Hans Peter Blankholm

REFLECTIONS ON THE EARLY MESOLITHIC OF TROMS, NORTHERN NORWAY, IN THE LIGHT OF RECENT EXCAVATIONS AND RESEARCH

Abstract
This paper reflects on the Early Mesolithic of Troms County, northern Norway, following recent excavations and research. Compared to neighbouring Finnmark County, relatively little was until recently known about this period within the region. However, several research and rescue excavations have taken place over the past decade and significantly augmented our database and insights so the time is now ripe for taking stock of our knowledge. Drawing in particular from the spatially extensive rescue excavations on the sites Tønsnes, Bergli, and Stangnes Syd, as well as from the most recent literature, the state of knowledge regarding the key issues of chronology, raw material management, dwellings, intra-site organization, and settlement will be discussed.

Keywords: Early Mesolithic, northern Norway, pioneers, settlement.

Hans Peter Blankholm, Department of Archaeology, History, Religious Studies and Theology, UiT – The Arctic University of Norway, P.O. Box 6050 Langnes, N-9037 Tromsø, Norway: hans.peter.blankholm@uit.no.

Received: 12 May 2016; Accepted: 05 June 2017; Revised: 22 October 2018.

INTRODUCTION

While Finnmark County has long been the 'hub' of Mesolithic (10000–6100 BP/9500–5000 calBC) research in northern Norway, until recently comparatively little was known about neighbouring Troms County (Simonsen 1956; 1974; Sandmo 1986; 1994; Barlindhaug 1997; Thuestad 2005; Stensrud 2007; Blankholm 2008). The result has been a sort of homogenisation; interpretations from Finnmark have often been generalised, or subtly understood, to encompass also the rest of northern Norway, with relatively little latitude for nuance. This situation has now changed in the wake of the spatially extensive rescue excavations at Tønsnes (Finstad & Grydeland 2009; Skandfer et al. 2010; Hood & Kjellman 2012; Gjerde & Hole 2013), Bergli (Grydeland & Arntzen 2010), and Stangnes Syd (Neergaard & Oppvang 2014). Those sites not only support generally accepted notions about the locational properties of Mesolithic sites (e.g. Barlindhaug 1997; Blankholm 2008); they also offer new or additional insights into, and provide for reflections on, the advance of the pioneers, raw material management, dwellings and intra-site patterning, economy, and settlement patterns. The study area is shown in Fig. 1 and a map of sites and locations is provided in Fig. 2.

THE PIONEERS AND THE ^{14}C EVIDENCE

In the present context we will use the 'enlarged' or, perhaps rather, 'dynamic' pioneer time, or Early Mesolithic, concept, recently adopted for the *Joint Research – Targeting Archaeology at the University Museums* -project (Blankholm 2018a). This allows one to study not only the first settlers or visitors *per se*, but also how they managed their lives for the first few millennia, and, not least, to study the dynamics of further pioneering from the (Norwegian) coast into the

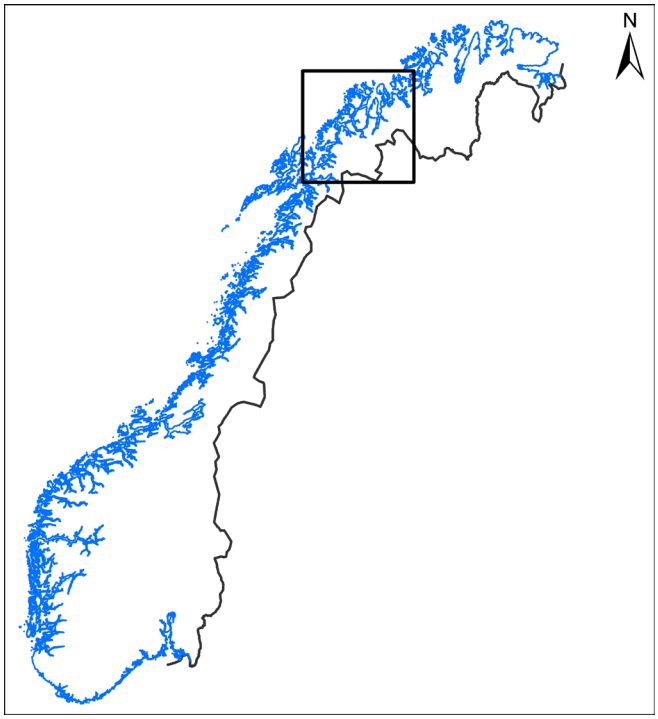

Fig. 1. Map of Norway showing the position of the study area (Fig. 2). Map: H.P. Blankholm.

mountains, the high plains beyond, the inland lowlands, and from Finland and Russia up to the northernmost present-day Norway. Thus, instead of confining ourselves to the usual c 500-year time bracket (10000–9600 BP; c 9500–9000 calBC) for the initial pioneering phase (e.g. Bjerck 2008a; Fuglestvedt 2013), we operate with a time frame down to c 7000 BP (c 6000 calBC).

There is no reason to doubt that the study area was part of the 'swift' colonisation process in the early Holocene (c 11600–11000 BP, c 9500–9000 calBC) up along the Norwegian coast (e.g. Bjerck 2008a; Blankholm 2008). So far, no conclusive evidence has been found in Troms County of the recently demonstrated eastern and slightly later (c 8700–7500 calBC) post-Swidry influx, which has clarified the technological variability in Finnmark County (Sørensen et al. 2013; Rankama & Kankaanpää 2018). It has been argued, though, that because of the presence of a glacio-geological barrier in Nordland County, the pioneers apparently arrived somewhat later in Troms [Bjerck's (2008a) phases EM2–EM3] than in Finnmark (Phase EM1) (Kleppe 2018). There are, however, reasons to doubt that this was the case. If one takes the BP dates at face value or emphasises the oldest date of the calibrated (2 sigma) ranges, one might get this impression (Table 1; also Kleppe 2018: Table 2). Yet, if one considers the full calibrated ranges, there is quite a bit of overlap among the dates from the two counties. It would seem unnecessary to stretch the evidence in as much as we are dealing with a number of serious sources of error.

First, and as rightly pointed out by Kleppe (2018), there are very few trustworthy dates to begin with and those may not be representative in the least. As of today, no research project has been geared specifically towards obtaining a representative sample of ^{14}C dates pertaining to the initial pioneer settlement. As part of the sampling problem, it should also be taken into account for such an inter-county comparison that the dates from Finnmark are mostly from the outer coasts or similarly severely exposed coasts in wide-open bays or fjords, such as the Varangerfjord. This is exactly where one would expect to find the earliest evidence for people migrating up along the coast, whereas the vast majority of the dates from Troms are from the middle- or inner fjord areas.

Second, there is the problem of site visibility. One of the reasons why only relatively few sites (and in consequence, sites with a potential for ^{14}C dating) have been found in the outer reaches of Troms is that most of the fossil beaches at the relevant heights above sea level are today covered by peat and/or other vegetation. This contrasts starkly with most of outer, coastal Finnmark, where sites are most often still visible on the surface. Moreover, sites in both counties have most likely been lying fully exposed for centuries, if not millennia, and have thus been wide open for contamination. This is indicated

in Finnmark and Troms by strikingly late dates obtained from layers immediately above the Mesolithic occupation layers. The latter is evidenced from sites such as Målsnes 1 (Iron Age; Blankholm 2008), Tønsnes Loc. 10 (Early Metal Age), and Ørnfløya 1 (Early Metal Age).

Finally, as well-illustrated by Jaksland (2014), the calibration plateaus at 10000 and 9600 BP complicate attempts at more detailed analyses of pioneer dynamics. What is clearly needed to alleviate the situation is a dating program with a carefully designed sampling strategy.

RAW MATERIAL MANAGEMENT

The most basic challenge within the study

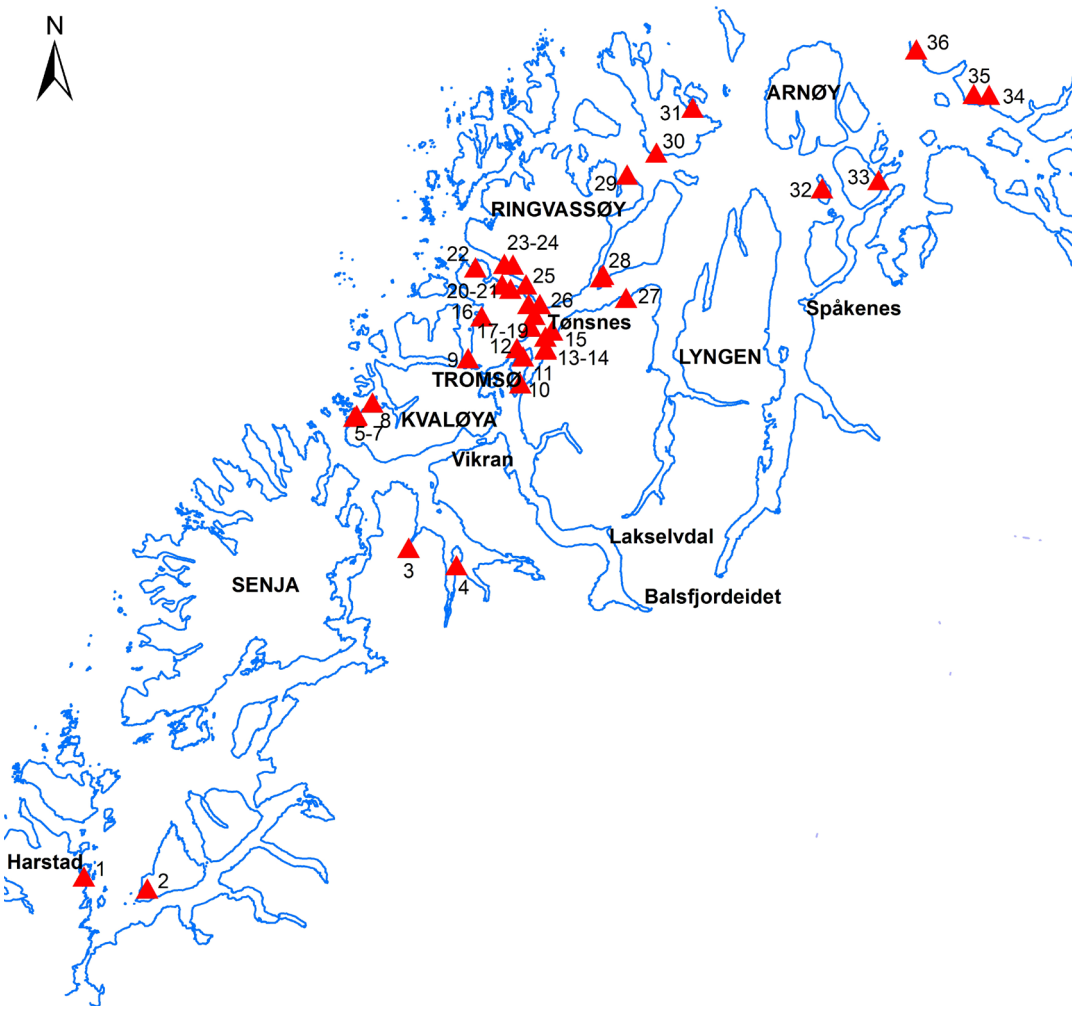

Fig. 2. Map of Early Mesolithic sites in Troms county; 1) Stangnes Syd, 2) Sørrolnes, 3) Lindberget, 4) Målsnes 1, 5) Naustvoll, 6) Ørnfløya 1, 7) Sandvika, 8) Oldervikeidet, 9) Ekkernes, 10) Mellomveien, 11) Bergli, 12) Lanes, 13) Movika ID-116938, 14) Movika 117000, 15) Tønsnes, 16) Lyfjord, 17) Krabbelv, 18) Kraknes, 19) Futrikelv, 20) Raknes, 21) Rakneskjosen, 22) Høghaugen, 23) Stongnes, 24) Indre Kårvik, 25) Simavik, 26) Storneset, 27) Svarvaren, 28) Finnkrokan, 29) Nord Grunnfjord, 30) Kvalshausen, 31) Lille Skorøya, 32) Vorterøyskagen, 33) Kobbpollen, 34) Reinfjordbotten, 35) Pilvågen, 36) Segelvik. Map: H.P. Blankholm.

area, and in fact the whole of northern Norway, to the analysis of raw material variability and its cultural and behavioural meaning is the multitude of classifications in use (e.g. Sandmo 1986; Stensrud 2007; Blankholm 2008; Ramstad 2009). The classifications have, more or less, been devised to throw light on particular questions in mind. Tromsø University Museum, in charge of all rescue excavations, has devised a classification that was used on the excavated material from Tønsnes, Bergli, and Stangnes Syd (Grydeland & Arntzen 2010; Skandfer et al. 2010; Gjerde & Hole 2013; Neergaard & Oppvang 2014). However, this classification seems, at least from the relatively coarse groupings in the available reports, more geared towards quick and efficient logging and storage than towards analyses. Regardless, comparisons based on raw material frequencies or percentages should always be taken with a large grain of salt. Differential extents of excavations on sites with highly varying frequencies across space, mis-classification, the fact that even very short episodes of manufacture may produce vast quantities of debris, and that retouching and fine chipping of tools of valuable raw materials may produce equally large (or disproportionate?) amounts of debitage are all common issues that need consideration (see also Blankholm 2008).

Site / context		Lab-index	BP	±	calBC (2σ)	Material
Almenningen 1		Tua-3538	7260	95	6175–5980	Pine
Bergli 1, Section 1A						
Dwelling		TRa-1893	9145	85	8602–8234	Birch
		TRa-1894	8990	85	8340–7826	Birch
		TRa-1895	9330	125	9120–8285	Birch
		TRa-1896	9355	120	9121–8297	Birch
		TRa-1897	8995	85	8420–7828	Birch
		TRa-1898	9330	125	8627–8285	Birch
Bergli 1, Section 1B						
Dwelling?		TRa-1892	7995	75	7078–6659	Birch
		TRa-1899	8815	80	8222–7658	Birch
		TRa-1900	7710	75	6679–6433	Birch
		TRa-1901	7690	70	6645–6434	Birch
		TRa-1902	8940	175	8532–7600	Birch
Culture layer		TRa-1903	6760	80	5833–5525	Birch
		TRa-1904	6980	60	5984–5742	Birch
		TRa-1905	7000	60	5993–5748	Birch
Mellomveien, Tromsø		T-9674	9280	95	8746–8296	Whale bone
Simavik		T-5393	9200	200	9139–7840	Birch, conifer
Tønsnes ID-104342						
Dwelling		Wk-24630	7928	30	6980–6630	Birch
		Wk-24631	7801	30	6640–6480	Birch
		Wk-24582	7796	30	6690–6560	Birch
		Wk-24583	7915	30	6850–6650	Birch
		Wk-24586	7868	30	6830–6630	Birch
Tønsnes ID-104380						
Dwelling 1	(floor)	Wk-24634	5306	30	4235–4005	
	(floor)	Wk-24635	7017	30	5986–5841	
		Wk-24636	7933	30	7029–6688	
		Wk-24637	7929	30	7029–6686	
		Wk-24638	7898	30	7022–6647	
		Wk-24639	8001	30	7057–6816	
		Wk-24641	7962	30	7041–6706	
		Wk-24642	7963	30	7042–6707	
	(floor)	Wk-26643	5295	30	4235–4005	
	(floor)	Wk-24650	7913	30	7026–6655	
		Wk-24651	7896	30	7021–6647	
Dwelling 2		Wk-24640	4123	30	2867–2580	
	(floor)	Wk-24644	7858	30	6814–6611	

Table 1. ^{14}C dates of Early Mesolithic sites in Troms county.

Anyway, the excavations at Tønsnes (Skandfer et al. 2010; Gjerde & Hole 2013), Bergli (Grydeland & Arntzen 2010) and Stangnes Syd (Neergaard & Oppvang 2014) seem to confirm the already-established picture of a wide range of local, regional, and more distantly sourced raw materials being used, notably variants of chert, flint, quartzite, quartz, and crystal quartz (Sandmo 1986; Stensrud 2007; Blankholm 2008). The excavations also confirm that black chert was a widely used commodity in the entire study area (Blankholm 2008). However, its sources lay beyond the immediate region, located either in the north side of Kvænagen Fjord (Stensrud 2007), or in Alta Fjord at Mathisfossen (Hood 1992). This raw material was often used for more delicate tools, such as tanged arrow points, as well as blade production, requir-

Site / context		Lab-index	BP	±	calBC (2σ)	Material
	(floor)	Wk-24645	7877	30	6903–6641	
		Wk-24646	7933	30	7029–6688	
	(floor)	Wk-24647	7838	30	6755–6597	
	(floor)	Wk-24648	4157	30	2879–2631	
		Wk-24651	7896	30	7021–6647	
Dwelling 3	(floor)	Wk-26706	7919	35	7005–6682	Birch
	(floor)	Wk-26707	7946	39	7032–6695	Birch
	(floor)	Wk-26708	7854	34	7027–6590	Birch
		Wk-26709	7847	34	6801–6599	Birch
		Wk-26710	7940	34	7031–6692	Birch
Tønsnes, Locality 8A						
Dwelling A14478		Wk-33318	9530	30	9120–8790	Birch, willow
		Wk-33319	7533	30	6440–6395	Birch
Dwelling A14503		Wk-33316	9340	32	8640–8555	Blueberry and crowberry twigs
		Wk-33317	9589	34	9140–8835	Willow
Dwelling A16700		Wk-33314	7365	30	6340–6115	Birch, willow
		Wk-33315	7494	31	6430–6270	Willow, heather
		Wk-33320	7539	32	6440–6395	Birch, willow
Dwelling? A16750		Wk-33321	4685	28	3375–3250	Birch, willow, heather
		Wk-33322	5593	32	4460–4365	Blueberry and crowberry twigs
Tønsnes, Locality 10						
Dwelling A15536 (hearth)		Wk-33338	7834	34	6695–6610	Birch, rovan
		Wk-33339	7142	32	6050–5995	Birch, willow, aspen
		Wk-33340	8009	33	7050–6830	Birch, willow, aspen
		Wk-33341	7994	37	7045–6830	Birch
		Wk-33342	7966	36	7030–6815	Birch, willow, aspen
		Wk-33343	8067	43	7130–6845	Birch, willow, aspen, rovan
		Wk-33344	7900	25	6805–6680	Birch, willow, aspen
		Wk-33345	7968	34	7030–6820	Birch, willow, aspen
Felt II, Dwelling		Wk-35630	8155	35	7176–7077	Birch/willow

For references, see text.

ing top-quality raw material, and the cores were in many instances used to complete exhaustion, which in turn underscores its value (Blankholm 2008; Nergaard & Oppvang 2014). The distribution of the black chert has been interpreted to suggest a wide distribution, communication and social interaction network with this raw material as a central commodity (Blankholm 2008). To some of the network members farthest from the source(s) it may have been particularly valued and was carefully used to almost the last chip. To those closer to the source it may, however, have been conceived of as a common commodity that could be expended more freely. Unfortunately, it is impossible to guess at 'exchange rates' or values in such a network (Blankholm 2008). A rough-and-ready fall-off analysis of frequencies by Sandmo (1986) seemed rather inconclusive. Perhaps a closer analysis of all the new evidence together with a fall-off analysis based on weights could throw more light on the matter?

However, what the recent large-scale excavations really bring to the fore is the high intra- and inter-site variability in raw material use. This pertains both to neighbouring and possibly contemporary units on the same site, such as Locality 8A and 10 at Tønsnes (Hood & Kjellman 2012), and to among sites some distance apart, such as Tønsnes and Bergli (Grydeland & Arntzen 2010; Skandfer et al. 2010; Gjerde & Hole 2013). On the other hand, some sites appear more similar, such as Målsnes 1 and Stangnes Syd (Blankholm 2008; Neergard & Oppvang 2014). In some cases, we may be looking at expedient uses, such as, large quantities of readily available raw materials like white quartz. Generally, when dealing with raw materials, expediency applies to a technological strategy. However, the inhabitants of any type of site may once in a while have run out of their preferred raw material(s) and opted for something expedient. It is, however, beyond the scope of the present paper to try to unravel the deeper meaning of the entire mosaic of raw material uses; before this we first and foremost need deeper insights into the lithic technology and organisational strategies of the region.

Site	Type	Shape	External size (m)	Internal size (m)	Depth (cm)	Hearth
Bergli 1, Section 1A	Semi-subterranean	Circular	3–4	-	20	Circular, c 1.5 m in diameter
Bergli 1, Section 1B	Flat, partly paved	Oval	6 x 4.5	-	-	Concentration of reddish ash, roughly 0.5 x 0.5 m
Tønsnes, ID-104342	Semi-subterranean	Rectangular	15 x 8	9–11 x 3–3.4	15	-
Tønsnes, ID-104380						
Dwelling 1	Semi-subterranean	Rectangular	15.5 x 6.5–7.5	12.5 x 3–3.6	5–25	Charcoal concentration in the middle section
Dwelling 2	Semi-subterranean	Rectangular	11.6 x 7.5	7.7 x 4.4	20–25	-
Dwelling 3	Semi-subterranean	Rectangular	9.5 x 5 (min)	8.3 x 3.8	30	-
Tønsnes. Loc. 8A						
A14429	Tent ring?	Sub-circular	3.5	2 x 1.75	-	-
A14454	Semi-subterranean	Quadratic	3.5 x 3.5	2.5 x 2.5	15–20	-
A14478	Semi-subterranean	Circular	4	3 x 2.5 x 0.35	10–35	Stone packing at centre, measuring 1 x 0.5 m
A14503	Semi-subterranean	Circular	4.5	3 x 2.75 x 0.4	30–40	-
A16700	Semi-subterranean	Circular	-	3 x 2.5 x 0.1	10	-
A16750	Semi-subterranean?	Oval	3 x 1.5	1.5 x 0.5 x 0.5	50	-
Tønsnes, Loc. 8B						
A13181	?	Sub-rectangular	4 x 2.5	-	-	-
A18500	Light construction	Circular	2		-	-
Tønsnes, Loc. 8C	Semi-subterranean	Oval	-	3 x 2.5 x 0.1	10	-
Tønsnes, Loc. 10						
A15536	Semi-subterranean	Oval	13.5 x 7.6	7.7 x 3.2–3.7	30	Hearth with at least 12 individual use phases of various spatial extents.
Field I	Semi-subterranean	Oval	-	3 x 2	?	-
Field II	Flat	Sub-rectangular	-	5.4 x 3.7	-	Small concentration of fire-cracked rock and charcoal
Stangnes Syd						
ID-119808, A1032	Tent ring	Oval	3.5 x 2.5	-	-	-
ID-130428, A1200	Possible rock shelter	Oval	-	2.5 x 1.4	-	-
ID-130428, A2755	Semi-subterranean	Oval	5.5 x 5.5	4 x 3.5	?	-

Table 2. Specifications of Early Mesolithic dwellings in Troms county.

Site	Sea level date (BP)	calBC (2σ)
Ekkernes	10595	10774–10217
Finnkroken	8900–8300	8287–7732/ 7534–7082
Futrikelv	8400	9131–8347
FV-53 ID-104346	9000	8455–7821
Høghaugen	9700	9317–8787
Håkøybotn	8850	8252–7662
Kobbpollen	9300	8786–8294
Korsneset	10830	11019–10628
Krabbelv	8700	8198–7574
Kraknes	9500–8700	9215–8604/ 8198–7574
Kvalhausen	10300–9800	10575–9766/ 9661–8840
Kårvika	9200	8701–8250
Lanes	9100–8600	8607–7982
Lille Skorøya	9700	9317–8787
Linberget	9300	8786–8294
Movika ID-117000	9300	8786–8294
Movika ID-116938	9450	9176–8481
Målsnes 1	9500	9215–8604
Naustvoll	8400	7594–7183
Nord-Grunnfjord	9300–9100	8786–8294/ 8607–7982
Oldervikeidet	9800	9661–8840
Pilvågen	9300	8786–8294
Raknes	9200	8646–8250
Rakneskjosen	10600	10776–10222
Reinfjordbotn	9600	9149–8842
Sandvika	9400	9131–8418
Segelvik	9800	9286–9255
Stangnes Syd		
119808	9100	8300–8200
ID-119809	10100	9800–9600
ID-130428, A1200	10100	9800–9600
ID-130428, A2755	9900	9300–9200
Stongnes	9800	9661–8840
Storneset	9400	9131–8347
Svarvaren	9900	9814–9214
Sørrollnes	9200	8646–8250
Trondjord	9595	9256–8715
Tønsnes, Locality 8A		
Dwelling A14429	9160	8695–8220
Dwelling A14454	9160	8695–8220
Tønsnes, Locality 8B		
Dwelling? A13181	9100	8607–7982
Dwelling A18500	9100	8607–7982
Tønsnes, Locality 8C		
Dwelling A16518	9050	8696–8026
Tønsnes, Lokality 10		
Felt I, Dwelling?	9050	8696–8026
Utnes	8300	7534–7082
Vorterøyskagen	9300	8786–8294
Ørnfløya 1	9700	9317–8787

Table 3. Calibrated sea level dates of Early Mesolithic sites in Troms county. All sea level dates determined by using program SEALEV (Møller & Holmeslet 2012). The dates for Linberget, Movika, Målsnes 1, Sørrolnes, and Ørnfløya 1 were determined by the author; the rest by Barlindhaug (1997). All calibrations made by the author using OxCal 4.2 software with IntCAL13 (Bronk Ramsey 2016; Reimer et al. 2013).

DWELLINGS

The excavations at Tønsnes, Bergli and Stangnes Syd have revealed (or at the least indicated) the remains of 18 dwellings and three dubious features (Table 2). Previously, three sites with dwellings have been claimed for the region – Simavik (Sandmo 1986), Trondjord (Sandmo 1986), and Sandvika (Barlindhaug 1994; Thuestad 2005). However, these purported structures are now considered dubious (Stensrud 2007; Blankholm 2008).

Following Fretheim et al.'s (2018) recent overview of Early Mesolithic tents, huts and houses, the new data from Troms County corroborates the presence of dwellings from very early in the pioneering period. From Table 2, and focusing on the *earliest* ^{14}C dates, or events, from the individual dwellings, it appears that Tønsnes Location 8A, Structures A14478 and A14503 (Gjerde & Hole 2013) and Bergli 1, Section 1A (Grydeland & Arntzen 2010) are the earliest in the study area. Tønsnes Location 8A shows dates of 9530±30 BP (c 9120–8790

calBC), 9589±34 BP (c 9140–8835 calBC), and 9355±120 BP (c 9121–8297 calBC). But how reliable are those dates?

At Tønsnes Location 8A, Structure A14478, of which only two diagonally opposite quarters were excavated, a second ^{14}C determination gave the date 7533±30 BP (6440–6395 calBC), more than two thousand years younger than the early date quoted above. According to the excavators, however, this sample most likely derives from the later Stone Age activities at Structure A16700, higher up and behind the site. They also argue that the younger sample was found where the occupation layer was thinnest and thus more prone to contamination than the older one (Gjerde & Hole 2013: 58). The disparity may also have been caused by later reoccupation, which is a common phenomenon (see below). Unfortunately, the publication does not specify sufficient typological or technical details for a more detailed culture-history evaluation.

At Tønsnes Location 8A, Structure A14503, which was fully excavated, a second sample produced the date 9340±32 BP (8640–8555 calBC), which is only c 200 years younger than the oldest of the two. Again, reoccupation may have been the case. As to Bergli 1, Section 1A, there are five later dates ranging between 9330±125 and 8990±85 BP (9120–7826 calBC) (Grydeland & Arntzen 2010), which may also indicate later occupations. As always, it is hard to prove or disprove that some dates may derive from the prehistoric use of old material, such as driftwood. On a second note, it is not necessarily a good approach to dating to use averages or medians of a group of dates from individual sites. For the present it may, as indicated above, suffice simply to consider the individual dates as events. Based on the above information the earliest dates would seem reasonable to use as indications for first events.

The three earliest dates are basically contemporary with most of the Flørli and Myrvatn sites in south-western Norway (Bang-Andersen 2003; 2018; Fretheim et al. 2018) and Ågotnes Site 2 (Ramstad 2014; Fretheim et al. 2018), Ormen Lange Sites 48-S1, 72-S1, 72-S2 (Bjerck 2008b; Fretheim et al. 2018), Hestvikholmane Sites 2, 3 and ID-106447 (Wammer 2006; Fretheim 2007; Brede 2013), Kvernberget sites 1 (Fretheim 2008), 20-S3 (Strøm & Breivik 2008), and Mohalsen 2012-II (Fretheim et al. 2018), all in central Norway. In Finnmark, the earliest reliably ^{14}C -dated dwellings (e.g. Čåkki-1: 9782±95 BP, c 9650–8831 calBC; Nii'beræppen-3: 9550±55 BP, c 9174–9160 calBC, Stuorrasiida-1: 8365±50 BP, c 7544–7312 calBC; Grydeland 2006) generally match those in Troms mentioned above. Turning to less reliable, sea-level-dated sites (see above) the same pertains to Mortensnes (c 9200 BP, c 8400 calBC) and five recently discovered, sea-level-dated, semi-subterranean pit dwellings at Smellror, near Vardø (c 9600 BP, c 9000 calBC) (Blankholm 2018b).

All this goes to say that dwellings of various configurations became a feature of the early pioneers' repertoire at some sites in the interior mountains in south-western Norway, and all along the central and northern Norwegian coast, at the latest towards the end of the very early pioneer period [Bjerck's (2008a) EM1 Phase, 9500–9000 calBC], and more precisely from around 9100 calBC. The phenomenon thus spread as fast as the original pioneers themselves just a short time earlier (Bjerck 2008a; Blankholm 2008; Kleppe 2018). Although the dates provided by shoreline displacement may at best be considered as indications, they nevertheless support the above picture in general (see Table 3). Whether this seeming lack of dwellings from the very early pioneering phase is a result of missing data, that they may have left no traces at all, or may be attributed to 'living in the boats' (Bjerck 2009) needs further investigations. The same pertains to the fact that for the Mesolithic in general, the number of sites without any traces of dwellings vastly outnumbers those with dwelling remains.

The dwellings come in various shapes and sizes (Table 2): tent rings, semi-subterranean structures (defined as excavated below the original surface), and a possible rock shelter. Tent rings may be circular or oval; semi-subterranean dwellings may be circular, oval or square/rectangular. Based on only 18 dwellings it would at present seem premature to argue that one type or shape predates another. Preference for one type over the other may simply have been a question of logistic or strategic considerations (see also Fretheim et al. 2018). On sizes, tent rings vary from 2 to 3.5 m across. Semi-subterranean dwellings of the circular form measure 2.5 to 3

m across, the oval form from 3 x 2 to 7.7 x 3.7 m, and the square/rectangular forms from 2.5 x 2.5 to 12.2 x 3.6 m (all internal measures). Five large rectangular dwellings (Tønsnes ID-104342, ID-104380 Dwelling 1–3, and Tønsnes Location 10, Structure 15536; Skandfer et al. 2010; Gjerde & Hole 2013; Gjerde & Skandfer 2018) all appear rather late in the extended pioneer period [Bjerck's (2008a) MM3 chronozone; see Blankholm 2018a].

Tønsnes ID-104342 was slightly asymmetrically rectangular, oriented north-east–south-west, measured roughly 15 x 8 m in outer measures (9–11 x 3–4.5 m in inner measures), and was dug c 15 cm into the ground. Remnants of a solid wall-mound, up to 0.4 m high, were documented on three sides. Two short, internal, wall-mounds with passages seem to divide the house into a large middle room and a smaller room at either end. No fireplace was found, but scattered patches of charcoal in the wall-mounds have been interpreted as remains from repeated cleaned-out fires (Gjerde & Skandfer 2018). The lithic assemblage, including six single-edged points, indicates extended pioneer time. Five ^{14}C dates range between 7928±30 and 7796±30 BP (c 6980–6560 calBC) and may support the argument of repeated use.

ID-104380 Dwelling 1 was rectangular, oriented north-south, and measured 15.5 x 6.5 – 7.5 m in outer measures (12.5 x 3.0–3.6 m in inner measures). What has been interpreted as three different units along the floor were dug 5, 25, and an unspecified amount of centimetres down from the original surface, respectively. No stone-lined fireplace was found; only a charcoal concentration in the middle section (Skandfer et al. 2010). Eleven ^{14}C dates were obtained from Dwelling 1. According to Skandfer et al. (2010) nine, generally overlapping, ^{14}C dates from the floor and wall indicate that the house was constructed, used and re-used between 7060 and 6650 calBC which is in agreement with the composition of the material culture. Some considerably younger (c 2000 years) dates may suggest that this house site was reoccupied several millennia after its construction and first use.

ID-104380 Dwelling 2 was also rectangular, oriented north-east–south-west, measured 11.6 x 7.5 m in outer measures (7.7 x 4.4 m. in inner measures) and dug 20–25 cm into the ground. No indication of a hearth was found. According to Skandfer et al. (2010), five (out of a total of seven) generally overlapping ^{14}C dates from the floor and wall indicate that the house was constructed, used and re-used between 7030 and 6600 calBC, which seems to be in accordance with the material culture. Again, two much later dates may indidate re-use of the site/structure during the first half of the third millennium calBC.

ID-104380 Dwelling 3 was another rectangular structure. It was delimited by a low wall-mound and a clearly defined find distribution. It was oriented north-east–south-west, measuring c 7 x 4 m in outer measures, but with generally inconspicuous wall-mounds (thus lacking outer measures), and only barely dug into the ground. Dwelling 3 contained no fireplace, although a hearth pit 3 m outside the presumed wall has been suggested to be associated with the structure. Five ^{14}C dates ranging between 7946±39 BP and 7847±34 BP (c 7000–6600 calBC) indicate the time of construction and use. An axe made of slate is most obviously a much later secondary deposit from the Younger Stone Age.

Tønsnes Location 10, Structure 15536, was excavated in two opposing quarters, leaving some uncertainty as to its configuration. It appears to be oval with clear walls, oriented east–west and 13.5 x 7.6 m in outer measures (c 7.7 x 3.2–3.7 m in inner measures), and with the back dug into the sloping terrain, c 30 cm deep (Gjerde & Hole 2013). A hearth with at least 12 individual use phases of various extents was documented in the eastern part of the structure. Five ^{14}C dates place the initial construction and use phases within 7130–6680 calBC, while a single date indicates a secondary activity around the turn to the 6th millennium calBC. A slate knife indicates even later re-use of the area during the Younger Stone Age.

The two biggest dwellings (Tønsnes ID-104342 and ID-104380 Dwelling 1) have internal (floor) measures of 9–11 x 3–4.5 and 12.5 x 3.0–3.6 m, respectively. However, there may be reasons to argue that the latter in fact consists of two overlapping structures (see Skandfer et al. 2010: Fig. 4.5.29) of roughly 6 m in length each, which will bring it/them more into accordance with the rest of the large dwellings which generally measure roughly 7–8 x 4 m.

The large dwellings generally fit Bjerck's (2008a: 56) observation that 'Unlike the EMC structures, MMC dwelling structures seem to be solid semi-subterranean houses', but the Tønsnes dwellings are somewhat different from the Mesolithic pit dwellings we know from northern Norway. Gjerde & Skandfer (2018) are right not only in that such large dwellings are unusual, but also that they add to the variability of the size of dwellings and thus bring nuance into the traditional picture of solidness and sizes (e.g. Simonsen 1961; Schanche 1988; 1994; Bjerck 1990; 2008a; Olsen 1994; Pesonen 2002; Grydeland 2010).

Regarding other aspects of Gjerde & Skandfer's (2018) interpretations, one may, however, question the importance they ascribe to the relatively large sizes of the dwellings when it comes to further interpretations of behaviour. Fireplaces in dwellings, and well-defined hearths with or without stone-lining or packing in particular, are rare within the Early (and Middle) Mesolithic (Bjerck 2008a). This picture is confirmed by the new evidence from Troms County. Among the 18 dwellings, only five (Bergli 1 Section 1A and 1B, Tønsnes ID-104380 Dwelling 1, Tønsnes Location 8A Structure 14478, and Tønsnes Location 10 Structure A15536) have obvious hearths and of those only the one at Tønsnes Location 8A Structure 14478 is stone-packed. Why this is so may, of course, have ideological or behavioural reasons, but may also have been because more well-defined or solid structures were not needed. It may be that oil from marine mammals was used as a source of energy (Bjerck 2008b) rather than bulky wood that may have required more space and which may (or may not) have required a lining to keep it and the embers in place (but see Åstveit 2014: 94 for a critical review of the use of marine oil as a source of energy). On the other hand, none of the typical remains from oil-burning (Bjerck 2008b) have been identified in the Troms County material.

Another issue that needs to be addressed is whether or not a) solid sunken floors (*sensu* Gjerde & Skandfer 2018), and b) solidly constructed hearths, imply winter use of the dwellings. This may, or may not, be the case, but given the very few dwellings with these configurations, one may ask the pertinent question: where then, were the inhabitants of all the other Early Mesolithic dwellings without deeply sunken floors and stone-packed or lined fireplaces (not to mention those from all the other sites with no or only light dwellings/tents) in northern Norway during the winter? Moreover, does a heavy or solid structure necessarily imply winter? And again, low outdoor frequencies of tools and debitage and low levels of phosphate (as in the example of Tønsnes House 2; Gjerde & Skandfer 2018) is not necessarily a given indicator of low extra-dwelling activities. First, many important tasks and activities may not necessarily leave much in terms of debris or alteration of the soil chemistry. Second, many of the dwellings not showing the 'winter signs' have a similar spatial artefactual distribution (see below). In other words, taking low outdoor activity as a winter indicator would seem somewhat premature. In brief, presently there does not seem to be much in the way of convincing arguments for winter occupation.

INTRA-SITE ORGANIZATION

From the outset and following the intra-site spatial analyses of Målsnes (Thuestad 2005; Blankholm 2008), and Sandvika and Sarnes 4 (Thuestad 2005), the new excavations should offer the possibility for new insights. There are some drawbacks, however. First, the excavations were not designed with intra-site spatial analyses in mind. Fully excavated sites are preferable, but a good number of the sites, units or structures were excavated only in sections, often 'quartered' with two opposing quadrants excavated. This hampers analyses of patterning at both local and global intra-site scales and at the inter-site level of analysis (Blankholm 1991). Secondly, the level of detail in the documentation is strikingly inconsistent. Most of the reports provide plans of the distribution of tools and debitage, but often fail to provide drawings of sections. The distribution plans for tools are usually of pin-point accuracy; the distribution plans for debitage and raw material classes are of a more varied nature. A particularly problematic way of presenting what should have been raw distributions of debitage and raw materials is provided in Skandfer et al. (2010) and later Gjerde & Hole (2013) for the Tønsnes excavations: the original raw material counts are pre-

sented as randomised points within the 0.5 x 0.5 m excavation units (Skandfer et al. 2010: 41; Gjerde & Hole 2013: 36)! This way of presentation is misleading and not conducive to modern spatial analyses (Blankholm 1991; 2008).

It is way beyond the time and practical limits of this paper to bring the data on an equal analytical platform and perform new and consistent analyses. A preliminary eye-balling perusal of the available distribution plans do, however, indicate what might be a few trends.

The first is that when dwellings are documented or suggested, the majority of the finds seem to be more or less confined to the sheltered space. It is interesting to note in this respect that the cores at Bergli 1B (Grydeland & Arntzen 2010) seem to indicate the boundary of a somewhat larger (6 x 4.5 m and oval) dwelling than originally contemplated.

The second is that activity areas other than what may be interpreted as multifunctional or as knapping areas (with one or several on each site) seem to be relatively rare (but see below). This confirms earlier findings (Thuestad 2005; Blankholm 2008) and applies both to open air sites and dwellings.

The third is that various raw materials were differentially used or discarded across individual sites and between sites. This may indicate variable fall-out from technological organization that shifted in time and space relative to circumstances and supply situations.

The fourth is a slight indication at Tønsnes for a partition of some of the dwelling floors (e.g. ID-104342; Finstad & Grydeland 2009), Locality 8A, Structures A14454, A14503, and Location 10, Structure A15536 (Gjerde & Hole 2013). On ID-104342 there is a bi-partition of chert and quartz (but not quartzite) mirroring concentrations of debitage and retouched flakes at either end of the dwelling. A point, two scrapers, and two of three borers were found on the southern half of the floor. Cores, in contrast, occur in three concentrations; two overlapping the above and one in the centre of the dwelling. On Locality 8A, Structure A14454 there are weak concentrations of points and retouched flakes at the entrance and of points and blades at the back of the dwelling; the middle of the floor generally has low frequencies of everything. On Locality 8A, Structure A14503, cores and retouched flakes clearly dominate the southern part of the dwelling, while the northern part and the centre have a more generalised distribution of artefacts and tools. On Locality 10, Structure A15536 the western part of the dwelling is dominated by cores, retouched flakes, micro-blades and scrapers, whereas the eastern half only is dominated by the former three. To come much further than this will, however, and as indicated above, require a complete new full-scale and detailed investigation.

SETTLEMENT

Some years ago, I (Blankholm 2008: 96) outlined four hypothetical settlement patterns for the western part of Troms County:

1. A settlement system involving movement between the outer coast and the inland, with winters spent at the coast, summers in the inner fjord systems, mid-summer along the interior lakes and rivers (if accessible), and autumn on the way back taking advantage of the berry season.
2. A settlement system focused on the outer coasts and islands and the (inner) fjord systems.
3. A system using various types of sites, not a coast-inland axis, but on a relatively short-distance coastal axis involving the outer coast, major islands and outer-to-medium ranges of the extended fjord-systems.
4. A much larger system involving the procurement of exotic raw materials, such as black chert.

Although Gjerde & Skandfer (2018) do not address these hypothetical outlines, they propose a scheme that seems to fit best with number 3 above, with Tønsnes as a special and central place with good and sheltered communication links, excellent natural harbour facilities, a good resource base, visual control of several fjords and sounds, and seemingly at times with winter occupation. There is no reason to question the affordance qualities of the Tønsnes site *per se*. The issue is that Tønsnes is not the only place in the nearby (or larger) region that judged from the topographic and locational evidence possesses such qualities. One need only mention

such places as Eidkjosen and Vikran (also in the immediate vicinity of Tromsø island), 10–15 km away from Tønsnes, and at some further distance Spåkenes in Lyngenfjord. The problem is that none of those have been archaeologically investigated and until this happens it would seem somewhat premature to single out Tønsnes as special.

The same pertains to (distant) communication links. Again, there is no question that Tønsnes was well-placed, but so were most other sites as well, and passing Tønsnes probably was not a must for those who needed to travel along the 'inner passage'. For example, to obtain black chert near Kvænangen or Alta, at least during the earlier part of the Mesolithic, it would probably have been possible to bypass Tønsnes by going through the former straits or passages at now Balsfjordeidet and Lakselvdal. What is, in fact, needed in order to delve deeper into such issues is a carefully crafted research design and the excavation of sites on similar locations as Tønsnes.

FINAL REMARKS

As is nearly always the case with new investigations, the recent excavations in Troms have confirmed previous knowledge and have come up with a few surprises, but have also raised new questions. The biggest surprise is undoubtedly the presence of large dwellings. The key questions are now: will those big dwellings also be found in other, northern regions? Or are they a Tromsø-region phenomenon? If the latter proves to be the case, this will not only point to the presence of more small-scale regionality than hitherto observed, it will be a highly welcome contribution the de-homogenization of the Early Mesolithic in the North.

ACKNOWLEDGEMENTS

I wish to thank professor Bryan Hood, Department of Archaeology, History, Religious Studies and Theology for his helpful academic and linguistic comments upon earlier versions of this paper. I also wish to thank the editors and two anonymous reviewers for their helpful suggestions.

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