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University of Bergen Archaeological Series

The Stone Age Conference in Bergen 2017

Dag Erik Færø Olsen (ed.)

UNIVERSITY OF BERGEN

12

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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 explorers 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 ^{14}C-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 Færø 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. Kjel 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 Nærøy (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:

Bergen University fund (UiB), University Museum of Bergen (UiB), Museum of Cultural History (UiO), Museum of archaeology, University of Stavanger (UiS), The Arctic University of Norway (UiT), NTNU University Museum, Department of Archaeology, History, Cultural Studies and Religion (UiB), and the Directorate for Cultural Heritage (Riksantikvaren). Without this support it would not have been possible to organize the conference. The Museum of Cultural History also contributed generously towards the production of the book.

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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Krister Scheie Eilertsen

The Tananger-hut – A contribution to the diversity of settlement structures in the Early Neolithic in Southwestern Norway

Complex composite structural remains are rarely encountered on sites from the earlier parts of the younger Stone Age (4000–2300 BC) in southwestern Norway. This hut, an Early Neolithic structure unearthed at Tananger on the coast of southwestern Norway is presented in this article. Its architectural elements and associated lithic and macrofossil assemblages suggests that the structure is a hut functioning as a short-term living space. While there are strong indications that this activity dates to the Early Neolithic the results of carbon dating are contradicting. However, there are also problems with this interpretation. Contradicting ^{14}C results challenge the huts age, making it crucial to analyse surrounding archaeological finds and the dwellings constructive elements to give a complete interpretation. I will highlight some of the questions this feature rises concerning function and social significance primarily within the stated period.

This example will therefore highlight and expand our knowledge of Early Neolithic dwellings. Analysis of lithic artefacts and archaeobotanical material from the site provide insight into settlement patterns and the economy in this period. Sheltered from wind by turf walls dug down into the sand this structure gives the impression of representing a short-term living space used primarily for hunting and gathering activities in the Early Neolithic. The Tananger-hut has several similarities regarding shape, size and lithic assemblage with Early Neolithic structures from settlements, in southern Sweden, Denmark as well as other areas of northern Europe where agriculture was the primary means of subsistence.

Introduction

During the summer of 2015, an area approximately 13,500 m² was investigated in connection with the Tanangervegen road development project in Tananger, Sola municipality, Rogaland County (Fig. 1).

The project discovered several house structures and activity areas in close proximity to one another reflecting activity in this area from the Late Mesolithic to the Roman Iron age. Amongst the most substantial discoveries were a Late Mesolithic cultural layer, several longhouses dating to the Bronze Age, and occupational features going into the Roman period.

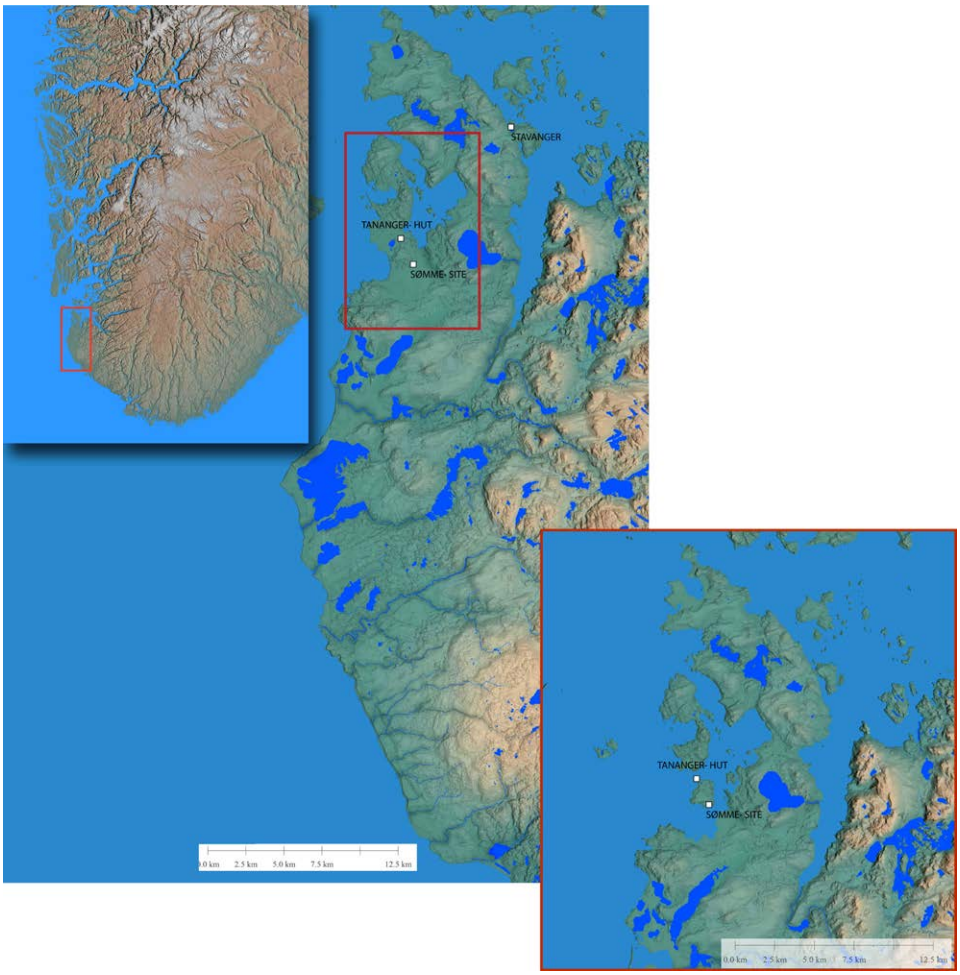

***Figure 1**: Map over Jæren and Tananger peninsula, Tananger area shown at the bottom right (shoreline at 7 m.a.s.l). Map: Theo Gil, AM/UiS.*

This article presents the results from the excavation as well as discussing problems with interpreting and dating the hut. The excavation aimed at ascertaining the character of this dwelling in order to explore how the remains of a hut of this type might materialize in the archaeological record in this area.

At Tananger, the conditions for the preservation of archaeological remains are exceptionally good compared to more exposed sites along the Norwegian coast due to the Aeolian sand-cover that cover some sites along the coast (Prøsch-Danielsen and Selsing 2009). The recently excavated Sømme site is a good example of this where vast amounts of organic material such as bone- and wood- artefacts were retrieved (Denham 2016, Meling 2016). Some of the country's earliest ^{14}C dates on cereal and the biggest collection known of Late Neolithic two-isled houses in Norway are recorded in the Tananger area (Eilertsen *et al.* 2018, Fyllingen and Armstrong 2012, Soltvedt in prep.).

During the last decades a number of settlement sites dating to both the Late Mesolithic and Early Neolithic have been unearthed along the west coast of Norway (Bjerck *et al.* 2008, Åstveit 2009, Eilertsen 2016, Meling 2016, Eilertsen *et al*. 2018, Dugstad *et al*. 2018,). Most are open sites comprised of large amounts of lithic scatters, but with few indications of more complex dwelling features.

In this article, I will be using the term *hut* as defined by Fretheim (2017) when describing this structure. Fretheim uses the term *house* when discussing dwellings that are more permanent. Dwellings that are not considered as permanent and have a lower degree of time-investment include tents and huts. Tents are portable dwellings while huts are more stationary but provisional dwellings (Fretheim, 2017). Although Fretheim uses the term in a Mesolithic context, many economic and social complexions continue into the Early Neolithic (4000–3300 BC (Bergsvik 2001b, Midtbø *et al*. 2011), the definition is therefore applicable to this period as well.

The hut

After the plough-soil was removed, a dark brown-grey, rectangular area measuring approximately 5 x 5.5 m became visible (Fig. 2). This feature somewhat resembled a tree-throw, and its cultural origin was initially questioned. However, the presence of flint artefacts within the top layers of the feature's deposit led us to examine it further. These were all surface finds from the feature. The plough-soil was not sieved for artefacts.

***Figure 2**: The hut after topsoil removal. Photo: Krister Scheie Eilertsen, AM/UiS.*

During the Mesolithic and most of the Neolithic period, the Tananger area consisted of a series of islands. For the duration of the site's occupational phase it was situated on a headland protruding from the northwestern end of a large island. Placed at the western end of a beach it would have been a shore-bound locality, whereas today it is approximately 7.5 m.a.s.l. (Fig. 1).

The structure seemed to have been partially cut into the former beach. Its subterranean character provides functional evidence for interpreting the feature and has been a crucial factor leading to its preservation. It also answers the question as to why we seldom, or never, uncover structures of this character. Tananger and the adjacent area is in varying degree dominated by Aeolian sand caused by wind moving fine sediments from the surrounding shores and beaches (Prøsch-Danielsen and Selsing 2009).

The feature was found to consist of several structural elements, such as remnants from walls, posts and stakes, which comprise a complex structure interpreted as a hut. The outer walls consisted of turf, much of which was still visible and possible to distinguish and sample during the excavation (Fig. 3). Situated on gently sloping ground, the structure's back wall was cut 70 cm into the sand and the front wall 20 cm. This enabled the builders of the hut to establish an approximately levelled floor with an extent of approximately 17.5 m². Although there is no explicit evidence for an entrance, it is presumed that it would have been located at the north end of the hut facing the contemporary shoreline (Eilertsen *et al*. 2018).

Situated on this weathered outpost on an island facing the North Sea, the winds can at times be devastating. We can assume that the top parts of the feature have been influenced or removed by modern day farming, but the lower parts showed high degree of preservation. Not only would creating a pit dwelling with a sunken floor provide the occupants with protection from wind and the mentioned Aeolian sand, it may also have contributed to preserving the lower parts of the feature itself from being ploughed away by modern farming.

***Figure 3**: Mid-excavation overview of the hut with some of the structural elements highlighted. Mosaic: Krister Scheie Eilertsen, AM/UiS.*

Structural components: hearths, walls and postholes

Although no stones were discovered, two circular features were initially interpreted as the remains of fireplaces. They were approximately 50 cm in diameter consisting mainly of sand, ash and small pieces of charcoal. However, ^{14}C dating of these features returned dates of

925 ± 40 BP (UBA-31930) and 941 ± 25 BP (UBA-33234) (Fig. 7), demonstrating that they are probably a result of activity at the site during the Viking age. No additional hearths were identified during the investigation.

Twelve circular features were discovered in the centre of the hut and along some of the wall sections. In spite of their shallow depth, these are interpreted as the remains of post-/stake-holes that would have supported the roof of the hut. The character of these features could reflect seasonal usage of the hut where replacement or maintenance of posts would have been necessary (Fig. 3 and 5).

The most prominent feature of the hut is brown, compact deposits of turf interpreted as the remains of walls. An outer turf wall surrounds the entire depression demarcating the limits of the hut. In the southern portion of the hut, a circular ring of turf is interpreted as a division of activity areas or representing different phases of building.

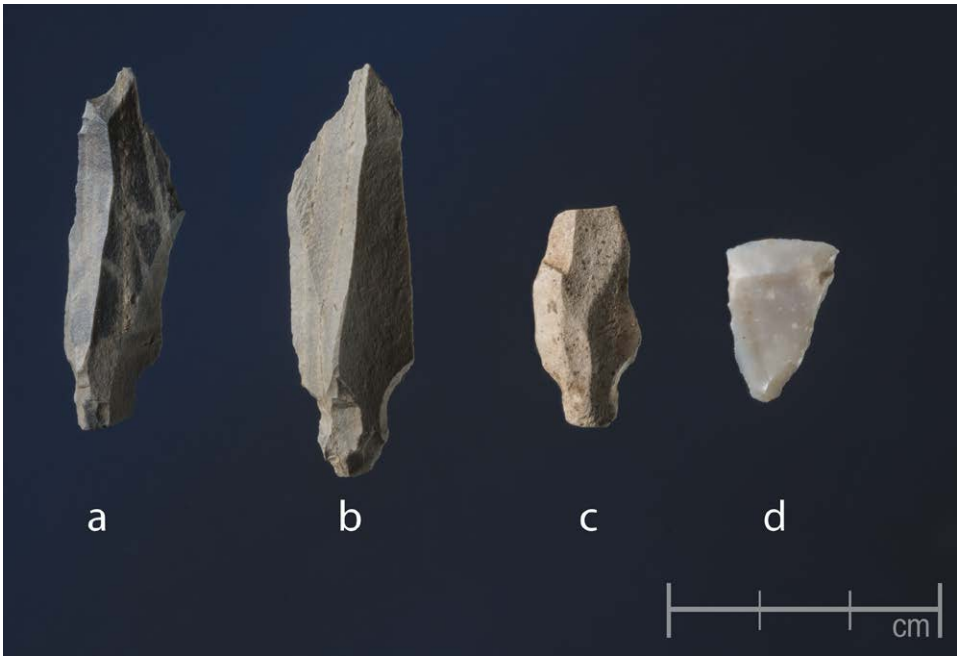

***Figure 4**: Projectile points retrieved from the hut. A and B) A1- type tanged points made from rhyolite, C) A1- type tanged point made from flint, D) Transverse arrowhead made from flint. Photo: Terje Tveit, AM/UiS.*

The lithic material

A total of 1032 artefacts were retrieved in association with the hut. The artefact assemblage is dominated by waste material from stone tool production. Of the 1012 lithic finds 933 (c. 90%) were made of flint. Other raw materials represented are rock crystal, greenstone, rhyolite, pumice and granite. The finds, including A1-type projectile points and cylindrical cores of rhyolite, can be typologically related to the Early Neolithic in southwestern Norway (Olsen, 1992, Bergsvik 1999, Skjelstad 2003).

Rhyolite is a dark volcanic rock with distinctive quartz veins that has many of the same qualities as flint. The rhyolite component of the assemblage provides evidence for long-distance acquisition as its source is located at Siggjo, Bømlo in southern Hordaland County, approximately 95 km north of Tananger, Sola (Alsaker 1987, Bergsvik 1999, Nyland 2016a). The exploitation of this rock is one of the changes marking the start of the Neolithic in this region and is virtually absent from contexts dating to the Mesolithic and the Late Neolithic. This raw material is rarely found on archaeological sites in the eastern parts of Norway. The distribution of rhyolite is thought to reflect a social/cultural complex in western Norway in the Early Neolithic (Solheim 2007, Nyland 2016b). The technological change from micro blade technology and conical cores to cylindrical cores also mark the transition to the Early Neolithic. Greenstone has its provenance in the southern Hordaland region as well. The biggest known quarry is at the small island of Hespriholmen and has a wide distribution throughout western and southern Norway (Alsaker 1987, Nyland 2016a). Finding a significant proportion of what we would call exotic artefacts at a site does not automatically imply that locally derived task groups were involved in their direct acquisition (Bergsvik 2002). Raw material could also have been retrieved through exchange relations between several groups.

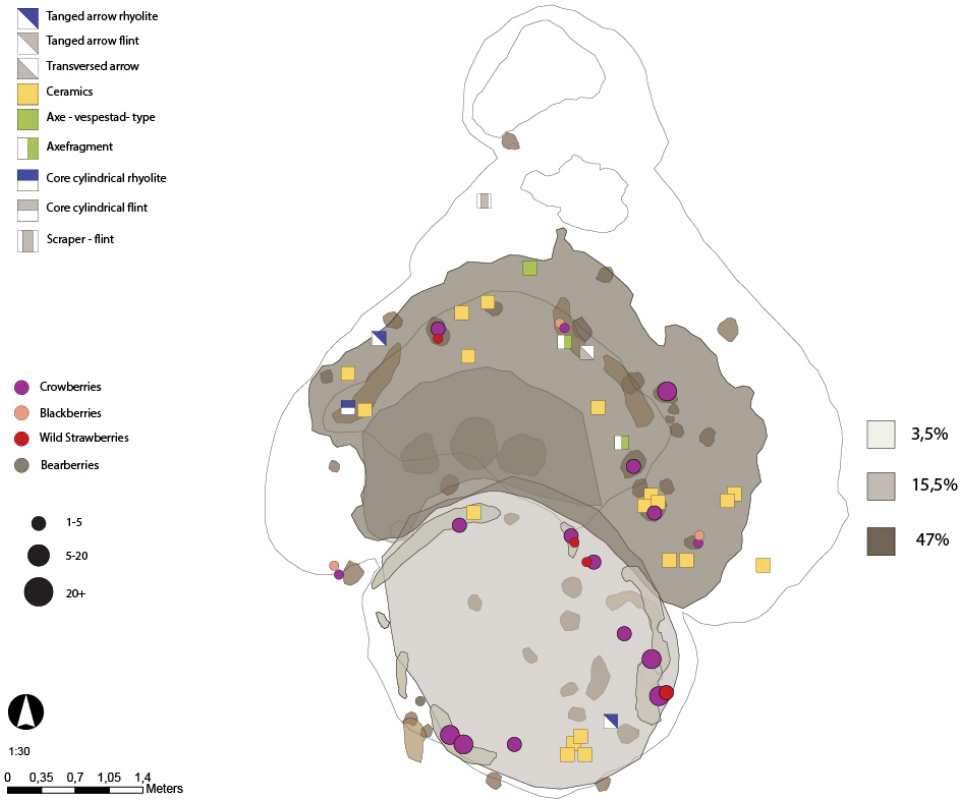

***Figure 5**: Schematic overview of the hut showing measured contexts, find distribution and distribution of fossilized berry remains. Distribution of lithic artefacts in % is shown on the right. Illustration: Krister Scheie Eilertsen, AM/UiS.*

The amount of finds retrieved from the Tananger-hut, a little more than 1000, is a low volume compared to the high number of finds frequently encountered on settlement sites from the Early Neolithic period in western Norway (Olsen 1992, Bergsvik 1999, Bjerck *et al.* 2008, Midtbø *et al.* 2011,). Sømme, the closest known contemporary site, produced c. 100,000 finds, showing a markedly different use to the Tananger site (Meling 2016).

The material found in relation to the hut contains many of the objects that could be expected in an inventory belonging to an Early Neolithic hunting station. That 89.5% of the lithic assemblage can be classified as waste material supports an interpretation of the site as short-term with few visits and limited tool production. A tool percentage of 10.5% could indicate that some of the tools recovered at the site were prefabricated prior to being brought to the hut.

Ceramics

The most unexpected find of the excavation was 20 fragments of ceramics. Nearly all were recovered close to, or in direct connection with remnants of walls or postholes. Weighing 15.9 g in total the sherds were fragmented and in poor condition, the largest measuring only two cm in length. The small size of the fragments along with the overall lack of decoration made typological determination impossible. To attempt to date the ceramic assemblage, a destructive method such as "bulk shard organics" was necessary. A single shard from the site was dated, the result however gave an unexpected date of 3580 ± 30 BP (Beta-462435) (Eilertsen *et al.* 2018) assigning it to the Late Neolithic period, approximately 1200 years later than the presumed age of the hut.

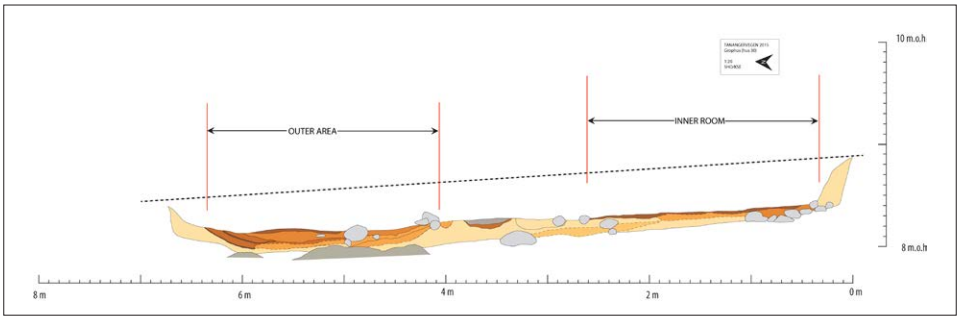

***Figure 6**: Stratigraphic profile through the hut displaying layers and their relation between the two activity areas. The section is cut diagonally through the hut. Illustration: Krister Scheie Eilertsen, AM/UiS.*

Multiple rooms?

The structural components of the hut allow for at least two possible interpretations of settlement activity at the site (Fig. 3 and 5). One possibility is that the hut consisted of two rooms separated by a turf wall. A second interpretation is that the overall size of the hut was smaller, and that it had an adjoining activity area. This area would have been supported by a wall running along the outer limits of the feature, lowered in the same way as the actual hut. This hypothesis is supported by the distribution of finds, as there is a clear differentiation between the inner and outer rooms (Fig. 5). A lower density of finds in the inner room suggests that this area has been cleared of debris. Lithic and botanical finds in this area were

mostly found in close association with the remains of walls. In contrast, finds from the adjacent activity area were found scattered throughout the entire floor surface. The different characteristics of the two areas are further evident in a soil profile running across the length of the feature. In the profile, a layer of sand separates two distinct deposits that correspond to the two areas described above (Fig. 6). Although interpreted as a single phased site, the hut could have been subjected to several visits. If so, the visits would have taken place within a restricted space of time, possibly specific seasons in consecutive years. This can be inferred from looking at the collective find-assemblage of the lithic material, which is single-phased and clearly placed in the Early Neolithic period. If this had been a site used during multiple chronological phases, we would expect to have recovered artefacts related to different prehistoric periods. A site used for several phases would also most likely display a more elaborate combination of layers and deposits.

The botanical remains

Macro- and micro fossil samples were collected from the various structural elements of the hut. Paleo-botanical analysis of the samples enabled us to compare the composition of different deposits and allowed for the retrieval of organic material for dating purposes. The most significant result from the analysis of the macrofossil assemblage was the identification of seeds from a variety of wild berries including wild strawberries (*Fragaria vesca*), crowberries (*Empetrum nigrum*), bearberries (*Arctostaphylos uva-ursi*) and blackberries (*Rubus fruticosus*). No other traces of these plants were observed in the macrofossils, suggesting that the berries were brought to the site. The different types of berries acquired from features in this hut are all resources that could have had its provenance within a relatively short distance to the site. It is important to note that material analysed in macro- and pollen-samples are primarily collected from features that consists of organic materials. Organic material, in this case turf, have a high degree of decomposition and the chance of mixing with overlying, external components or sediments is high, and therefore something to be aware of when interpreting the data.

All the berries identified on the site are edible species of fruit bearing plants. In addition, crowberries in particular are known to have medicinal qualities (Mabberley 2008) that could have been exploited in the Early Neolithic. Fossilized remains from turf and heather were also recorded in the macro-morphological material. Anomalies in the paleo botanical record including cereal grains (*hordeum vulgaris*) are evidence of contamination from later activity and may be associated with the decomposition of the hut's structural elements and its exposure to contaminants from surrounding activity. Comparison of botanical remains across the site showed an inter-feature differentiation in content from wall sections, floor layers and posts, supporting the interpretation of these as distinct construction elements.

Pollen samples taken from the basal deposit within the depression, a layer into which some of the hut's structural elements were cut, do not show definitive evidence of contamination. The layer did however contain a high amount of *Ericaceae* (heath) together with the species *Calluna vulgaris* (heather, ling). They both appear in the paleo botanical record as early as the Early Neolithic. Species within the family are not always easy to distinguish, and the family name *Ericaceae* (heath) is commonly used when referring to this plant (Eilertsen *et al*. 2018).

Problems with dating or dating the problem?

Six samples from deposits associated with the hut's structural elements were sent for radiocarbon dating early in the post-excavation process. However, none of the dates obtained corresponded with the chronology of the site as suggested by the artefact assemblage. Ranging from the Late Neolithic until the latter part of the Viking age, the ^{14}C dates demonstrated that shifting Aeolian sands have likely exposed and re-covered the site several times leaving it exposed to contamination. In an effort to affirm the Early Neolithic date for settlement activity suggested by the archaeological finds, two additional samples were sent for dating (Eilertsen *et al*. 2018). These results again show activity in the Late Neolithic and Late Iron Age rather than confirming assumptions of the Early Neolithic interpretation (Fig. 7).

Context	Material	Sample	Uncalibrated	Calibrated (2σ)	Lab. Ref.
Wall	Cereal	2015/02-130	3470±30 BP	1884–1695 BC	Beta-413532
Wall	Charcoal	2015/02-225	3066±37 BP	1416–1226 BC	UBA-33236
Layer/Wall	Cereal	2015/02-212	3522±41 BP	1959–1701 BC	UBA-30934
Layer/Wall	Charcoal	2015/02-212	2591±37 BP	831–557 BC	UBA-33235
Deposit/Layer	Charcoal	2015/02-124	925±40 BP	1024–1203 AD	UBA-31930
Deposit/Layer	Charcoal	2015/02-133	941±25 BP	1029–1155 AD	UBA-33234
Deposit/Layer	Cereal	2015/02-144	3579±34 BP	2030–1781 BC	UBA-30932
Ceramics/Deposit	Ceramics	2015/02-453	3580±30 BP	2028–1828 BC	Beta-462435
Crowberry/Wall	Crowberry	2015/02-219	1270±30 BP	663–859 AD	Beta-462436

***Figure 7**: ^{14}C results. Illustration: Krister Scheie Eilertsen, AM/UiS.*

To explain the non-conforming dates, the larger Tananger site complex must be considered. The area that was stripped of topsoil close to the hut contained features and structures from several prehistoric periods. Sediments and organic material from these contexts may have been translocated by taphonomic processes and intermixed with deposits within the structure as the turf walls slowly decomposed. Such contamination is often evident on archaeological sites and especially contexts dominated by sandy soils. The Donk site at Herk-de-Stad in Belgium is a good example of this phenomenon (Van Strydonck *et al*. 1995). At Donk a number of ^{14}C dates did not match with the archaeological contexts due to distortion of the stratigraphy by erosion and Aeolian sand. Hence, both the Donk and the Tananger site show that archaeological contexts within organic features are extremely exposed for contamination and contextual and stratigraphic distortion. Debatable radiocarbon dates has also been a topic within the Swedish Mesolithic sites that show traces of settlement. Disturbed contexts, external contaminants and disturbances from activity both modern and prehistoric shed doubt on some of the ^{14}C analysis (Johansson 1993, Cronberg 2001).

Decomposition of a structure's organic components can have a major impact on associated deposits depending on environmental conditions and soil chemistry. In the case of a turf wall, its layers decompose over time and younger material can descend into underlying deposits. Modern disturbance and shifting sands might also explain the anomalies encountered in the radiocarbon record.

'Task group'-dwelling?

Huts and pit-house dwellings are common throughout northern Norway and the wider Fennoscandia region. They are heterogeneous in form and are dated to both the Mesolithic and Neolithic periods (Olsen, 1994, Mökkönen, 2011). Given the scarcity of Early Neolithic dwelling structures in southwestern Norway, the single phased dwelling from Tananger is an extraordinary find. The closest parallels to the Tananger-hut are found in the Scania area of southern Sweden where a number of single phased sunken-floored Early Neolithic structures have been investigated at Östra Odarslöv, Saxtorp 23 and Dagstorp 19 (Andersson 2004, Andersson *et al*. 2016). These features are also similar in size, ranging from 4–7 meters in diameter and display comparable find assemblages. The remnants of turf walls found at Tananger however, are to the author's knowledge without parallel in Scandinavia.

The reason why there are few comparable dwellings from the Early Neolithic in southwestern Norway is that prehistoric sites often contain a mixture of artefacts and features from several different periods. In Rogaland there seems to be significant continuity in the choice of settlement location as Late Mesolithic sites are frequently found superimposed under Early Neolithic sites (Meling 2016, Sørskog *et al*. 2017, Dugstad *et al*. 2018, Eilertsen *et al*. 2018). There is much debate concerning the degree to which settlement patterns and economy changed during the transition from the Late Mesolithic to the Early Neolithic (Bergsvik 2001b, Bjerck *et al*. 2008, Solheim and Persson 2018). This debate will continue as long as we keep unearthing new settlement types in different landscapes.

Due to the relatively low artefact density and thin deposits, the Tananger-hut can be classified as a short-term camp, visited a few times. It is important to note that artefact density in itself is not an absolute proxy for activity. The tool assemblage could have consisted of a considerable number of artefacts made of perishable organic material such as bone or wood and could not be considered when estimating the total amount of finds. Knut Andreas Bergsvik (2006) argues that larger sites with thick deposits and high artefact density combined with high variation in raw materials classifies as long-term camps. Moreover, he also argues that these long-term camps are more closely related to sedentism than short-term camps in the Mesolithic and Neolithic periods (Bergsvik 2006). Assuming that organic material will build up in the flooring sections of a dwelling like this hut over time, the layers will increase (Grøn 1995). Keeping this in mind the thin layers uncovered in the Tananger-hut could represent a relatively low number of isolated visits to the site.

Whether it is viewed as a base camp or a specialized hunting station, individuals lived and performed their daily activities of working, eating and sleeping at the camp (Nærøy 2000). In Mesolithic hunter-gatherer societies, we know of a variety of dwelling types and sites that could indicate various forms of mobility. The change from mobile tents to more elaborately constructed dwellings most likely reflects a change in the economic strategy in the Late Mesolithic. This would most likely represent reoccurring visits from task-groups, which are more prominent during these periods (Åstveit 2009). Comparing the hut from Tananger with other prehistoric periods in southern Norway, we find the closest parallels in the Mesolithic periods, when looking at the constructive elements (Bjerck *et al*. 2008, Damlien and Solheim 2013). This view is also shared by Ole Grøn (Grøn 2003) and he states that the "Late Mesolithic" pattern continues in the Finnish and Swedish pit dwellings of the Baltic Late Mesolithic and Neolithic hunting-gathering cultures. It could also be argued that these

structures may have something in common with some of the lenticular layers, investigated in the southern parts of Sweden and Denmark. These are often dated to both Mesolithic and Neolithic periods.

In addition, two layers could represent re-occurring visits to the same site within a short timespan (Grøn 2003). Bergsvik (2002) argues that this type of demographic trait not only explains sites with accumulated thick deposits, but also answers some of the questions regarding the smaller short-term living spaces. Bergsvik defines a 'task-group' as an activity group ranging in numbers from 2–3 persons up to 15 families, depending on the tasks. The tasks vary from collecting berries to engaging in war, trade or hunting (Bergsvik 1995). When trying to identify what the Tananger-hut represents in a 'task-group mobility' model it stands out as a seasonal hunter-gatherer station with local fruits being one of the resources acquired. Leif Inge Åstveit (2009) states that a common assumption is that the marine ecosystem, regardless of time period, provides a broad spectre of resources stimulating the possibility of a year-round occupation and minimizing the risks of periodic collapse. This is supported by the traces of economic exploitation recovered from the dwelling. The results from the natural sciences and analysis of macro and pollen from the feature imply a combined economic resource base. No remnants of hearths was detected inside, which could indicate that the dwelling was used during a season stretching over the warmer months of summer, or that hearths was established on a material that did not leave any traces for us to detect during excavation. In sum, and despite the obvious challenges presented by the lack of consistent radiocarbon dating, the Tanangervegen-hut is interpreted as representing a short-term living space that should most likely be associated with a task-group mobility model.

Final remarks

In southwestern Norway, several sites with Early Neolithic dates, both radiocarbon and typological, have been excavated. This material gives us good insight into the technology and artefact types that people surrounded themselves with and fits well with what we know from southern Norway as a whole (Bergsvik 1999, Solheim 2007, Midtbø *et al*. 2011). When it comes to dwellings, we are missing a complete overview of the various types that were used in southwestern Norway. What we have is a number of isolated features such as fireplaces, single postholes, pits and stake-holes, providing fragmented evidence of habitation structures (Kuijt 2000, Bergsvik 2006, 2010, Artursson *et al*. 2016, Grøn 2017). The evidence from Tananger is a significant addition to our record of Early Neolithic dwellings, it is however important to underline that more data is required before it is possible to draw definite conclusions.

The Late Mesolithic-Neolithic transition is frequently discussed in terms of settlement patterns, with much emphasis on sedentism gradually increasing during the Neolithic period in western Norway (Olsen 1992, Olsen and Fasteland 1992, Bergsvik 1995, 2001a, Nyland 2016b, 2017). Although we see clear evidence supporting the economic transition that took place in the Neolithic, we still do not fully understand the evolution of domestic dwellings during this period. In other parts of Scandinavia, and the British Isles, there is evidence of two-isled houses dating back to the Early Neolithic (Darvill and Thomas 1996, Iversen 2015, Whittle *et al*. 2017). Early evidence for two-aisled houses is missing in our region and this phenomenon could have several possible explanations. Ole Grøn (2003) suggests that the changes in the northern European Neolithic reflect an impact of Neolithic ideology long before a recognizable Neolithic economy is introduced, and that the existence of a pre-

Neolithic phase should be considered in this region (Grøn 2003). The absence of two-isled houses in southwestern Norway may be a manifestation of this theory. Poor preservation conditions and lack of awareness concerning these early structures may also be responsible for the lack of evidence.

The Tananger-hut provides a reference to be used in future investigations of prehistoric sites in Rogaland. It represents a previously undocumented type of dwelling in this region, and its discovery is a significant contribution to our understanding of the economy and society of the Early Neolithic period.

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