, were studied and compared. Even though statistically not significant, they exhibit some common traits: Human remains are mainly found in the places of the living: on coastal settlement sites, including caves/rockshelters and open-air sites. This broad spectrum of sites indicates human engagement with different natural and cultural elements when dealing with the dead: hollows, water, earth and cultural debris. Both graves with apparently intact human bodies and single (loose) human bones can be identified. Together with sites found in wetlands with seemingly selected types of bones, these bear witness to a broad range of mortuary practices, including inhumation, the fragmenting of corpses and the circulation of selected bones. This is in line with practices observed in other parts of Northern Europe; a special closeness to finds from Western Sweden is observed. As in other areas it is most likely that only a small number of people were actually buried, while most of them received other treatment in death, not easily visible archaeologically. The identification of these various phenomena will hopefully make it possible to identify other find contexts in future, and will be important when discussing social and ritual aspects of Mesolithic hunter-gatherer societies, not least regarding studies on genetics and mobility.

Introduction

In the areas which today constitute Norway the Mesolithic period is attested by a rich body of archaeological material with thousands of predominantly coast-based settlement sites. In contrast, direct evidence of Mesolithic people through human remains is almost absent in the record, hampering studies of physical biographies, death, the handling of dead people by the living community, mortuary practices and burial structures. This shortage of mortuary evidence, also observed in the neighbouring areas of Northern Sweden and Finland (Mökkönen 2013, Ahola 2017), has been explained in terms of poor preservation conditions for osseous

material in the acid soils of the coniferous zone (Glørstad 2010, p. 240–243). Death as a topic has therefore hardly been touched upon in the Norwegian Mesolithic debate (Lødøen 2015, p. 86). The few finds of mortuary evidence from Norway are, at first sight, ambiguous in material expression, spanning across long time periods and large areas (earlier overviews in Indrelid 1996, p. 53–57, Sellevold and Skar 1999, Solberg 2006). By contrast the moraine and limestone soils of South Scandinavia, the Central European plain and of the Baltic area have preserved human bones from the Mesolithic period. Between the 1960s and 1980s key finds from these regions such as the grave fields from Vedbæk on Zealand (Brinch Petersen 2015), Skateholm I and II in Scania (Larsson 1988), or Zvejnieki in Latvia (Zagorskis 2004, Larsson and Zagorska 2006), shaped the understanding of Mesolithic mortuary practices, implying that inhumation was the most common mode of burying the dead from the 9th to the end of the 5th millennium cal. BC. Recent research has substantiated that Mesolithic mortuary practices were much more varied than formerly assumed (Bugajska 2014, Stutz 2014, Grünberg 2016). New finds and reviews of older finds that were previously written off as atypical, show that the dead and dead bodies were treated in manifold ways, including manipulation of the buried body (e.g. Stutz 2003, Gray Jones 2011, Gumiński and Bugajska 2016), cremation (Bugajska 2014, Tab. 3, p. 65–66, Eriksen and Andersen 2016, Niekus *et al.* 2016, Sjögren and Ahlström 2016) and the laying out/elevation of the dead, with re-burying or re-use of bones after the disintegration of the body (Gray Jones 2011, Petersen 2016, Sørensen 2016). Some recent finds of Mesolithic graves in Norway, such as Brunstad and Sømmevågen, have triggered new interest in these topics. Furthermore, new studies of west Norwegian Mesolithic rock art suggest that the low number of Mesolithic burials might be connected to the existence of mortuary rituals which could involve defleshing of corpses, which might be depicted on some rock carving sites (Lødøen 2015).

This article deals with Mesolithic mortuary and burial practices in Norway (c. 9300–3900 cal. BC), represented through twelve sites which have yielded human remains that can be dated to the Mesolithic period. Even though the number of finds is low and covers thousands of years, some trends in the material can be identified, revealing variation in the treatment of the dead, their bodies, the way these bodies or body parts were deposited, and the diversity of contexts and places of deposition, also regarding natural and cultural elements. This will be discussed in the light of Mesolithic mortuary practices in adjacent regions of Northern Europe.

Mortuary remains as evidence of intertwined actions, (ritual) practices and events with different temporal dimensions

A more nuanced general understanding of the treatment of the dead in archaeology in recent years (e.g. Fahlander and Oestigaard 2008) has opened up for understanding mortuary remains and burial finds as more than representing a specific burial custom within a specific cultural frame. Rituals and treatment of the dead which involve practices before and after the body/body parts came into the earth have been included in the discussion (Stutz 2003). One way for archaeologists to explore and understand these dynamic processes are reviews of ethnographic data. They show a variety of modes of practically dealing with the dead and their bodily remains, often in several steps and with complex temporalities (Meyer-Orlac 1982, p. 139, Nieuwhof 2015, Fig. 7.2). As Figure 1 illustrates, dead bodies can be left behind or be exposed right after death (e.g. elevated in a tree), they can be (either as intact bodies or

body parts) buried shortly after death, either unburned or cremated. They can also be stored, preserved or skeletonized and manipulated/fragmented and only deposited in the ground later. Single body parts can be kept in circulation for a long time before they, for some reason, come into the ground. Exposed or retained body parts can be eaten by carnivores.

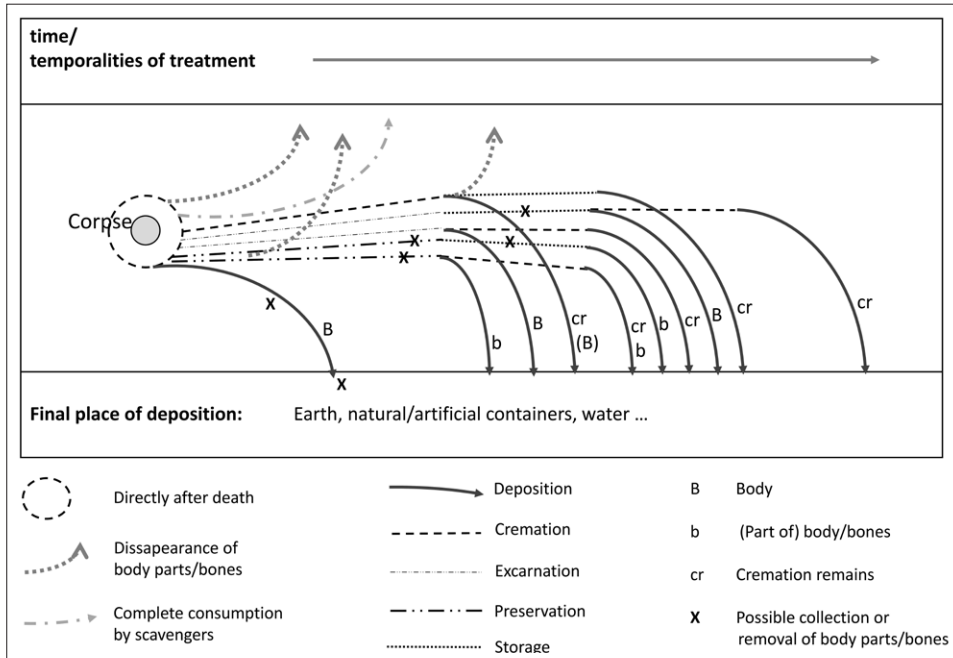


Figure 1: Sketch of diverse ways of dealing with dead bodies and possible combinations of practices (not exhaustive) (after Meyer-Orlac 1982; 139 and Nieuwhof 2015, Fig. 7.2), slightly revised by the author.

The theoretical perspective applied here sees the archaeological site not only as a place of deposition, in this case of the Mesolithic human remains, but also as a focal point from which various intertwined processes and actions can be studied (Schülke 2016). These are related to intentions and practices behind the depositions of these bodies/body parts, with different temporal dimensions, and can trace mortuary practice beyond the mere find-spot – temporally and spatially. However, the form and place of deposition also have an effect on the surroundings and thus are more “concrete” than many of the more ephemeral practices that lead to their formation. The deposition of the body/body parts is one stage in a temporally enmeshed sequence of practices and events within a certain social context. These include the times before the human remains were deposited (e.g. biography in the sense of physical and mobility history of the once living individual, dying and mortuary ritual performed by the survivors including the steps in the treatment of the dead body), during the act of deposition, and even after the remains were placed (e.g. revisiting a grave or monument, later manipulation of the burial etc.). Thus, archaeological mortuary contexts can be considered as parts of a series of (ritual) practices or operational chains – each with different temporalities, but also as places which, from the time of their making, affected their surroundings. Such dynamics have been addressed for specific aspects of Mesolithic burial finds. These include the construction of a grave (Larsson 2016a), the treatment, manipulation, adornment and

positioning of the body/bodies of the deceased (e.g. Stutz 2003, Gray Jones 2011), the character, positioning and the lack of grave-goods (e.g. Kjällquist 2001, Larsson 2016a) and the way of filling and possible marking of the grave (e.g. Brinch Petersen 2015, p. 101–105). It also encompasses anthropogenic post-burial events, for example newer graves which cut into older ones (Stutz *et al.* 2013). Studies of more complex, multistep mortuary practices attest to intentional manipulations of burials, where specific bones/body parts are taken out of the grave context and later deposited together with bones of other humans and animals in pits close by (Bugajska and Gumiński 2016). Further, the topic of loose human bones in settlements and *moddinger* has been discussed in the light of ethnographic studies, which report that ancestors' bones were used in living life (e.g. Brinch Petersen 2016).

The more considered the interpretation of the evidence regarding the involvement of temporally different steps of activity, the more difficult it is to establish a clear terminology. This is e.g. reflected in discussions of the term “grave” (Larsson 2016b), or on how to denominate multistep burials (e.g. Struwe 2016, footnote 5). Furthermore, drawing the line between burials and the mistreatment of/violence against humans and their bodies is a challenge from the archaeologist's perspective (e.g. Gummeson *et al.* 2018).

In the following I will use these terms:

- deposition: intentional or unintentional deposition of material/human remains
- burial: intentional depositions of human remains within mortuary practice
- grave: a burial which is dug down into either a cultural layer, into earth, or into a stone pile
- mortuary practice: practice in the widest sense connected to the death of a person (before, during and after burial)
- burial practice: practice connected to the burial of a person/persons.

Mesolithic human remains, burials and mortuary practices from Norway

This study focuses on the twelve sites from Norway¹ which have yielded human bones dated to the Mesolithic period (9300–3900 BC) (Figure 2: sites 1–12). In Figure 4 and Figure 5 the sites which have yielded both remains of intact bodies and of single (loose) human bones are split up into (a) and (b).

The data were mainly compiled from the literature, in some cases excavation reports were consulted.² A number of factors bias the data. These include the heterogeneous quality of the publications. Several of the finds were made in connection with older excavations of settlement sites and were regarded as side products which were not documented in any detail. Another factor is preservation conditions, which can obfuscate the mere presence of human bone material, including the character of the originally deposited human bodies/body parts. Furthermore, encompassing archaeo-osteological or thanatological analyses must remain subject of future research. They can provide insights into health during lifetime, into the pre-, peri- and post-mortem treatment of the body. This might include lethal injuries, manipulations of the dead body such as the removal of body or skeletal parts, or a closer study of taphonomic factors of the deposition situation, such as physical and biochemical processes which can alter the composition and spatial order of deposited human remains.



Figure 2: Map of the Norwegian sites with human bones dated to the Mesolithic period. Mesolithic period. For more information on the sites see Figure 4 and Figure 5. Illustration: A. Schülke, based on geographic information by Statens Kartverk.

A variety of site locations along the coast

All of the sites with Mesolithic human bones were located at the coast at their time of use (Fig. 2): three in southeast Norway (nos. 1, 6, 7),³ two in north Norway (nos. 10, 12) and seven in west Norway (nos. 2, 3, 4, 5, 8, 9, 11).

The Mesolithic topographic locations vary, however, in terms of local topography and accessibility (Figure 2 and Figure 3). Five of the finds (41.7%) stem from rock shelters (nos. 3, 8, 9) and caves (nos. 5, 12). These are situated along the west Norwegian coast (nos. 3, 5, 8, 9) and in Nordland (no. 12). Two, Grønehelleren (no. 8) and Steigen (no. 12), are spectacularly located on islands in the outer archipelago. Viste cave is placed on a rather sheltered islands in an archipelago (no. 5), Sævarhelleren (no. 9) alongside a fjord (nos. 3, 9), and Skipshelleren (no. 9) in a fjord.

	Total	Outer archipelago	Inner archipelago	Along fjords/ coastal mainland
Rockshelters/caves	5	2	1	2
Open-air settlements	5		4	1
Wetlands/sea	2		2	

Figure 3: Site types and topographic context of the sites with Mesolithic human bone material. Diagram: A. Schülke.

Five (41.7%) stem from open coastal settlements. Søndre Steghaugen (no. 4), Brunstad (no. 6), Torpum 9b (no. 7) and Sømmevågen (no. 11) are placed on rather sheltered islands in archipelagos and Groppbakkeengen in north Norway (no. 10) near the coast on the mainland. Two of the finds (16.6%) were made in modern wetlands: while Bleivik (no. 2) was a seabed in the Mesolithic, Hummervikholmen (no. 1), which today is an underwater site, most likely represents a transgressed coastal site in the inner archipelago of the southern Norwegian (Skagerrak) coast.

Direct and indirect dating of the human bone material

Chronologically the contexts with human bones from the twelve sites stretch from c. 7900–4000 cal. BC (Fig. 5). Two of them date to the Middle Mesolithic (8200–6350 cal. BC), nine to the Late Mesolithic (6350–3900 cal. BC), while one could be both (no. 3). Eight contexts are ¹⁴C-dated directly on bone or tooth material (nos. 1, 2, 5a, 8a, 10, 11b, 12). For most of these a $\delta^{13}\text{C}$ -value is also reported, which allows a correction of the datings for the marine reservoir effect. The others are indirectly dated, either through ¹⁴C-dating of charcoal from their direct context (no. 6, most likely also no. 4, see below) or through stratigraphic affiliation.

Human bones from wetlands/wet contexts

The human bones from Hummervikholmen (no. 1), which were found under water in the 1990s and again in 2013, most likely stem from a coastal site located on a little island in the Inner Archipelago of the Skagerrak coast, which was later transgressed. The human bones were found in an area of approximately 8×10 metres, together with some boulders, four wooden sticks and some bones of marine animals (Eggen and Nymoen 2014, Nymoen 2014, p. 57). The first bones were found in the mid-1990s under water after the site had been damaged

No.	Site, County*	Mesolithic location	Site context	Subsurface	Number of individuals (from intact bodies and single bones)	Intact bodies	Single bones	Find context	Body position	Grave-goods	Source
Middle Mesolithic											
1	Hummervikholmen, Vest-Agder	island, archipelago, sea	?	sea-floor/sand	3-5	-	x	?	?	-	Sellevoid/Skar 1999; Eggen/Nymoen 2014; Nymoen 2014; Skar et al. 2016; Günther et al. 2018 S1 Tab. S1.3.
2	Bleivik, Rogaland	sea	seafloor	sea	1	-	-	?	-	-	Lie 1985; Indreilid 1996, 53 footnote 28.
Middle/Late Mesolithic											
3	Sævarhelleren, Hordaland	along fjord	rock-shelter	cultural layer	1+	-	x	cultural layer	-	-	Bergsvik/Storvik 2012, 29 (no. 10).
Late Mesolithic											
4	Søndre Stegshaugen, Møre og Romsdal	island	coastal settlement	sand	1	?	-	grave/deposit?	?	-	Åstveit 2008; Sellevoid 2008.
5a	Viste cave, Rogaland	island	cave	cultural layer	1	x	-	grave?	possibly flexed	-	Brøgger 1908; Fürst 1909; Gjessing 1920; Hurthammer/Meiklejohn 1986; Bergsvik/Storvik 2012, 31 (no. 22); Schulting et al. 2016.
5b	Viste cave, Rogaland	island	cave	cultural layer	1+	-	x	?	-	-	Fürst 1909 Fig. 3-5; Bergsvik/Storvik 2012, 31 (no. 22).
6	Brunstad, Vestfold	island, archipelago	coastal settlement	sand	1	x	-	in grave	half-sitting, flexed legs	-	Reitan et al. 2018; Schülke et al. 2019; Reitan et al. 2019.

No.	Site, County*	Mesolithic location	Site context	Subsurface	Number of individuals (from intact bodies and single bones)	Intact bodies	Single bones	Find context	Body position	Grave-goods	Source
7	Torpum 9b, Østfold	island	coastal settlement	cultural layer	1+	-	x	?	-		Tørhaug 2003.
8a	Grønehelleren, Sogn og Fjordane	offshore island	rock-shelter	cultural layer	3	x?	-	in one or more grave pits	skeleton II: flexed, skeleton III and IV: unsure	-	Jansen 1972; Indriellid 1996, 53 footnote 27; Bergsvik/Storvik 2012, 27 (no. 6).
8b	Grønehelleren, Sogn og Fjordane	offshore island	rock-shelter	cultural layer	1+	-	x	?	-	-	Jansen 1972.
9	Skipshelleren, Hordaland	along fjord	rock-shelter	cultural layer	1+	-	x	?	-	-	Bergsvik/Storvik 2012, 27 (no. 8).
10	Groppbakkeengen, Finnmark	mainland, coast-based	coastal settlement	gravel	1	x	-	grave in a stone heap	hocker-position	x	Simonsen 1961, 182-183; Hølskog 1980.
11a	Sømmevågen, Rogaland	island, archipelago	coastal settlement	sand	1+?	?	-	in grave	-	x	Denham 2016.
11b	Sømmevågen, Rogaland	island, archipelago	coastal settlement	sand	1+	-	x	in rubbish heap	-	x	Denham 2016; Meling et al. 2020; Meling et al. in press.
12	Steigen, Nordland	offshore island	cave	cave floor	1	-	x	deposited	-	-	Günther et al. 2018, Supplement 51.

* county before the county reform from 2020

Figure 4: Find contexts with human bones dated to the Mesolithic from Norway, in chronological order. For the dating of the finds see Figure 5. – denotes “non-existent”, ? denotes “uncertain”, + indicates that more individuals than the given number might be represented.

by dredging. After the sieving of the re-deposited sediments the remains of at least three, but maybe up to five adult individuals were verified – amongst them fragments of at least three skulls and of (partly fragmented) long bones (Sellevold and Skar 1999, Skar *et al.* 2016). Nine bone samples were ¹⁴C-dated to a rough timespan between 8227 and 6828 cal. BC (Skar *et al.* 2016, Table 14.1); taking the marine reservoir effect into account they most likely were some hundred year's younger (Günther *et al.* 2018, Supplementary information p. 7). Skar *et al.* (2016) argue that even if there were *no clear signs of grave pits* (ibid. p. 230) during excavation, the excellent preservation of the bones together with stratigraphic observations indicate that the finds represented a grave site, which had been flooded by the Tapes transgression c. 6950 cal. BC (8000 BP), and afterwards sealed by an oyster bank. In 2013 more bones were found at the same spot in connection with an underwater archaeological excavation before further dredging (Eggen and Nymoene 2014, Nymoene 2014). Eight bones of at least two individuals were with certainty human, including cranial fragments and teeth as well as fragments of an upper and of a lower leg bone. Additionally, bones of fish, seabirds and seal were found, as well as four wooden sticks, which showed no signs of human treatment. Two of the human bones were dated to the Middle Mesolithic around 7500 cal. BC, 8393±55 BP (Ua-47891) and to 8446±51 BP (Ua-47892), while the two dated wooden sticks are several hundred years older (Eggen and Nymoene 2014, fig. 22). In the light of the 2013 excavations, the theory of Hummervikholmen representing a grave-site was rejected, and it was discussed whether the find might represent the remains of a ritual deposit (Eggen and Nymoene 2014). Nymoene (2014) argues that the stratigraphy of the seabed most likely indicates a repositioning of the human bones from dry ground close to the beach into the sea – caused by a natural event such as a flood wave or tsunami, and that the wooden sticks most likely represent naturally deposited wood. It is important to stress that the datings of the human bones from Hummervikholmen stretch across some hundred years (see Fig. 5).

From the coast-near wetland at Bleivik (no. 2), which was a seabed in the Mesolithic, skeletal parts of a person around the age of 60 were found through trenching (Lie 1985). The following bones were dug up: a cranium, some teeth, some ribs, two vertebrae, two thighbones and an upper arm bone (Lie 1985, Indrelid 1996, p. 53); according to Sellevold and Skar (1999) the remains of a woman. One bone was ¹⁴C-dated to around 6900 BC, 7950±110 BP (T-2882) (Indrelid 1996, 53 footnote 28, Sellevold and Skar 1999, p. 8). It has been suggested that the individual might have drowned (Bang-Andersen 1983), or that the (dead) body might have been plunged into the sea (Lie 1985).

Burials of human bodies from caves and rock shelters

The records of finds of human remains from cultural layers in caves and rock shelters vary (Bergsvik and Storvik 2012). Common for all of these sites are the good preservation conditions for bone material due to the large amounts of shells in these layers.

Excavations in the Viste cave (no. 5) in 1907 yielded the skeletal remains of a juvenile individual, placed close to the rock wall in the rear of the cave (Brøgger 1908). The find, with one of the first known Stone Age humans from Scandinavia, was a sensation at its time. The context of the human remains was not documented on site. Later, it was reconstructed that they most likely were covered by a human-made shell layer (Brøgger 1908, Gjessing 1920, 76–77). The positioning of the body was described as possibly *half-sitting*, as the remains of the skull were recorded as having been higher up in the sediments than the leg bones (Brøgger

1908, p. 26–29). An osteological analysis by the renowned Swedish anthropologist C. M. Fürst (1909), who also took down oral accounts on the find situation, stated that the body was deposited in unscathed condition, with the head leaning against the rock wall, perhaps in a hocker position. Fürst did not, however, fully rule out that the corpse was just placed on the ground and then covered by the shell layer over time.⁴ The Viste skeleton was recently dated on bone to 6255–6025 cal. BC, corrected for the reservoir effect, 7537±39 BP (OxA-30405) (Schulting *et al.* 2016).

In the rock shelter Grønehelleren (no. 8) several burials were excavated in 1964 and 1966. These are described in Jansen (1972), although detailed plans, drawings or photos of the situation are missing. Skeleton I (*skjelett I*) was very well preserved and placed in a hocker position on its right side, in a pit parallel to the wall of the rock shelter (Jansen 1972, p. 58–59). It is dated to the Middle Neolithic (Bergsvik and Storvik 2012, 27 (no. 5), Indreliid 1996, 53 footnote 27), and thus not relevant here. Two teeth and a collarbone were found near to skeleton I (Jansen 1972, p. 61); their date is unclear. Not far from skeleton I the remains of at least three other individuals (Skeletons II–IV; *skjelett II–IV*) were found in a ‘pit’ (*nedgravning*) (Jansen 1972, p. 16–18). The unclear stratigraphic situation suggests either that the persons were buried at the same time because ‘they are touching each other’ (*da de berører hverandre*) or in several grave-pits (Jansen 1972, p. 18). Skeleton II, which was almost completely preserved and analysed as a woman in her forties, was placed on the left side, the legs flexed. Skeleton III, analysed as a man around 40 years of age, placed right beside skeleton II, was only partly preserved. Skeleton IV, of which only parts were preserved, was found under skeleton III. Skeleton II was dated to 5343–4686 cal. BC, 6080±140 BP (T-5847) (Bergsvik and Storvik 2012, p. 27 (no. 5), Indreliid 1996, 53 footnote 27), to the Late Mesolithic period. There is however some uncertainty about this dating.⁵ The case of the partly fragmentary Grønehelleren skeletons II–IV exhibits the classic dilemma of the interplay of preservation conditions and the question whether the bodies of the dead were intact when buried or whether they might have been manipulated before they came into the earth or after burial. Either way, at least the three individuals found in Grønehelleren, which might be of Mesolithic age (skeletons II, III and IV), seem to have been buried in one or more pits. The circumstances of the deposition of the Viste individual are more unclear: the body might have been buried in a pit – not identified – in the shell layers, it might have been left behind unburied in the cave, or the person might have even died in the cave without being buried – in these cases later covered by shells.

Graves on open-air settlements

Several open-air settlements have yielded human remains which were deposited in graves. On a coastal settlement dated to 6000–4700 cal. BC at Søndre Steghaugen (no. 4) 18 fragments of unburned human bones, including the fragments of a skull, fragments of a mandible and fragments of ribs of a child 2–4 years of age, were found in an agglomeration of hardpan of yellow-red sand and gravel delimited as structure S 44 with a size of 0.6 m × 1.4 m (Sellevold 2008, Åstveit 2008). Due to its Mesolithic context, the find was first supposed to be a Mesolithic grave with ochre. The bones (part of the jaw) were ¹⁴C-dated to between 1975 and 1880 cal. BC and were therefore interpreted as a Late Neolithic burial, being much later than the settlement (Åstveit 2008). A piece of charcoal which was placed directly into a bone fragment was however ¹⁴C-dated to 6230–6175 cal. BC, 7405±45 BP (TUa-4949).

No.	Site	14C-dating Lab.no.	BP	Cal BP	Cal BC	Standard deviation	δ13C	Approximate date BC	Dated on	Source
Middle Mesolithic										
1	Hummervikholmen	TRa-952	8850±65	9732-9368*		2σ	-13.4		occipital bone, human	Sellevoid/Skar 1999; Skar et al 2016; Günther et al. 2018 S1 Tab. S1.3.
		TUa-2107	8700±70	9524-9191*		2σ	-12.6		femur, human	Ibid.
		TRa-954	8690±50	9471-9225*		2σ	-13.0		cranial fragment, human (Hum 1)	Ibid.
		TRa-953	8680±85	9534-9125*		2σ	-13.2		tibia, human	Ibid.
		TRa-951	8665±100	9555-9065*		2σ	-13.0		frontal bone, human	Ibid.
		TUa-2106	8635±75	9462-9102*		2σ	-13.3		occipital bone, human	Ibid.
		TUa-1257	8600±95	9461-9011*		2σ	-13.4		cranial fragment (Hum 1), human	Ibid.
		TUa-2108	8455±75	9275-8895*		2σ	-12.9		tibia, human	Ibid.
		Ua-47892	8446±51		7589-7371	2σ	-14.5		cranium X90, human	Eggen/Nymoen 2014.
		Ua-47891	8394±55		7573-7342	2σ	-14.3		leg bone X84, human	Eggen/Nymoen 2014.
		TUa-2105	8095±55	8789-8441*			-13.6		frontal bone, human	Sellevoid/Skar 1999; Skar et al 2016; Günther et al. 2018 S1 Tab. S1.3.
2	Bleivik	T-2882	7950±110						Upper arm bone, human	Lie 1985; Indrelid 1996, 53 footnote 28.
Middle/Late Mesolithic										
3	Sævarhelleren	-	-	-	-			7000-5800	stratigraphy	Bergsvik/Storvik 2012, 29 (no. 10).

No.	Site	14C-dating Lab.no.	BP	Cal BP	Cal BC	Standard deviation	δ13C	Approximate date BC	Dated on	Source
Late Mesolithic										
4	Søndre Steghaugen	Tua-4949	7405±45		6230-6175				charcoal from filling	Åstveit 2008.
5a	Viste cave	OxA-30405	7537±39		6255-6025*	2σ	-14.7		long bone, human	Schulting et al. 2016.
5b	Viste cave	-	-		-			6800-5020	Stratigraphy	Fürst 1909 Fig. 3-5; Bergsvik/Storvik 2012, 31 (no. 22).
6	Brunstad	LuS-11115	7060±45		6018-5845	2σ			charcoal from grave-filling (A2400)	Schülke et al 2019; Reitan et al. 2019.
		UBA-28737	6943±44		5971-5731	2σ			charcoal from grave-filling (A2400)	Ibid.
		Beta-383181	7030±30		5989-5846	2σ			charcoal from grave-filling (A2400)	Ibid.
		UBA-28740	7067±37		6019-5881	2σ			from hearth A3185 cutting the grave-pit	Ibid.
7	Torpum 9b							5500-5300		Tørhaug 2003.
8a	Grønehelleren	T-5847	6080±140		5343-4686				bone (skeleton II), human	Jansen 1972; Indrelid 1996, 53 footnote 27; Bergsvik/Storvik 2012, 27 (no. 6).
8b	Grønehelleren	-	-		-				Stratigraphy	Jansen 1972
9	Skipshelleren	-	-		-			5200-4900	stratigrafi	Bergsvik/Storvik 2012, 27 (no. 8)
10	Gropbakkeengen	T-2159	6210±110		-				marine shell	Simonsen 1961, 182-183; Heliskog 1980.
11a	Sømmevågen	-	-		-			4000	typology	Denham 2016
11b	Sømmevågen	Beta-381097	5440±30		4460-4355	2σ	-15.9		arm bone	Denham 2016; Meling et al. 2020; Meling et al. in print.
12	Steigen	Beta-349961	5450±30		5950-5764*	2σ	-13.0		mandible, human	Günther et al. 2018, Supplement S1

* Corrected for the marine reservoir effect.

Figure 5: Dating of the find contexts with human bones

Considering the fact that bone material from Mesolithic graves can generally be difficult to date by radiocarbon (e.g. Kjällquist 2001, Reitan *et al.* 2019) the find at Søndre Stegshaugen might represent a Mesolithic burial and is therefore included here. The spatial placement of the bones is not described closely in the publication, but the bone agglomerations as shown in Åstveit 2008 (Fig. 3.998 and Fig. 3.301), with a distance of c. one metre between them, is rather long considering the body proportions of a child aged 2–4 years. This could indicate two deposits of bones/burials, or a later disturbance of the burial.

At Brunstad in Vestfold, human bone material was found in a grave (A2400) which was placed on a coastal Late Mesolithic settlement (no. 6). The archaeo-osteological analysis of the poorly preserved bone material, combined with the 3D-GIS reconstruction of the spatial placement of the bone elements, revealed that an adult individual was placed in an oval, east-west oriented grave-pit 1.5 m×1.1 m in size, the floor of which was partly lined with stones. Cranial fragments, including parts of the mandibula, rib bones, elements from the upper and lower extremities (arm, legs) and the right and the left side of the skeleton were represented (Schülke *et al.* 2019, Fig. 7 and Supplementary material 2). With the head to the east, the body was placed on the back in a half-sitting position, the head slightly bending forward. The legs to the west were extremely flexed, the knees laid to the left (Schülke *et al.* 2019) (Figure 6). No grave-goods were identified. The grave-pit was filled with different layers of filling material (Reitan *et al.* 2019, see below).

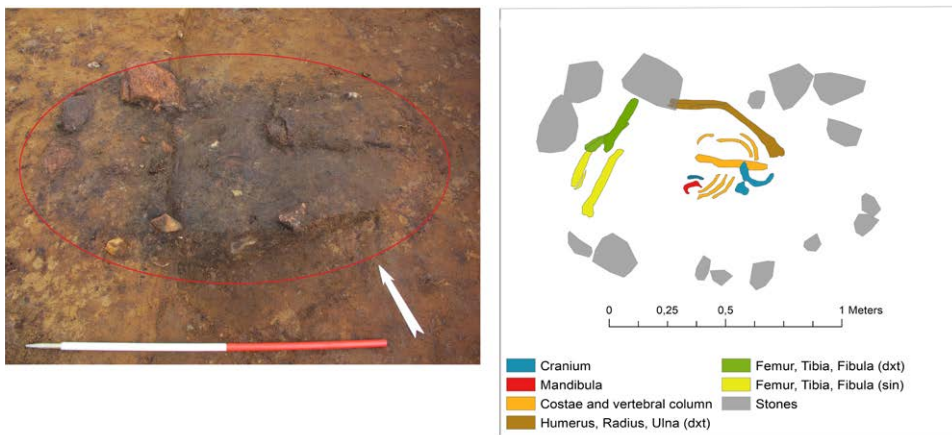


Figure 6: The grave (A2400) at Brunstad. Photo of the grave-pit in planum (to the left) before excavation of the bone material (here marked with a red circle), and map of the situation of the preserved bone material in the grave (to the right), after Schülke *et al.* (2019), indicating the burial of an adult individual in flexed/half-sitting position. Photo: G. Reitan, MCH, UiO; map: K. Eriksen, MCH, UiO.

The grave with bone material too poorly preserved for ^{14}C -dating is radiocarbon dated to around 5900 cal. BC on charcoal from the grave-filling: 7060±45 BP (LuS-11115), 7030±30 BP (Beta-383181), 6943±44 BP (UBA-28737) and from the hearth A3185 which cut the southern part of the grave, 7067±37 BP (UBA-28740) (Fig. 4, Reitan *et al.* 2019, Schülke *et al.* 2019).

On the Late Mesolithic coastal settlement site of Sømmevågen (no. 11) an east-west oriented oblong pit with the size of 1×2 m, delimited by stones, was found (Denham 2016). In its

western part fragments of human teeth and in its centre fragments of a human hip were recovered. They were identified as the remains of a 20- to 30-year-old individual. Denham (2016) argues that the positioning of the bones might indicate a stretched-out body position. However, the bone material is too fragmentary to assess the placement of the body. At the centre of the pit three stone axes and a stone chisel, typologically dated to the Late Mesolithic/ Early Neolithic transition were found. These date the grave to the years around 4000 BC. Around the grave, several fragments of animal bones were deposited, including the jawbone of a bear at the northeast and the hip of a seal at the northwest corner of the grave.

At the fringe of the Stone Age settlement of Gropbakkeengen in Finnmark (no. 10), three stone piles (*røyser*) were excavated (Simonsen 1961, p. 177–183). Only one of them, *røse C*, contained the remains of a body, the trace of the skeleton represented as a black lardy substance. Only one knee joint was preserved as bone material. The burial was placed in the stone pile, in a stone-free space (*et stenfrit gravrum*) which was irregular, almost three-sided, and framed with stones (Simonsen 1961, p. 182–183, for this and the following). The body, encompassed in a layer of sand, was deposited on a charcoal layer, which was placed on top of a compact mass of shells which had been spread on the natural gravel floor. The head was placed to the northeast, on its left side, the legs strongly flexed in a distinct hocker position. Two items of grave-goods were identified, an arrow made of hornfels and a piece of carved whalebone. The grave is radiocarbon dated to 6210±110 BP (T-2159) (Helskog 1980, p. 49).⁶

Single (loose) human bones from caves/rock shelters and open-air sites

Single human bones, also referred to as loose human bones, are found, in small quantities, at seven sites: in two caves (nos. 5b, 12), in three rock shelters (nos. 3, 8b, 9) and on two open-air settlements (nos. 7, 11b). Three of these sites have additionally yielded the remains of possible burials (nos. 5a, 8a, 11a).

Two finger bones and a metatarsal bone of an adult individual/adult individuals were found in the Mesolithic layers at Viste cave (no. 5b) (Fürst 1909, Figs. 3–5). From Grønehelleren some disarticulated bones are recorded, although it is unclear whether these are of Mesolithic date (no. 8b) (Bergsvik and Storvik 2012, p. 27). Furthermore the fragment of a human skull and a finger joint were found in Mesolithic layers at Sævarhelleren (Bergsvik and Storvik 2012, p. 29) (no. 3). Isolated human bones, all from the extremities such as foot, hand and finger, were found at different spots in Mesolithic layers at Skipshelleren (no. 9) (Bergsvik and Storvik 2012, p. 27).

At Steigen, on the exposed island of Måløya, in Nordland (no. 12), a well-preserved human mandible was found in 2013. About a hundred metres inside a cave it was deposited on a gravel floor close to a large boulder. The subsequent investigation of the surrounding floor did not yield any further finds; however, for safety reasons the boulder was not removed. Teeth from the jaw were dated to 5955–5763 cal. BP, 5450±30 BP (Beta-349961) corrected for the marine reservoir effect (Günther *et al.* 2018, Supplement S1; see also Fig. 4), that is, in the late part of the Mesolithic.

Given the excellent preservation conditions for bone material in the caves, these finds might actually attest that only a small number of such bones came into the ground here, probably representing other practices than inhumation.⁷

Loose human bones are likewise recorded from the open-air settlement of Sømmevågen (no. 11b). About 30 metres from the grave described above, several skeletal fragments of a human arm were found together with numerous animal bones in a Late Mesolithic trash heap. One bone fragment was ¹⁴C-dated to around 4400 cal. BC, 5440±30 BP (Beta-381097) (Meling *et al.* 2020; Meling *et al.* in press). The situation is interpreted as representing some kind of ritual, perhaps including the removal of bones from a grave; but it is all but certain that the arm bones are contemporaneous with the documented grave (Denham 2016).

On the Late Mesolithic settlement at Torpum 9b, Østfold (no. 7), three fragments of burnt human bone were found in a settlement layer (A2) just above a pit (A4) and a hearth (A2c); charcoal and hazelnut shells from the cultural layer and the structures are ¹⁴C-dated to around 6500–6375 BP (5500–5300 cal. BC) (Tørhaug 2003). These were formerly discussed as possible remains of *skeleton burials* (*skjelettbegravelser*) in a *mødding* (Glørstad 2004, p. 62–63; Glørstad 2010, p. 240–243). In the light of the above, these bones might represent human bones which were circulated amongst the living, and which were intentionally or unintentionally exposed to fire. But they could also be the remains of a destroyed (?) cremation grave.

Conclusion – Trends in the material

The study of the twelve Mesolithic sites with the remains of a minimum 19 individuals, including at least one child, one juvenile and several adults of both sexes, span a period of 4000 years. The qualitative and comparative study of these contexts exhibits the following trends:

- All of the sites are located at the coast. They encompass caves/rock shelters, open-air sites, a former wetland and a possibly transgressed site.
- A variety of types of deposition and treatment of the dead is observed, including burials on open-air sites, burials or depositions in rock shelters/caves, the deposition of dead (?) bodies or body parts in saltwater, and single (loose) human bones deposited on activity areas – either in the open-air or in rock shelters/caves.
- The one deposition in a wetland is dated to the Middle Mesolithic period, while graves are first documented from the Late Mesolithic period.
- In four cases the burial of intact bodies seems likely. Three of these (nos. 6, 8a [skeleton II], 10), possibly four (no. 5a), were arranged in a flexed body position.
- Grave-goods are only recorded for the youngest burials (nos. 10, 11a).
- Single burials seem to prevail (nos. 4, 6, 11a and probably 5a), but places with several burials exist (no. 8a; no. 10).
- A marking of the burial above ground is observed in two cases (no. 6: a hearth; no. 10: a stone pile).
- The deposition of different types of bones can be observed in different contexts. Beside the remains of supposedly integrated bodies, the finds of single human bones in well-preserved contexts support varieties of the treatment of the dead.

These trends testify to diverse ways of dealing with and handling the dead, their bodies and remains, which indicate a range of possible mortuary practices.

Discussion: Aspects of Mesolithic mortuary practices from Norway in a Northern European perspective

In the second part of this paper, several aspects and temporalities of mortuary practice observed in the Norwegian material will be discussed against the backdrop of the theoretical background introduced above and in the light of evidence from Northern Europe. Generally, the Norwegian finds with Mesolithic human bones exhibit material expressions which also are known from other parts of Scandinavia and the Baltic region (see e.g. Bugajska 2014).

Hollows, earth, settlement debris and water: Depositing the dead as practical engagement with different elements

Mesolithic people activated suitable surroundings when placing the dead. In many areas of Europe existing natural bedrock hollows (caves and rock shelters) were purposefully used for the deposition of human remains, such as in Western, Central and Southern Europe, while a large number of inhumations from open-air sites are known, especially from the Central and Northern European plains, where light and deep (moraine or limestone) soils prevail, including Denmark and Southern Sweden (Grünberg 2000 Abb. 7). Burials in human-made shell middens occur in the areas where these are common – mainly along the Atlantic façade (Grünberg 2000 Abb. 7).

The depositional context of the dead, their bodies or body parts shows engagement with different natural or cultural elements, which is also observed in other areas (Conneller 2007, Bugajska 2014, Törv 2016). The Norwegian finds of human remains from the Mesolithic exhibit a variety of locations: caves/rock shelters which in most of the cases also were used for settlement, open-air sites and saltwater (Figure 7).

	Cave/rockshelter	Open-air site	Saltwater
Settlement/ cultural layers	nos. 3, 4, 5a, 5b, 8a, 8b, 9	nos. 6, 7, 10, 11a, 11b	
No settlement remains	no. 12	no. 1	no. 2

Figure 7: The relation of finds of human bones to natural and cultural elements. Loose human bones are marked in red, unequivocal graves in blue.

The rocky and often steep coastal façades of the west/northwest Norwegian coast, including mainland, fjords and islands, provided natural hollows or overhangs, which offered not only shelter or hiding possibilities for the living, but also natural spaces for depositing the dead. Except for the Steigen find, the human remains from caves/rock shelters are found in connection with artificial cultural layers including shells and settlement debris (Figure 7). These provided good conditions for digging grave-pits. Graves in shell middens have parallels in Western Europe, especially along the Atlantic façade, where this form of burial seems to be an important ritual phenomenon, e.g. in the Sado valley in Portugal (Peyroteo-Stjerna 2016), or on the French islands of Téviec (Péquart *et al.* 1937, p. 25–70) and Hoëdic (Péquart and Péquart 1954).

However, places with deeper sandy soils were also used to dig pits to bury a dead body, such as Brunstad and Sømmevågen. To find places with the right conditions was most likely more

difficult than it might seem at first sight. Still today, and especially along the coast, most areas are characterized by rather thin layers of soil (10–30 cm) on bedrock. This would have been even more pronounced in the Mesolithic period, when, in the course of the complicated land-upheaval processes, the drying out of seabeds first started to advance with former seabeds turning into dry land at paces which showed great regional variation (e.g. Schülke 2020). Thus, digging of a pit deep enough for the inhumation of an intact adult body would only have been practicable at specific places, such as e.g. provided at the open settlement sites with graves. Even in later times, burials in rock clefts, which provided natural hollows, are common (e.g. Glørstad and Wenn 2013), and the covering of burials with stone piles (*røyser*) is a common practice, as e.g. also observed at Gropbakkeengen. Even the placement of today's churchyards/grave-fields, often in depressions close to wetlands, where sediments are deep enough to dig a grave, reflect this (Fig. 8). They often consist of marine deposits of blue clay formed in the last few millennia. Due to their conserving effects and their tendency to collapse easily, these sediments face today's gravediggers with a number of practical challenges (Krüger and Solbu 2019).

The finds of human bones from a former silted-up seabed at Bleivik most likely represent a specific mortuary practice (see below), while it cannot be fully ruled out that it represented an accident such as drowning. Depositions of human bones in wetlands are known from other parts of Northern Europe in the Mesolithic period (Grøn and Skaarup 1993, Sjögren and Ahlström 2016). Bugajska (2014, p. 69) observes that human bones/bodies deposited in water/wetlands from Scandinavia might – together with cremations – belong to the earliest Mesolithic burial types.

The material qualities and idiosyncrasies of these places, with hollows, earth, (salt)water, and settlement debris, involved different practical aspects which in some way or other must have been part of the mortuary practices involved. The question is of course whether these places were chosen because their meaning was important, or simply because they were practical to deal with. Most likely these also had different symbolic, cosmological or social meanings (Conneller 2007, Bergsvik and Storvik 2012, Schulting 2016). Elements that the corpse/body parts would be placed in would be on the one hand either solid (earth, settlement debris) or fluid (water), on the other hand fully enclosing (earth/cultural debris) or openly enclosing (cave, rock shelter).

Engaging with these would require different practices for depositing a body/body parts. Amongst these are (a) throwing/drowning into the water, (b) digging a hole, (c) depositing in a dug-out hollow or in a cave/rock shelter, (d) filling up a hole with specific materials, as e.g. in the case of Brunstad (see below). These practices would include bodily experiences and tools. The act of digging, probably with digging tools, would imply an intrusion into the ground, a practice which is not regularly conducted in Southeast Norwegian Mesolithic contexts (but see Achard-Corompt *et al.* 2017). Another question is whether the burial happened at the place where the person had died, which is often observed in hunter-gatherer communities (Littleton 2007, Struve 2016). But it is also conceivable that in some cases a dead was transported to a convenient place for burial; this could e.g. be the case for the dead that were buried on sites which were repeatedly used as such (see below). This might have been the case at Brunstad with its most suitable conditions for burying a body: If the buried person did not die on the rather small island, the corpse would have had to be transported to the island by boat (Schülke

et al. 2019). This opens up for thinking about burial rituals, e.g. with regard to how regulated such a boat crossing would be, considering the people participating, the use of specific (?) vessel/boat or other items related to the burial, and so on.



Figure 8: The spatial placement of modern graveyards in Southeast Norway – typically in the area of former marine deposits – is related to their qualities as places with soil deep enough to dig a grave. Example: Klemetsrud, Oslo. Photo: A Schülke.

Placing the dead: The living and the dead intertwined

Most of the finds with Mesolithic human remains from Norway stem from sites which have primarily yielded settlement material, all placed along the coast at their time. The places where the dead or parts of their bodies were deposited reflect mobility networks and areas of communication and movement of the living communities, be it along the coastal mainland, fjords, on islands, or even offshore. Most of these coastal areas are however also those which today are most densely inhabited and thus developed, archaeologically surveyed and excavated in recent years. Therefore, a certain bias of the coastal affiliation of the sites with human remains needs to be considered, together with the placement of the graves on settlements, as these represent the find-rich spots where archaeologists dig. The coast might have had ambivalent meanings, featuring as the edge of the (living) world and as the centre of life, and its potential cosmological role has been stressed (Larsson 2003, Bergsvik 2009, Sørensen 2016).

The graves, which all date to the Late Mesolithic, are either placed in cultural layers in caves or on open-air settlements (Fig. 4 and 7). Graves on or directly beside settlements are common in Scandinavia and the Baltic area, such as at Vedbæk, Tågerup, Skateholm, Strandvägen or Zvejnieki (Kjällquist 2001, Larsson 2003, Larsson and Zagorska 2006, Brinch Petersen 2015, Gummesson and Molin 2016), but there are also exceptions (e.g. Terberger *et al.* 2015), also for some west Swedish sites (Sjögren and Ahlström 2016). The large Mesolithic burial sites of Northern Europe such as Zvejnieki, Vedbæk or Strandvägen were assembled throughout hundreds of years as revealed by radiocarbon dating (Zagorska 2006, Brinch Petersen 2015, p. 110–125, Gummesson and Molin 2016). These places surely had functions as important anchor points for the living communities, and the repeated return to bury people at these sites, even after long time-spans, indicates that they were actively remembered for generations (Larsson *et al.* 2017, Ahola 2018). That the memories of burial sites might have been passed on might also have been the case for sites with just a few repeated burials (Kjällquist 2001, Terberger *et al.* 2015, Sjögren and Ahlström 2016), even though coincidental repeated placing at certain favourable spots cannot be ruled out (Littleton 2007).

The Norwegian situation with mainly single burials and a few places with the sequential burial of several individuals is similar to the Western Swedish evidence (Sjögren and Ahlström 2016). However, places with just one burial also allow us to think about the relations of the living communities to these. The grave at Brunstad (no. 6, Figure 9) provides valuable insights into the intentions behind and the accomplishment of mortuary practices on an existing settlement. It was erected around 5900 cal. BC at the fringe of a shore-based Late Mesolithic island settlement spread out on two plateaus (lok. 24 and lok. 25), which by that time had already been frequented for some centuries. The placement of the grave-pit (A2400) was meticulously chosen, geometrically arranged in a sheltered position right between two south-north oriented rocky outcrops, where the soil was deep enough to dig a pit deep that could house a flexed and half-sitting body (see above and Schülke *et al.* 2019). Different materials were used to fill the pit, which might have been important to ideally create a connection between the grave and the surroundings (Reitan *et al.* 2019): the corpse was covered with sand, a loose stone packing was placed on top, and finally the hollows and the top of the pit were filled up with settlement debris. Afterwards a hearth/cooking pit (A3185) was cut into the top of the grave on its southern side. The temporal closeness of the radiocarbon dates from the grave filling and from the hearth (all on charcoal; see Fig. 5) suggests that the hearth was dug not long after the grave had been filled (Schülke *et al.* 2019). This prompts the assumption that the hearth might be connected to practices/ritual related to the burial, performed relatively shortly after, either by people who knew of/remembered/were attached to the grave or by those who recognized it as a grave. Hearths close to or on Mesolithic graves are recognized in other areas (Schülke *et al.* 2019 with further literature). The radiocarbon dates of other hearths and structures at Brunstad show that the settlement area was reoccupied several times after the grave was erected – up to around 5600 cal. BC (Reitan *et al.* 2019; Schülke *et al.* 2019) (Figure 9).

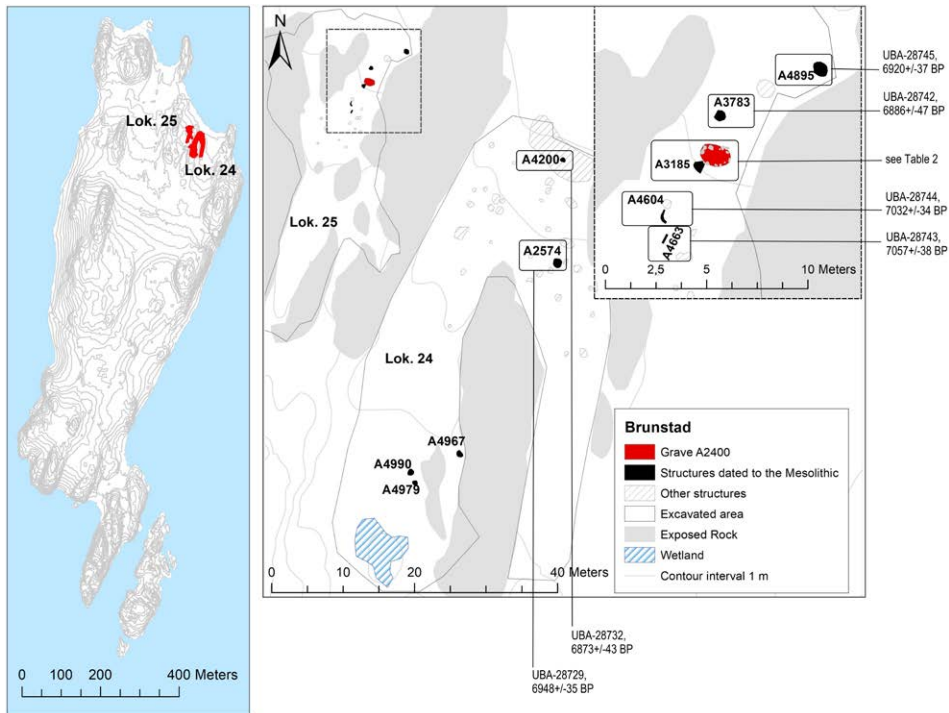


Figure 9: The spatial placement of the grave A2400 at Brunstad. The use of lok. 24 and 25 before and around the time of the creation of the grave, and later re-visits are documented by 14C-dated structures. Contemporaneous and later visits are marked in the figure (according to Schülke *et al.* 2019; Reitan *et al.* 2019). Most of the structures that are marked as “other structures” most likely also date to the Mesolithic. Illustration: A. Schülke, based on maps by K. Eriksen, MCH, UiO.

The question is whether these later structures represent targeted revisits to the site which included an act of memorizing the grave, or whether the reoccupations were coincidental – maybe not even visited by the same group (see Schülke *et al.* 2019). Ethnographic sources attest that hunter-gatherers leave places after someone has died/is buried there (Knutsson 1995, p. 66, Littleton 2007). It might therefore be that the site was abandoned directly after the burial and related rituals at the grave, and only revisited after some years/generations.

Burying and getting buried: Body position of the dead, adornment and other features

Considering the low number of finds one can proceed from the assumption that burials of integrated bodies were practised only in specific cases in the Mesolithic period; most people would have been buried/treated in death otherwise, probably in ways that are not archaeologically visible (Nilsson Stutz 2014, Lødøen 2015, Gramsch 2016, Törv 2016). However, in which cases which custom would have been practised – e.g. in certain circumstances of death, for persons with certain qualities, at certain places – is difficult to determine as so far there is no substantial comparable material of individuals that were not buried.

All the inhumations of more or less intact bodies from Norway show a flexed body position, with either possible hocker positions (nos. 5a, 8a, 10), and a case of a half-sitting position with extremely flexed legs (no. 6). Graves with bodies in flexed/sitting positions occur across all of Europe (Grünberg 2008). They are especially typical along the Swedish coast, where they mostly occur as single burials. The earliest stem from the Middle Mesolithic, with graves such as Österöd, Skibevall (both in Bohuslän), Vannborga (Åland), Barum/Bäckaskog (Skåne) and Kambs (Gotland), while Stora Bjers/Stenkyrka 30 (Gotland) and Uleberg (in Bohuslän, with two individuals in flexed position) are dated to the Late Mesolithic, respectively to between c. 6000 BC and 5700 BC (Sjögren and Ahlström 2016, Alexandersson *et al.* 2018). This indicates that the flexed body position was, from the Middle Mesolithic onwards, a rather common position for inhumations in the region stretching from the west of Sweden and further north into Norway.

Though burials in flexed/sitting positions occur, with or without grave-goods, across Europe in the Mesolithic, some researchers have argued that they could represent graves of special people – ‘ritual specialists’ according to their grave adornments (Zvelebil 2008, Alexandersson *et al.* 2018). There are also ethnographic examples that shamans, chieftains, warriors or saints are buried in sitting position (Grünberg 2008). Bodies that are buried in flexed/sitting/half-sitting positions occur however in larger numbers in the graves in shell middens along the Atlantic façade (Péquart *et al.* 1937, Péquart and Péquart 1954, Peyroteo-Stjerna 2017). To study possible ideas behind these flexed burials must be a future comparative research task.

While grave-goods are common in many Mesolithic graves, and known from places such as Zvejnieki in Latvia (Zagorskis 2004) and Vedbæk on Zealand (Brinch Petersen 2016), there are also many examples of burials which, like most of the Norwegian ones, have not yielded grave-goods, or where grave-goods (e.g. of organic material) are not preserved, especially from Swedish sites such as Skateholm, Tägerup and Strandvägen (for an overview see Bugajska 2014, Tab. 6, and p. 66–67, Gummesson and Molin 2016). However, fillings of burial pits with settlement debris could have been part of an important grave-ritual (Kjällquist 2001, Reitan *et al.* 2019).

The covering or embedding of the dead in ochre was important in many parts of Europe (e.g. Zagorska 2016, Brinch Petersen 2015). In Finland, where – as in Norway – acid soils have not preserved bone material, the red colour of ochre is used to identify Stone Age graves (Mökkönen 2013, Ahola 2015). At the same time, ochre is also absent from many grave-finds in Scandinavia (Bugajska 2014 tab. 9 and p. 66). In South Norway, however, ochre is found on quite a number of settlement sites (Bang-Andersen 1982). Patches of ochre were observed in Skipshelleren, where there also are found a few single human bones (Indrelid 1996, p. 56–57, Bergsvik and Storvik 2012, no. 8), in Grønehelleren (Bang-Andersen 1982, 61, Indrelid 1996, p. 57), and probably also at Søndre Steghaugen (Åstveit 2008).

Mesolithic cremation graves are known from Northern Europe, in some cases even with grave-goods in the form of flint artefacts (e.g. Eriksen and Andersen 2016, Niekus *et al.* 2016,

Bugajska 2014, p. 65–64). Such finds are not known from Norway; only Torpum 9b (no. 7) might represent remains of a cremation. As bone material usually is badly preserved in the region, surviving elements of possible cremations, such as charcoal or lithic artefacts, would usually be interpreted as remains of settlements.

Disarticulation of human bodies and deposition and circulation of specific bones

Single finds of human bones from caves/rock shelters and from open-air sites in Norway bear witness to other types of treatment of the dead than burying them in the ground or in cultural layers. Such isolated or loose human bones occur on many Mesolithic settlement sites in other regions and have recently received enhanced attention in the discussion of Mesolithic mortuary practices, beyond earlier ideas of cannibalism, with renewed interest in the multi-phased treatment of corpses including the disarticulation of human bodies, either through targeted decomposition (e.g. through elevation), or through targeted defleshing/fragmentation of the bodies (e.g. Conneller 2007, Gray Jones 2011, Brinch Petersen 2016). Ethnographic examples show that human bones are used amongst the living, e.g. as talismans, mediating the ancestor's special abilities to the living (Brinch Petersen 2016). Trond Lødøen (2015) has put forward the idea that specific steps of such possible multi-phased treatment of corpses might be depicted in western Norwegian rock art. Encompassing manipulation and multi-phased treatment of corpses is documented, for example, for hunter-gatherer burials at Dudka, northeast Poland, where graves were manipulated by taking out bones which later were reburied in other pits (Bugajska and Gumiński 2016).

The phenomenon of loose human bones is also observed in southern Scandinavia (e.g. Brinch Petersen 2016, Sørensen 2016). In western Sweden such single bones occur at the Middle Mesolithic sites Huseby Klev (Kashuba *et al.* 2019), Sandarna and Stora Förvar (Günther *et al.* 2018 supplement S1), and the Late Mesolithic sites Rottjärnslid (Sjögren and Ahlström 2016) and Dammen (Schaller 2007).

Fragmentation of human bodies, which indicates a circulation of human bones among the living, could be identified at several Norwegian sites. Smaller extremity bones (e.g. finger and hand bones) stem from preserved cultural layers or activity areas on settlement sites, both open-air and in rock shelters/caves (Viste, Sævarhelleren and Skipshelleren). Caves and rock shelters provided good preservation conditions for bone material, and thus the finds of smaller human extremity bones might represent a deposition of precisely these types of bones amongst the living – after circulation. But even the Middle Mesolithic wetland sites (Bleivik and Hummervikholmen) could indicate such practices. Both have yielded long bones and/or whole or partial crania. Taphonomic problems need to be considered for these sites, including circumstances of discovery or excavation methods or bioturbation. Smaller extremity bones could have been more easily washed out or re-located underwater and thus could be more difficult to find or even unfindable in the excavated material, even it was meticulously sieved as at Hummervikholmen.

One interesting aspect which might strengthen this idea is the presence or absence of mandibles amongst the bones at Bleivik and Hummervikholmen. Mandibles are documented for most of the grave-contexts (nos. 4, 5a, 6, 8a), even though the evidence is fragmentary. Amongst the three skulls/cranial fragments found in the 1990s at Hummervikholmen no mandibles were present (see Sellevold and Skar 1999, Fig. 2), and the bones dug up in 2013 likewise did

not include remains of mandibles (Eggen and Nymoen 2014, Fig. 21). Nor does the Bleivik find contain remains of a mandible. At Steigen, on the contrary, a single human mandible was found. The Steigen find, although much later than the two other contexts, shows that (some of) the bones of the dead could be recirculated amongst the living – even though the time of deposition in the cave is not dated; this could in principle have been much later. This find might help us to better understand the Hummervikholmen and Bleivik contexts. They could represent assemblages of bone material, which already had undergone a treatment which led to defleshing, such as decomposition through elevation, before they were deposited in the water (Bleivik) or before they were taken by the sea (Hummervikholmen). The find at Hummervikholmen could therefore represent a transgressed storage place for selected human bones/manipulated bodies, and as such be an important source for mortuary ritual. This could match with the ^{14}C -dates which are not completely “contemporary” (Figure 5, see also Skar *et al.* 2016, Table 14.1, Günter *et al.* 2018, S1, p. 16). It could indicate that specific human bones of individuals who had died at different times were placed in a type of storage/bone house/shrine, while the bones that were not deposited there might have been re-used by the living (and maybe came into the ground at some other place). This storage place could then have been transgressed, and embedded in the sea-floor. An encompassing archaeo-osteological analysis of the bone material is necessary to further investigate these issues, for example related to cause of death, life histories, possible marks of parting bodies, scalping etc.

The special treatment of skulls in Mesolithic death ritual is a widespread phenomenon, and the removal of the cranium and mandible after the decay of flesh, muscles and ligaments is documented across Europe – in some cases with marks left by scalping (Conneller 2007, Gray Jones 2011, Schulting 2015, with overview). At the wetland site of Kanaljorden, Motala, east-central Sweden, c. 8000–7500 cal. BP, a carefully planned complex deposition of crania of at least ten human individuals, dislodged from the body and without mandibles was found together with animal bones; the crania were placed on wooden sticks stuck into a stone pavement in a little wetland (Gummeson *et al.* 2018). The archaeo-osteological analysis revealed that this mortuary ritual was conducted for a specific group of people who had received trauma to the head before death (Gummeson *et al.* 2019). What happened to the rest of the bodies and the mandibles of the Kanaljorden individuals is not known. Schulting (2015, p. 27) mentions examples from the Mesolithic sites of Lepenski Vir, Serbia, where the mandible of a woman was placed around a large stone-set hearth in building no. 40, according to Schulting *together with a series of vertically set stone slabs mimicking the mandible’s triangular shape* (after Srejović 1972, p. 199, Fig. 64). As mandibles of the ancestors they might have had important symbolic significance with special powers and might have been used in rituals. The mandibles of animals also play a role in Mesolithic depositional practices. They occur in graves, amongst others on South Scandinavian sites such as Bøgebakken and Gøngehusevej in Vedbæk, Zealand, and Tågerup and Skateholm I and II in Scania, and as ritual depositions on the coastal site of Syltholm, Lolland (Sørensen 2020, with further literature). In this context it is interesting to note that one of the animal bones placed at the corners of the Late Mesolithic grave at Sømmevågen was the mandible of a bear (Denham 2016). Conneller (2007) suggests that the difference between humans and animals might not have been this distinct in hunter-gatherer communities.

A difference between death cult and ancestor cult and their different social significance for the community of the living has been pointed out (Pfälzner 2001). Ethnographic observations

from West Africa show that bones of individuals with special skills were often used in ancestor cults (Pfälzner 2001). While death cult regulates the passage of a living individual into this person's existence in the realm of the dead, ancestor cults are performed as integral and recurrent parts of living communities (Pfälzner 2001). Even though both can be materially intertwined, e.g. when graves are turned into places of ancestor cult, this division can be good to think with in our context. Loose human bones, from caves/cave settlements or open-air settlements, could therefore be regarded as remnants of an ancestor cult. Several possibilities as to why they ended up at the respective find spots are conceivable: they might simply have been lost, they might have been part of a – now decayed – shrine or altar (see e.g. Pfälzner 2001), or they might have been, as single objects that were ascribed special power, intentionally deposited at a location with a special significance. The latter is likely for Steigen (no. 12), where the mandible was placed deep in a large cave on an offshore island in the outer Archipelago of Nordland.

Conclusion and perspectives

This study of twelve contexts with human bones dated to the Mesolithic period from Norway shows that there was a broad span of practices for how the dead and their material remains were handled. The find material indicates inhumation of more or less complete bodies, but also hints at other practices such as the deposition of selected human bones and the circulation of single bones including larger (e.g. mandible) and smaller bones (extremities). This attests to multi-phased treatments of corpses, which could include elevation and decomposition. In chronological terms the few finds attest that practices which included the deposition and circulation of selected bones started in the Middle Mesolithic, while graves first occur in the Late Mesolithic period. As regards mortuary practices in Northern Europe in general, however, this picture is likely to change with any future find.

The situation with the existence of one or a few burials at one place, of wetland depositions and of loose human bones, is thus not very different from what is known from other parts of Northern Scandinavia, especially from Western Sweden.

The traits of burial and mortuary practice identified in this study will hopefully enable recognition of future finds. Together with the significant growth of knowledge about the Mesolithic period in Norway in recent years, these will help to discuss mortuary practices, rituals and ancestor cult in relation to potential social developments – in spatial and temporal terms. This can also pave the way for a revision of the structures/contexts without human bones, which are interpreted as settlement finds or deposits, which could indicate mortuary practices. A revision of bone finds from Mesolithic settlement sites will most likely also reveal other contexts with loose human bones.

Identifying future finds will lie at the intersection of understanding the actually practised mortuary ritual in the past, of hitherto identified archaeological criteria for Mesolithic mortuary ritual in the present, and of matters of decay and preservation. Favourable conditions such as natural shell banks, as known for western Sweden, or the cultural layers containing shells in the western Norwegian caves, have led to the preservation of human bones on precisely these sites, and might bias the picture. Also, wetland finds of bones are most likely to be better visible than other possible depositions of bones in acid soils, which now are decayed.

The conclusion that very likely only few people actually were buried, while most of them were

treated in different ways in death, is most relevant for the ongoing discussion of demographic topics. This relates to the reconstruction of population sizes, but also to the question of migration and cultural contact, which is discussed in DNA studies regarding genetic origin (e.g. Günther *et al.* 2019) or isotope analysis, regarding mobility patterns (e.g. Kjällquist and Price 2019). We have to be aware of the DNA of who we analyse, and who/which people might not be represented in such material today. The analysis of loose human bones might help in these matters, but here too it is important to be aware that the human bone material that is preserved today might be a cultural selection; and that much of it could be missing due to e.g. carnivore activity, practices of bone-crushing or deposition at places where it would be difficult, due to poor preservation conditions, to identify finds of Mesolithic human bones.

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Endnotes

1 The finds of human remains from a wetland at Bønes-Kyrkjetangen south of Bergen, found in 2015, are about to be published and are therefore not further discussed in this article.

2 See references in Figure 4.

3 Numbers here and in the following according to Figure 4.

4 The reconstruction at AmS today (see e.g. Schulting *et al.* 2016 fig. 1) is thus an attempt to illustrate the situation.

5 The bone material that was sampled had been treated chemically for conservation – e-mail of 2 June 2020 from Knut Andreas Bergsvik to the author.

6 A dating which would be classified as Neolithic in Northern Norway.

7 However, not all of the dugout masses at these sites were sieved (Bergsvik/Storvik 2012 Table 3.1).

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In this volume, 10 papers from the Stone Age Conference in Bergen 2017 are presented. They range thematically from the earliest pioneer phase in the Mesolithic to the Neolithic and Bronze Age in the high mountains. The papers discuss new research and methodological developments showing a diverse and dynamic Stone Age research community in Norway.



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