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PLUGGING THE GAP: EARLY METAL AGE IN THE OSTU MOUNTAIN PASS, TROMS, NORTHERN NORWAY

Abstract

This paper aims to give a preliminary account of the Early Metal Age (2000/1800 BC–BC/AD) Ostu site complex in the interior highlands of Troms, northern Norway. The research background and natural setting is outlined and followed by a presentation of the site complex with the emphasis placed on the material culture and settlement. In turn the site complex is discussed within the wider framework of northern Fennoscandian Early Metal Age settlement, followed by an interpretative outline of how the Ostu area initially came into focus around 1600 BC and why it seemingly went out of use around BC/AD.

Keywords: Early Metal Age, northern Norway, Material culture, Settlement, Economic and social dynamics.

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INTRODUCTION

Compared to sub-arctic Finland and Sweden, relatively little is known about the Early Metal Age (BC 2000/1800–BC/AD) from the bordering, interior regions of northern Norway (e.g., Gaustad 1973; K. Helskog 1974; 1980; E. Helskog 1978; Forsberg 1985; Hood & Olsen 1988; Baudou 1995; Bergman 1995; Haga 1997; Halinen 2005; Norberg 2008). Systematic research has been very limited and generally sites seem few and far between and, to some extent, chronologically mixed (see also Hood n.d). In fact, it would seem impossible to obtain more nuanced insights into cultural material variability and economic and social behaviour and organization.

To help remedy the situation, intensive campaigns have been carried out at Ostu – the Caledonian mountain pass between the lakes Altevatnet and Leinavatnet near the Swedish border in interior Troms county. The pass links the Bardu-Målselv river system – one of northern Norway's largest – with the interior high plains and would thus have

offered strategic, economic advantages as well as furthered transhumance, communication, and exchange of goods and people. Thirty new sites have been found of which 27 are of Early Metal Age (Figs.1–2, Blankholm 2001; 2008a; 2008b).

This paper presents the Ostu site complex with emphasis on material culture and settlement, discusses the site complex within the wider framework of northern Fennoscandian Early Metal Age settlement, and briefly outlines the implications regarding how the area initially came into focus around 1600 BC and why it was seemingly abandoned around BC/AD.

RESEARCH HISTORY

The first surveys at Altevatnet and Leinavatnet, including Ostu, were conducted by Knut Helskog in 1970 and 1971 in connection with hydroelectric regulation (K. Helskog 1970; 1971; 1980). Those were followed by surveys related to the national scheme for the protection of river drainage systems in the early 1980s (Kalstad &

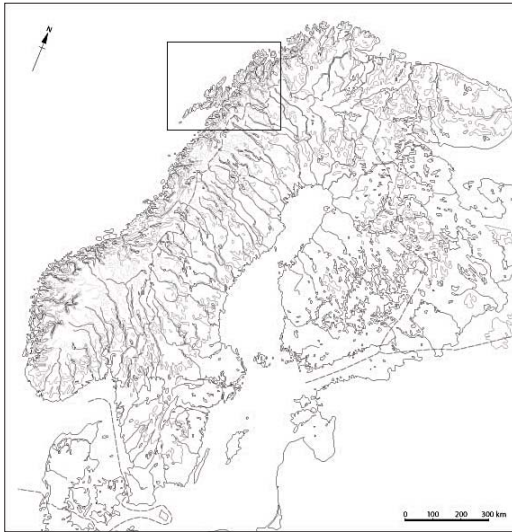


Fig.1. Map of Scandinavia showing the position of the general research area (Fig. 2). Map: H.P. Blankholm.

Storm 1983). Further surveys for Saami cultural remains were conducted by Bjørnar Olsen and Stine Sveen in 1998 (Sveen 2003). In connec-

tion with the present author's long-term project 'The Stone Age of Southern- and Middle Troms County in its Fennoscandian Context', surveys were conducted in 2001 and continued along with excavations during the years 2003-9 (Blankholm 2001; 2003a; 2003b; 2004b; 2004c; 2005; 2007a; 2007b; 2007c; 2008c; 2009a; 2010; 2011 – see the map in Fig. 3 for details).

A total of 27 new Early Metal Age sites were found during the latter campaigns. In a combined effort to rescue-excavate and monitor changes in the condition of perennially submerged, and surf and ice eroded, sites in the regulated Altevatnet basin, a cooperation agreement was made with Tromsø University Museum in 2006 and continued through 2009 (Wickler 2008; Mercer 2008). Finally, in an attempt to throw further light on a large pit-trap hunting system at Ostu in its regional context, this task was segregated as a sub-project for an MA thesis in 2006 (Klaussen 2008). The ongoing investigations are currently part of the LARM-project (Landscapes and Resource Management in Interior Troms and Finnmark 2500 BC–AD 1000; see LARM-prosjektet 2010)

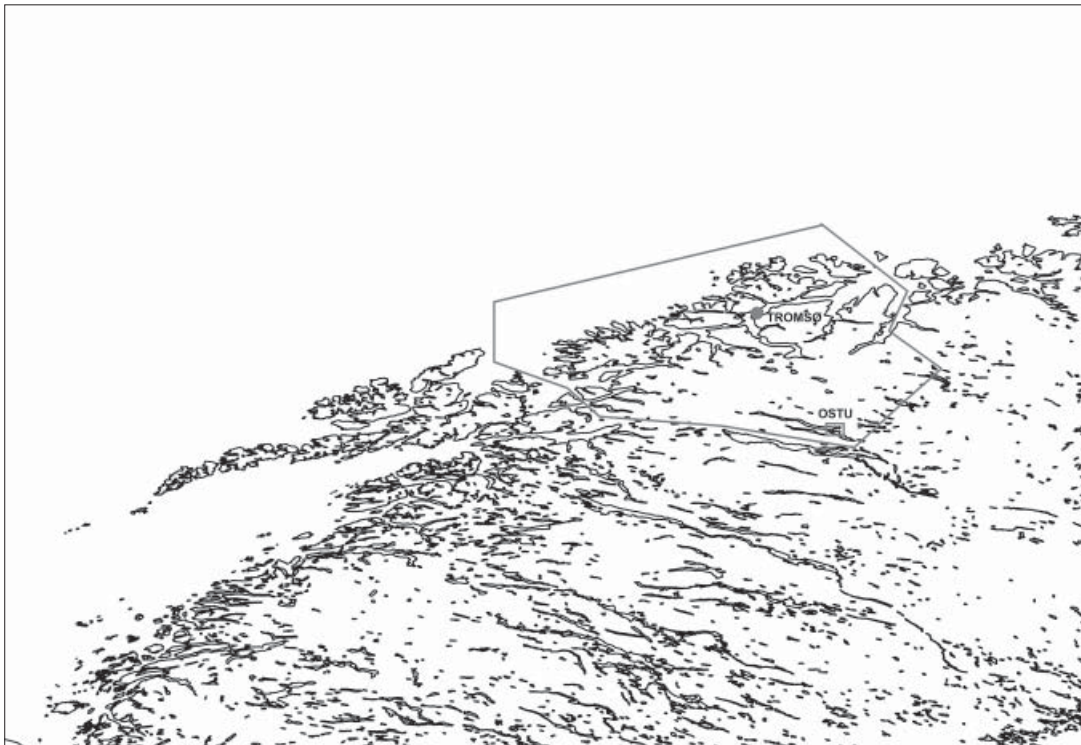


Fig.2. Northern Fennoscandia with the Ostu area (small frame) and extended study area (big frame). Map: H.P. Blankholm.

THE STUDY AREA

Ostu, meaning the bark of willow, elder, or rowan (Kåven et al. 2000) lies between lakes Leina (489 m a.s.l.) and Altevatnet (472 m a.s.l.) in the mountain pass between the Bardu- Målselv river system in Norway and the high plains in Sweden. More precisely, Ostu denotes the low-lying area between the lakes, roughly circumscribed by Mount Bulasvarri (699 m) to the west and Mount Ostovárás (562 m) to the east (Fig. 3).

Topography

The terrain is generally flat to gently undulating, only occasionally reaching heights more than 10–15 m above Leinavatnet. The notable exceptions are a series of sandy hillocks on both sides of Stryket (the rapids between the lakes), the western and higher part of the Ostu plateau, a marked sandy ridge above the bay at Leinavassstua (a hut operated jointly by the Reindeer Management Commission and the Mountain Rangers), and the remnants of

an esker going south-north from Sandholmen, alongside present bay Gjeddebukta and (below Altevatnet) across to Politiodden. The eastern banks of present day Stryket and most of the wooded land between the rapids and the extensive Ostojeaggi bog consist of sand, the rest mostly of moraine and/or block fields. Save for the sandy parts, the area is generally poorly drained. Today Stryket is approximately 500 m long and ca 100 m wide and contains two ‘pools’ rich in fish, but the rapids once extended a further 750 m down to the former shores of Altevatnet with an additional five ‘pools’. Before the regulation of Altevatnet in the 1950s, it was often claimed to be the best fishing river for trout in northern Norway.

Climate

As a low alpine, slightly continental zone (Moen 1998) the area experiences relatively dry and cold winters and relatively dry summers. At 500 m a.s.l. mid-winter temperatures average -15°C while the September average is 4°C (K. Helskog 1980). It



Fig. 3. Site-map of the Ostu area. A1 = Altevatn 1, S1–11 = Stryket 1–11, AV = Alma Vista, L1–11 = Leinavasshytta 1–11, IM = Inga's Marina, O1–4 = Odden 1–4, KP = Kristines Plass. Map: H.P. Blankholm.

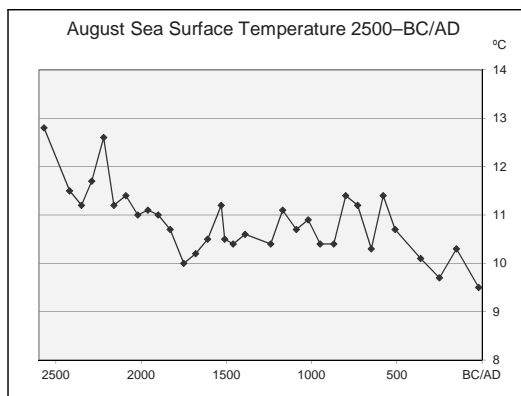


Fig. 4. August Sea Surface Temperatures (SST) for the period 2500 BC–BC/AD. Source: Nalan Koç, Norsk Polarinstitut, Tromsø.

has been suggested that the annual temperature between ca. 1500 and 500 BC was approximately 1.5°C higher than today (K. Helskog 1980; Vorren et al. 1996), but more recent research indicates large fluctuations and topographical and spatial variation (see Birks & Koç 2002; Helama et al. 2005; Kultti et al. 2006, Jensen & Vorren 2008, and below). The lakes usually freeze in October and thaw in early to mid-June; the snow cover is generally light, less than a meter. The snow usually begins to fall in September and is normally gone by early June. What makes the Ostu area attractive weather-wise is the presence of a weather barrier running across Altevatnet at Mount Gironas ca. 15 km to the west. This links Ostu to the generally warmer and drier summer weather patterns of the high plains to the east of Leinavatnet in contrast to the cool and wet maritime patterns extending inland through the lower valleys.

Vegetation

From Mørkved (1991), Vorren et al. (1996), and Jensen & Vorren (2008) it appears that the low alpine vegetation cover of the area in the late Early Metal Age was much the same as of today, although pine may have been more widespread (K. Helskog 1980).

At present the area is mostly covered by grasses, herbs, mosses, dwarf willow, and patches of birch along the river and lake margins, occasionally forming larger, lightly wooded areas. The latter extends up to 550–600 m a.s.l. and thus forms one of the few forest covered passes across the Caledonian mountains within the region (Fig. 3).

The altitudes above 550–600 m a.s.l. are covered mostly with grass or barren rock. The area has been the summer pasture area for the Saami Saarivuoma siida from at least as far back as the 16th century (Ruong 1937). The results of recent studies of the palaeo-forest ecology in the broader region, notably tree-lines (Helama et al. 2005; Kultti et al. 2006; Jensen & Vorren 2008), generally match the Sea Surface Temperatures (SST, Fig. 4) (Birks & Koç 2002; Andersen & Koç 2003), but the results of Kultti et al. (2006) do so in particular. The two most marked decreases in the forest limit of pine both correlate nicely with the two most conspicuous drops in SST. In other words, the SST may be taken as a good ecological proxy.

However, two important aspects need consideration when dealing with sea surface temperatures in the present context: the scale of chronological resolution may not be commensurable with those of other proxies (e.g. pollen analysis, macrofossils) or the regional archaeology. Given the high degree of local, topographical and spatial variability among the results of pollen and macrofossil analyses, SSTs do offer the advantage of geographically broader-scale studies (including the coast) of the relationship between climate and culture history. This is so even when applied to inland contexts, but only as long as the data series from the two natural scientific disciplines generally match.

Animal life

K. Helskog (1974) listed the present-day most important economic fauna to be reindeer, elk, hare, fox and ptarmigan. There is no direct evidence of the fauna from the excavated sites in the area, but given the highland ecological setting, there is little reason to doubt that the above was also the case in the Early Metal Age. One might add, however, an important fish-resource, namely the arctic char. This is still very abundant in Leinavatnet with an annual production of around 4 tonnes (Torbjørn Berglund, Statens Naturoppsyn, pers. comm). To this should, of course, be added wild berries. Due to the early formation of two major waterfalls, Bardufossen (ca. 9000 BP) and Målselvossen (ca. 8000 BP), respectively (Eilertsen 2002), anadromous fish such as salmon and sea trout would have been unlikely in the upper part of the river system during the Early Metal Age. However, potamodromous trout may have been abundant.

THE OSTU SITE COMPLEX

All sites with stone artefacts are shown in Fig.3, type frequencies in Table 1, debitage and raw-materials in Table 2, and radiocarbon dates in Table 3.

Surveys and sampling

Sites were found by intensive field-walking survey and/or test-pitting. All sites with stone artefacts were found in grey, sandy soil. Most sites were spotted either in wind-eroded surfaces, in eroded paths, or along the eroded shores of Altevatnet and Leinavatnet. Two sites (Stryket 1 and 10) were found sealed below the turf by test-pitting in what was deemed obvious locations for settlement. At all surface sites, a sample of loose surface artefacts were picked up and bagged for further processing, while finds lying steadily in situ were left in place for later identification of the site and possible further field investigations. The patchy nature of the exposure, the fact that experience (including that from Stryket 1 and 10) tells that frequencies and densities of artefacts can vary abruptly within very short distances, and given that only a small sample of artefacts could be picked up, all indicate that the numbers in Tables 1 and 2 should be treated with caution. It is only possible to speak of low-level generalities.

As it was, Stryket 1, 10, and Leinavasshytta 1 were later chosen for formal excavation while Odden 2 and Kristines plass were partially rescue excavated under the direction of Tromsø University Museum (Blankholm 2003b; 2004b; 2005; 2007b; 2007c; 2008c; 2009a; 2010; Bruun 2006a; 2006b). More recently, the semi-subterranean pit-dwelling, Leinavasshytta 4 has been excavated and is of particular interest (Blankholm 2011). It is one of the relatively few semi-subterranean dwellings from the entire interior northern Norway that so far have been firmly documented to the Early Metal Age (see also Skandfer & Bruun 2006; Skandfer 2009).

Raw materials

The Ostu site complex is one among many examples of the ca. 10 000-year long tradition of using a wide variety of raw materials in the region north and west of the Caledonian watershed (Blankholm 2008a).

At least nine categories of raw material have been identified among the surface collected and partially excavated sites (see below and Table. 2). Materials vary from very fine-grained cherts and quartzites, to medium-grained quartzites, coarse quartzites and various sorts of quartz. All of these raw-materials have also been found at the fully excavated sites Stryket 1 and 10, which, however, display a much wider range of raw-materials. One could argue that the larger the spatial extent of an excavation and the higher amounts of material that has been found, the greater the raw material variability (see also Blankholm 2008a).

As to raw material provenience, most of the materials are naturally available within the Bardu-Målselv river basin (Blankholm 2008a).

ARTIFACTS

Tools and by-products

A brief overview of the tools and their by-products is given below; details are given in Table 1. The sites along Stryket are mostly characterized by fragments of bifacially retouched points and/or fragments of bifacially retouched pre-forms, scrapers, cores or core rejuvenation flakes. Frequencies are low and proportions among the types vary although points and pre-forms generally dominate (Fig. 5). A preliminary count from Stryket 1, however, shows a very high number and clear majority of scrapers. The remaining sites only contain the odd scraper, core, or burin.

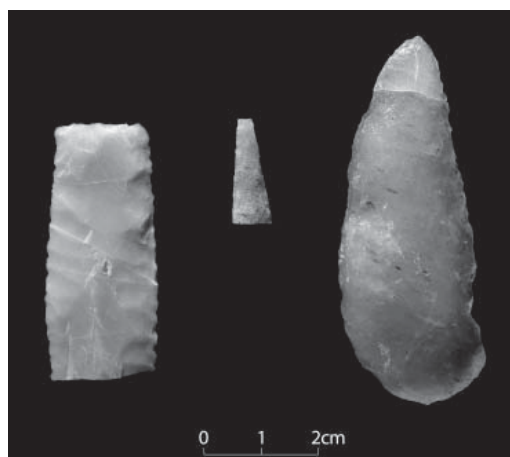


Fig.5. Fragments and pre-forms of bifacially retouched points from Stryket 1. Photo: Adnan Icgic, Tromsø University Museum.

Table 1. The Ostu site complex. Tools, by-products, and debitage.

Site	Points (fragments)	Surface trimmed pre-forms (fragments)	Scrapers	Burins	Blades/flakes w/ cont. retouch	Blades/flakes w/truncation	Blades/flakes w/denticulation	Cores	Core rejuvenation flakes	Blades	Flakes including fragments
Stryket 1 ¹	-	-	-	-	-	-	-	-	-	-	-
Stryket 2	-	-	-	-	-	-	-	-	-	-	2
Stryket 3	-	-	-	-	-	-	-	-	-	-	1
Stryket 4	-	-	-	-	-	-	-	-	-	-	5
Stryket 5	-	-	-	-	-	-	-	-	-	-	2
Stryket 6	7 ¹	6	2	-	-	-	2	-	-	-	157
Stryket 7	2	6	2	-	-	-	2	4	-	-	478
Stryket 8	1	2	-	-	1	-	2	-	1	-	73
Stryket 7/8	-	2	-	-	-	-	1	-	-	-	25
Stryket 7-8 total	3	10	2	-	-	-	5	4	1	-	-
Stryket 9	-	-	-	-	-	-	1	-	-	-	8
Stryket 10 ¹	-	-	-	-	-	-	-	-	-	-	-
Stryket 11	-	-	-	-	-	-	-	-	-	-	3
Alma Vista	-	-	-	-	-	-	-	1	1	-	27
Leinavasshytta 1 ²	-	-	-	-	-	-	1	1	-	-	17
Leinavasshytta 1 ³	-	-	4	-	-	-	4	-	-	-	643 ⁴
Leinavasshytta 5	-	-	-	-	-	-	-	-	-	-	3
Leinavasshytta 6	-	-	-	-	-	-	1	-	-	-	29
Leinavasshytta 7	-	-	1	-	-	-	-	-	-	-	11
Leinavasshytta 8	-	-	-	1	-	-	-	-	-	-	2
Leinavasshytta 9	-	-	-	-	-	-	-	-	-	-	5
Leinavasshytta 10	-	-	-	-	-	-	-	-	-	-	1
Leinavasshytta 11	-	-	-	-	-	-	-	-	-	-	2 ⁵
Inga's marina	-	-	-	-	-	-	1	-	-	-	6
Odden 1	-	-	-	1	-	-	-	-	-	-	35
Odden 2	-	-	1	1	-	-	-	-	-	-	396
Odden 4	-	-	-	-	-	-	-	-	-	-	6
Kristines plass	-	-	-	-	-	1	-	-	-	-	131
Total	13	26	12	3	1	1	1	20	9	3	2068

1) Not finally analyzed; 2) Surface collection; 3) Excavated; 4) Plus one flake of slate; 5) Water-rolled

Generally, grey striped quartzite (GSQ, see Table 1) and light-grey striped quartzite (LGSQ) were the most widely used raw-materials for tools in the area – a pattern which is repeated among the debitage (below). GSQ and LGSQ obviously have good flaking qualities. Why they were preferred to the more fine-grained cherts and quartzites may have something to do with deliberate choice, availability or simply that the more fine-grained categories were not at hand in sufficiently large nodules necessary to create the tools wanted. In any case, the multitude of carefully bifacial retouched points more than amply demonstrates high knapping and working skills.

It is interesting to note that several of the bifacially retouched pre-forms were in a relatively early stage of production when they broke. There may be several reasons for this, but one interpretation could be that the sites functioned in part as procurement and preliminary production sites.

Barring that some sample bias may occur (see above), a division may be established among the sites: a) those with bifacially retouched artefacts and the presence of bifacial retouching flakes (e.g., Stryket 1, 6–8, and 10), and b) all other sites. The meaning of this, including the function of the various sites in their various local topographical settings will be returned to later.

Table 2. The Ostu site complex. Debitage and raw-materials.

Site	DSQ	LGSQ	GSQ	WGSQ	LGHQ	LFQ	BGSQ	MQC	MQ	Other	Total
Stryket 1 ¹	-	-	-	-	-	-	-	-	-	-	-
Stryket 2	-	-	2	-	-	-	-	-	-	-	2
Stryket 3	-	-	1	-	-	-	-	-	-	-	1
Stryket 4	-	-	5	-	-	-	-	-	-	-	5
Stryket 5	-	-	1	-	-	-	-	-	-	-	1
Stryket 6 ²	-	65	9	3	4	-	-	-	-	11	92
Stryket 7	-	447	9	-	11	1	-	-	-	7	475
Stryket 8	-	45	10	16	2	-	-	-	-	-	73
Stryket 7/8	-	16	5	3	1	-	-	-	-	-	25
Stryket 9	-	2	1	-	4	-	-	-	1	-	8
Stryket10 ¹	-	-	-	-	-	-	-	-	-	-	-
Stryket 11	-	3	-	-	-	-	-	-	-	-	3
Alma Vista	1	14	3	1	4	2	-	-	1	1	27
Leinavasshytta 1 ³	-	3	4	7	2	-	-	-	-	1	17
Leinavasshytta 5	-	3	-	-	-	-	-	-	-	-	3
Leinavasshytta 6	1	1	2	1	5	2	8	7	-	2	29
Leinavasshytta 7	-	-	4	-	-	-	7	-	-	-	11
Leinavasshytta 8	-	1	1	-	-	-	-	-	-	-	2
Leinavasshytta 9	-	-	-	1	2	-	-	-	2	-	5
Leinavasshytta 10	-	-	-	-	-	-	-	1	-	-	1
Leinavasshytta 11	-	-	1	-	-	-	-	-	1	-	2
Inga's marina	-	-	-	-	6	-	-	-	-	-	6
Odden 1	-	35 ¹	-	-	-	-	-	-	-	-	35
Odden 2	1	104	17	7	40	36	-	185	-	6	396
Odden 4	-	6	-	-	-	-	-	-	-	-	6
Kristines plass	-	40	2	74	12	1	-	1	-	1	131
Total	3	785	77	113	93	42	15	194	5	29	1356

DSQ = Dark, fine-grained, massive, striped quartzite, LGSQ = Light grey, fine-grained, striped quartzite, GSQ = Grey, fine-grained striped quartzite, WGSQ = White/grey striped quartzite, LGHQ = Light-grey, medium-grained "hatched" quartzite, LFQ = Light, fine-grained, striped quartzite (Målsnes type), BGSQ = Brown-grey, fine-grained, striped quartzite, MQC = Milky quartz (clean), MQ = Milky quartz). 1) Not finally analyzed; 2) 65 flakes from Stepen Wicklers collection not included; 3) Excluding excavated material from 2009.

Debitage

The blades and flakes vary in raw-material, size, and type among and between the sites (Table 2). Again, the general pattern is a dominance of GSQ and LGSQ followed by light-grey, medium-grained 'hatched' quartzite (LGHQ). Two sites set themselves somewhat apart; aside from the above raw-materials, Odden 2 contains a large amount of glossy white quartz (MQC) and light striped quartzite (LFQ) and Kristines plass contains a relatively large amount of white/grey striped quartzite (WGSQ).

Sample bias may to some extent apply to the size variation of flakes; Stryket 6–8, Leinavasshytta 6–7, and Odden 2, which have the largest spatial extent or have been partly excavated, all include large-sized flakes. The same applies to the fully excavated sites Stryket 1 and 10, which contain by far the largest amount of artefacts

CHRONOLOGY

Given the vague typological chronologies at hand for Early Metal Age lead-types, such as bifacially retouched quartzite points (e.g., Broadbent 1979; E. Helskog 1983; Forsberg 1985; Hood & Olsen 1988; Olsen 1994; Bergman 1995; Hesjedal et al. 1996; Haga 1997), it would seem premature to date the Ostu sites by typological means. What is important is the great general similarity between and among the Ostu sites. Using the earliest and latest radiocarbon dates from Stryket 1 and 10 (Table 3) as anchor points, it would seem that most of the Early Metal Age site activity in the area took place between ca. 1400 and BC/AD.

This time span also covers the ranges for Politiodden 1 (510–390 BC) and Elva 1a (600–510 BC) (Wickler 2008) and falls within the range for the use of the large hunting pit-trap system (3700 BC–AD 120; Klaussen 2008, and see below). It

Table 3. ^{14}C -chronology of the Ostu sites.

Site name	Lab.no.	Material	BP	Calib. BC/AD 2 σ
Stryket 1	TUa-5641	Birch	2505 \pm 30	770–535 BC
Stryket 1	TUa-5640	Birch	2285 \pm 35	390–260 BC
Stryket 1	T-17375	Birch	2180 \pm 110	380–50 BC
Stryket 1	TUa-4432	Birch	275 \pm 40	AD 1635–1660
Stryket 7	Wk-22488	Pine	5172 \pm 45	4005–3950 BC
Stryket 10	T-16690	Peat	2205 \pm 60	365–165 BC
Stryket 10	T-19588	Birch	230 \pm 50	> AD 1650
Stryket 10	T-19589	Birch	2470 \pm 65	770–410 BC
Stryket 10	TUa-7356	Birch	3115 \pm 40	1415–1320 BC
Stryket 10	T-18836	Birch	3040 \pm 75	1400–1135 BC
Leinavasshytta 1	TRa-500	Birch	600 \pm 30	AD 1310–1405
Leinavasshytta 2	TRa-501	Birch	525 \pm 25	AD 1405–1430
Leinavasshytta 3	TRa-502	Birch	560 \pm 25	AD 1400–1415
Leinavasshytta 4	TRa-1982	Birch	2430 \pm 35	755–405 BC
Leinavasshytta 4	TRa-1983	Birch/Rowan	2420 \pm 35	750–405 BC
Leinavasshytta 4	TRa-503	Birch	2390 \pm 30	415–400 BC
Kristines plass	Tua-6394	Birch	1615 \pm 25	AD 420–495
Ostu, Pit-trap 1	Beta 233904	Wood unspec.	2060 \pm 40	180 BC–AD 120
Ostu, pit-trap 19	Tua-6395	Birch and pine	3345 \pm 30	1675–1530 BC
Ostu, pit-trap 20	Tua-6396	Birch	3370 \pm 30	1685–1620 BC
Ostu, pit-trap 36	Beta 233905	Burnt material	3340 \pm 40	1740–1520 BC
Ostu, pit-trap 61	Beta 233906	Burnt material	4880 \pm 40	3710–3630 BC
Ostu, pit-trap 87	Beta 223448	Turf/humus	100 \pm 40	AD 1680–1730
St.Rosta 2	T-20064	Birch	2990 \pm 85	1380–1050 BC



Fig. 6. Ostu. Topographic zone I. The excavation of Stryket 10 in the centre-right.
Photo: H.P. Blankholm.

follows that there is so far no firm evidence from the first 400 years (1800–1400 BC) of the Early Metal Age except for the pit-trap system. This may indicate that the focus on the Ostu area was not necessarily linked to the events suggested to instigate the period elsewhere in northern Norway (e.g., Olsen 1994).

SITE DISTRIBUTION

Based on a combination of topographical location and content, four groups of sites may be recognized:

(1) Sites along the shores of Stryket proper (Fig. 6), including the sites in the regulation zone of Altevatnet. The latter were originally situated about 750 m upstream from the shores of Altevatnet, which denotes a de facto riverine setting. The sites include Stryket 1, 6–11, Alma Vista, and Altevavn I. Of those Stryket 1 and 10 have been excavated, Altevavn I test-pitted, and Stryket 6–8 sampled to an extent that permits some preliminary conclusions. They are small (6–8 m across) and contain no remains of dwellings. They are characterized by bifacially retouched points, including pre-forms

and fragments, scrapers, and vast quantities of debitage from surface flaking and retouching. Other tool types are relatively few (see Table 1).

The proportion of bifacially retouched points to scrapers varies; points dominate at Stryket 10 while scrapers do so at Stryket 1. This is a situation similar to the one reported from Virdejavri in the Alta-Kautokeino river system (Hood & Olsen 1988; Olsen 1994). Although the various proportions of points relative to scrapers has been attributed various meanings, e.g., functional and/or seasonal, or even gender-orientated as in the case of the Virdejavri finds (e.g. Olsen 1994), they may (also) have been purely accidental.

Preliminary analyses of Stryket 1 and 10 indicate that they were used on several occasions (see Table 3), but the timing of possible reoccupations needs further investigations. Situated at, or very near to, excellent fishing and hunting grounds, and according to their contents, these are following K. Helskog's interpretation of Altevavn I (K. Helskog 1974; 1980) best labelled hunting/fishing sites, but with the additional functions as raw-material procurement or processing (notably variants of grey, striped quartzite) and manufacture sites for



Fig. 7. Ostu. Topographic zone 2. B.A.-student Per Kristian Bergmo (left) and mountain ranger Albert Fosli (right). Photo: H.P. Blankholm.



Fig. 8. Ostu. Topographic zone 3. M.A.-students Johanne Hortemo and Aksel Håvik. Photo: H.P. Blankholm.

bifacially retouched implements. Whether or not those functions were equally important is impossible to resolve for the present (see also Bergman 1995:195). Winter settlement is entirely possible per se in the area; but the lack of any sort of dwelling remains, the low variability of artefacts on the sites, the fact that few resources are available during winter and that the lakes and rivers ice over heavily would seem to speak against it (although ice-fishing may have been an option). Moreover, snow cover from October through May hinders exploitation of raw-materials.

On the other hand, when the snow and ice are gone, raw-material extraction and exploitation become feasible, fish are abundant from late June throughout summer, berries are available from July through September, and reindeer can be caught when they are most valuable on their early autumn trek through the area on their way back from the coastal zone and into the plains and wooded areas on the eastern side of the Caledonian mountains. Thus, most things would seem to favour an interpretation of occupation sometime between June and late September/early October.

(2) Sites along the shore of the sandy bay at Leinavasshytta (Fig. 7). This group includes the

sites Leinavasshytta 6, 8, 9, and 11. These sites have only been partially sampled by surface collection and the range of artefact types and function cannot presently be assessed with certainty. They are, however, small (2–3 m) in extent. No points have been found, only the odd scraper, but the presence of bifacial retouch debitage indicates the manufacture of bifacial implements. Although the location along this rather shallow bay is at some distance away from the most favourable fishing spots, they may have functioned in a way not too dissimilar from those of Group 1 above. The annual accumulation of 3–4 m of snow-drifts over the entire beach area in the bay would seem to render these sites less desirable for winter occupation. For the same reasons as above, the sites were most likely occupied between June and late September/early October.

(3) Sites on top of the ridge along the eastern shore of Stryket and behind Leinavasshytta (Fig. 8), including the sites Stryket 2 and 5, Leinavasshytta 1, 5, 7, 10, and Inga's Marina. Aside from the excavated Leinavasshytta 1 which contains a roughly 3 x 2.5 m sub-rectangular dwelling (Blankholm 2010), the sites are surface sampled only. They appear small, about 3–4 m across



Fig. 9. Ostu. Topographic zone 4. Field director at Odden 2, Inga Malene Bruun (right). Photo: H.P. Blankholm

and seemingly contain only little debitage in low densities and with the occasional core or scraper. These are tentatively interpreted as monitoring sites, used for small-scale manufacture and maintenance of implements while on the look-out for reindeer herds. Again, the season of use would most likely have been June through September/early October

(4) Sites along the esker with the pit-trap system forming the eastern shore of present bay Gjeddebukta (Fig. 9), which is situated some 800–1000 m from the original shores of Altevatnet.

The sites Odden 1, 2, 4, and 5, Kristines plass, and Altevatn III (K. Helskog 1970) belong to this group. Odden 2 and Kristines plass have been partly excavated (Bruun 2006a; 2006b). Apparently only the eastern rims of the sites were preserved along the present Altevatnet erosion face. The partly excavated sites showed small concentrations of varying densities of debitage, but only few tools. Although parts of the sites are missing, thus precluding insight into the full range of artefact variation, one would have expected a high proportion of arrow- and spearheads and/or butchering equipment if those sites were related to the pit-trap system just behind them. On the

other hand, they may have functioned as ‘stand by’ or maintenance sites, where people may have done minor tasks while waiting for the action at the pit-trap system or they may have been used during the construction of the system. The season of use would most likely have been June through September/early October.

One site, Leinavasshytta 4, stands apart. This pit-dwelling has an inner floor area of ca. 2.5 x 2.5 m and a roughly 1 x 1 m stone-packed hearth placed off-centre in the southwest quarter. The stratigraphy both of the floor area and the hearth would seem to indicate two short occupation phases sometime between ca. 750 and 400 BP (Table 3; Blankholm 2011). Aside from 2 flakes and some fire-cracked stone and charcoal nothing else was found. This may indicate ceremonial or ritual use or possibly that iron tools in this particular case had replaced stone artefacts.

Several sites at the northeastern end of Altevatnet – the sites at Politiodden and a cluster of sites near the mouth of the Suddesgaldujokka River (Mercer 2008; Wickler 2008) – are located similar to Group 1 and may be interpreted in the same way. They were originally situated between 35 and 600 m from the original shore of Altevatnet.

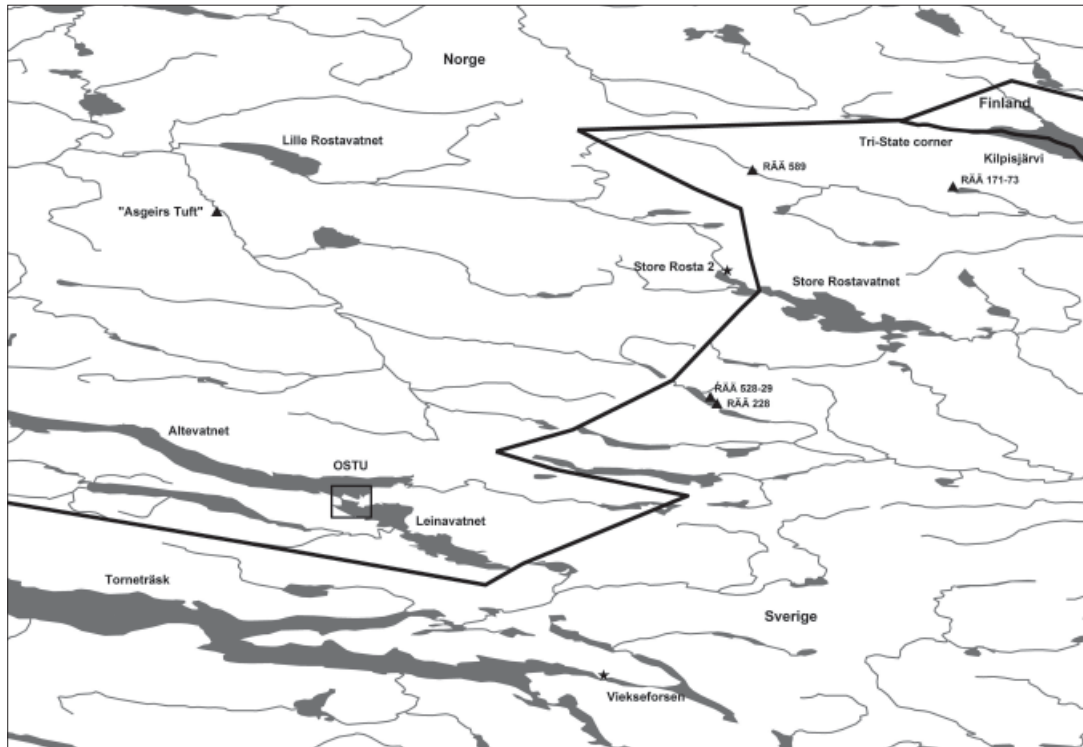


Fig. 10. Other Early Metal Age sites in the tri-state corner area. Map: H.P. Blankholm.

What sets the site Elva 2 apart is the presence of asbestos ceramics of Kjelmøy type (broadly dated to ca. 800 BC– BC/AD; Hood & Olsen 1988; Jørgensen & Olsen 1988; Olsen 1994) and a potential fragment of a iron production furnace with adhering slag (Wickler 2008: 33–34). Together with another recent find of Kjelmøy ceramics at Tønsnes near Tromsø (Site 104349, Finstad & Grydeland 2009), this helps fill in the picture both for the inland/highland and along the coast within its broader distribution across northernmost Fennoscandia. The asbestos ceramics from Elva 2 links the site to iron processing (e.g., Hulthén 1991), not necessarily iron production (Baudou 1995, see also Jørgensen 2010), but may nevertheless indicate a broader set of activities than for the other sites in the area.

OTHER EARLY METAL AGE SITES FROM THE HIGHLAND TRI-STATE BORDER REGION

A number of other sites have been found at or near lakes and rivers in other Caledonian mountain passes and across the plains in the border region

between Norway, Sweden and Finland.

On the Norwegian side (Fig. 10) one may mention Store Rosta 2 at the outlet from the lake Store Rostavatnet. This is typologically similar to Stryket 1, 6–8, and 10, and dated to 2990 ± 85 BP (1380–1050 BC; Blankholm 2008d). Also Asgeirs Tuft in Dividalen which contains a large solid dwelling is likely to be of Early Metal Age (<http://askeladden.ra.no/sok>).

From Sweden (Fig. 10) one may mention Viekseforsen (Olsson 1914) near the eastern end of Lake Torneträsk, about 20 km away from Ostu, and the presumed Early Metal Age sites RÄÄ 171:1 and 2, 172, 173, and 589 at the river Bealcan (tributary to the Torne River) just about 10–12 km north of Store Rosta 2, and the sites RÄÄ 228, 528, and 529 located at upper Lake Cuolmma, about 11 km to the south of Store Rosta 2 (Färjare 1998).

These sites confirm the general presence, but uneven density and to some extent differential topographical settings of Early Metal Age sites in the interior highland. However, with only one site partially excavated (Store Rosta 2) little can be said about their function.

DISCUSSION

More research and notably sites with preserved organic remains are clearly needed in order to venture deeper into the issues of economy, settlement pattern, and social organization. It is, however, possible to draw a tentative outline of interpretation.

The evidence currently points towards differential use of the Ostu landscape and possibly also of the sites. It is evident that none of the sites show the usual signs of long-term base camps (e.g., relatively thick cultural layers, broad range of activities and artefacts, etc.). With the wide range of ^{14}C -dates (giving on the average a site per ca. 50 years) it could be tempting to see the Early Metal Age use of the Ostu area as sporadic or maybe even 'ad hoc' had it not been for the presence of the large pit-trap system. The pit-trap system is in its present form among the largest in Troms county. It consists of 88 pits in a complex lay-out covering approximately 800 m as the crow flies and makes full advantage of the terrain (K. Helskog 1970; Klaussen 2008). According to the radiocarbon dates (Table 3) the pit-trap system was built in several stages, and apparently from south to north, between ca. 3700 BC and ca. AD 100 (the AD 1680–1730 date for pit no. 87 is somewhat dubious).

The pit-trap system indicates substantial manpower for building and maintenance and would have required strategically scheduled and recurrent use and repair. It thus seems more likely that the Ostu sites were a permanent integral part of a settlement pattern. On the other hand, one should not underestimate the danger of analytical homogenization – nuance and variation may be lost by compressing sites spanning about 1500 years of settlement into a single, simple model.

The question is, were the Ostu sites tied to the interior alone or did they form part of a transhumance system involving either the Norwegian coast or the Bothnian Bay? In the first place, settlement patterns do not need to have operated the same way on either side of the Caledonian range or across northern Norway for that matter. Just the fact that the Bothnian Bay freezes up every winter while the Norwegian coast does not would imply that river catchment-coast oriented transhumance systems could operate in different ways. In this respect it is interesting that the Ostu complex shares with the Atlantic coast a very old tradition, going right back to the Early Mesolithic,

of using a wide variety of raw-materials (Blankholm 2008a and see above). The Swedish and Finnish sites do not share this tradition basically restricting themselves to less than six, while the sites west or north of the Caledonians commonly use 15 or more, depending somewhat on the classification system (Forsberg 1985; Bergman 1995). This does not seem to support a notion of groups living in the interior on a year round basis (but see Olsen 1994) even if the general tendency of the larger the sites/excavated area the more raw-materials present is allowed for.

It appears relevant to look for the winter sites in the Norwegian coastal area and more particularly in the area contiguous to the outlet of the Bardu-Målselv river system. Aside from the outer Atlantic coast, this area comprises numerous larger and smaller islands, inner and outer fjords and straits rich in marine resources that seemingly would have been able to sustain year round occupation. This general area also contains a good number of Early Metal Age sites, including several with pit-dwellings (e.g., Grindvollen Tuft 4, apparently showing at least two occupations between ca. 1900 and 120 BC; Blankholm 2009b and Fig. 11).

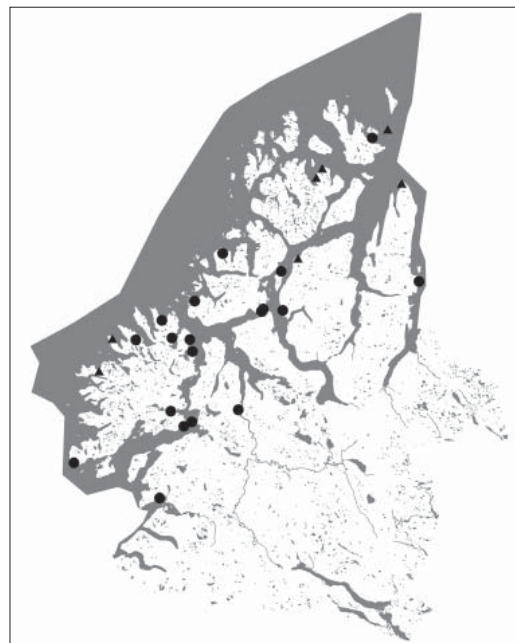


Fig. 11. Coastal Early Metal Age sites. Dot= site dated by typology and/or ^{14}C and with or without pit-dwellings; triangle= presumed Early Metal Age pit-dwelling site as judged from height (m a.s.l.). Map: H.P. Blankholm.

Taken at face value, a model for the Bardu-Målselv region could have involved coastal/fjord oriented settlement based on hunting and fishing of, for example, reindeer, moose, seals, cod, coalfish, etc., by all members of the group during the late autumn, winter, and spring/early summer (October through June) and summer/early autumn use of the interior mountains during July-September by all or part of the group, providing lithic raw-materials and hunting reindeer and fishing arctic char, the reindeer with their meat, antlers, and skin in prime condition on their trek back into the interior to their winter-grazing grounds. This would all seem to indicate a logistically oriented economy involving mass kills and storage. It almost goes without saying that if some of the coastal inhabitants at some point in time ventured into farming, some would need to stay back to look after live-stock and/or crops and take care of the harvesting. It need also be mentioned that since no one (individual, ethnic group, people, or culture) has a patent on farming or stock-rearing, those practicing 'early farming' in the area need not be people of 'Norse' origin expanding along the coast from the south (see also Jørgensen 1986; 1989; A. Schanche 1989; Sandmo 1994; Sjøgren 2009; Vorren 2009; Arntzen & Sommersest 2010).

Previous models for Early Metal Age settlement in northern Norway have ranged from transhumance between coast and inland (Haga 1997), over basically coastal oriented systems (e.g., E. Helskog 1983) to segregated annual systems in the interior and along the coast between 1800 and 1000 BC, respectively (Olsen 1994), to K. Schanche's (1994) complex socio-economical system of permanently occupied central villages with networks of smaller sites within the inner Varangerfjord area contrasted by the outer (southern) Varangerfjord area, for which she proposed a higher degree of mobility with base-camps abandoned during the winter and with seasonal camps for cod- and salmon fishing.

Thus, from a general point of view, the situation in Troms would seem similar to the one argued by Haga (1997) for Nordland. Following Johansen's (1998) and Hood's (n.d.) incisive critiques of notably K. Schanche (1994) and Olsen (1994), it would presently not seem feasible to make very useful comparisons between Early Metal Age settlement patterns in Troms and Finnmark counties.

Going to nearby, present-day Sweden, several Early Metal Age settlement models for the Great and Little Lule rivers, the Ume river and Pite river have focused on transhumance between the forest zone and the foothills of the Caledonian chain (e.g., Forsberg 1985; Bergman 1995). This inland-only focus, also to some extent shared by Halinen (2005) for sub-arctic Finland, is interesting since the resources of the Bothnian Bay (e.g., seals) and thus a coastal component played such a prominent role (although in part for other time periods) in the works of Broadbent (1979) and on the Finnish side also for Núñez & Gustavson (1995). Baudou (1995) claims that the people of Norrland lived both in the inland and along the coast, but it is not entirely clear whether he sees the inland and the coast tied together in a single settlement pattern or as two separate systems.

It has been suggested that winter settlements were predominantly in the forest zone and summer and early autumn sites in the foothills (e.g., Forsberg 1985; Bergman 1995). This is entirely possible as an option. On the other hand, the evidence may also be taken to suggest a pattern with winter settlement (base) camps on the coast, exploiting seals and producing seal-oil for heating, light, and trade (the so-called *hellegrøper* along the northern Norwegian coast from Finnmark to Lofoten Islands, used for the production of oil from marine mammals, do not appear until around BC/AD) (Henriksen 1996; Nilsen 2010), and then summer camps with associated task-specific sites in the forest zone and foot-hills during the summer months.

From a general perspective, it seems that during a large part of the Early Metal Age, northern Norway, Sweden and Finland had much of their material culture in common. Looking at Swedish Norrland/Lapland and Norwegian Troms and Finnmark, sharing traits, such as bifacially retouched points occurred both inland and at the coast. It is also evident that the foot-hills, the mountain passes and the regions above the tree-limit were used, but with the exploitation tied to the river and lake systems, and that the inland sites show functional diversity or specialization. As indicated above, it is not to be readily expected that economic exploitation or settlement patterns would have been exactly similar on both sides of the continental divide. This is so because the Bothnian Bay freezes up during the winter whereas the Atlantic does not and because there is

a much extended, gently sloping forest zone down to the Bothnian Bay dominated by a continental-type climate regime, very different from the steep, mountainous Norwegian side with no foot-hills and with a coastal climate. This is not to say that this governs settlement in any deterministic way, but it does provide for different economic options. It is only to be expected that economics and settlement, their causes and consequences, may vary in degree and kind and through time and space across northern Fennoscandia.

PRELIMINARY CONCLUSIONS

Why did they come...?

In conclusion the following scenario may be proposed. The coast was already inhabited from ca. 9000 BC, the lower interior valleys from as far back as ca. 6000 BC, and the interior highland from as far back as 6000/5500 BC. Regional communication networks were operative from as far back as the early pioneer settlement (Blankholm 2004a; 2008a) and during the Younger Stone Age slate was distributed (traded or exchanged) in even farther reaching networks (e.g., Gjessing 1942; Fitzhugh 1974; Sjøborg 1986; Sommersteth 1997; Damm 2006) in a widely distributed slate-using 'technocomplex'. Also, at least as far back as the fourth millennium BC, pit-trap systems were in use in interior Finnmark (Furset 1995).

Slate as a commodity disappears gradually during the Early Metal Age and is replaced by bifacially retouched points, spears and knives which required large amounts of predominantly grey quartzites, the best sources for which are in the mountains (e.g., Holm 1992; Bergman 1995; Berglund 1995; Haga 1997). Gradually, northern Fennoscandia ties in with yet other aspects of material culture emanating from the east, notably asbestos-tempered ceramics and metal – a shift of orientation in the sense of Baudou (1995).

Moreover, there is evidence of economic activities being pushed up into the mountain (foot-hills) and passes across the Caledonian chain, that sites become somewhat diversified in function, and that pit-trap systems in those latter areas were being gradually extended (e.g., at Ostu). The situation may thus be interpreted to suggest that the mountain foot-hills and passes became major economic focus points allowing raw-material procurement, fishing and reindeer hunting to be conducted

conveniently, if not optimally, when access to all of those resources was optimal during the relatively short summer. Concurrently, it would be the most convenient time for people from both sides of the Caledonian chain to meet, trade, consolidate alliances and networks, and possibly exchange partners. This would also have made it possible to congregate enough people to operate and maintain large pit-trap systems, to provide food for the aggregation of people for the period and/or hunting for storage or transport back to winter quarters. No aggregation camps are actually needed for this. People from various groups may simply congregate their individual camps within a 'neighbourhood' of a few kilometres; a sort of zooming-in on the landscape.

Involved in the above economic activities may also have been trade with such commodities as salt (the upper Bothnian Bay is very brackish) and pumice (an excellent whetting and polishing material) from the Atlantic coast (see also Skandfer 2003, Appendix 2).

...and why did they disappear?

Sometime around BC/AD the above system disappears and only little is presently known about the first millennium AD. There is consensus that the latter pertains to the entire northern Norway. The highland lakes, rivers, and passes were focal points during much of the Early Metal Age. Even allowing for the fact that the disappearance of bifacial retouching and its debris (presumably related to use of iron) makes it very difficult to locate sites, there is so far only limited evidence for the use of the Ostu area and the tri-state border region between BC/AD and AD 800. Why did settlement come to an end?

The first obvious explanatory candidate to look for is climate change and its impact on the ecology and hence economic prospects. To compare or correlate Early Metal Age changes in material culture, economy and social aspects with that of temperature curves is, however, not a straightforward endeavour. Although SST (Sea Surface Temperature, Fig.4) from the Barents/Norwegian Sea is a useful proxy for climate/temperature and ecological changes in the study area, there is a problem of resolution. While the SST has a centennial (and sometimes higher) resolution, the archaeological data certainly has not. As noted above, the archaeological material

culture chronology is rather vague and this is not the best point of departure for capturing crucial aspects of cultural dynamics. Yet, Figure 4 shows a conspicuous fall in SST August temperature between ca 800 and 600 BC to be followed by a general decrease down to BC/AD. Moreover, several authors (e.g., Kultti et al. 2006) have noted that the palaeo-forest limit of Scots Pine dropped down to ca. 350 m above the contemporary sea level (i.e. well below the Ostu area at ca. 500 m a.s.l.) between ca. 800 and 600 BC and Helama et al. (2005) have shown that pine has its lowest density 600–200 BC and ceases to germinate after ca. 500 BC. This may of course have had consequences for the reindeer ecology (e.g., pastures and densities, but not necessarily trekking routes), but not for fish and certainly not for the availability of raw materials. Anyway, the Ostu area continues to be used intensively during the last 500 years BC despite the disappearance of pine. In other words, if climate change was a factor, the actual effect is less clear.

For the Early Metal Age in eastern Finnmark it has been suggested that a) the connections to the east are severed, b) iron comes into common use, and c) that aspects of the interior, spatial house organization on the one side and burial customs on the other in some instances become similar to what is historically known for the Saami (Olsen 1994: 121; Skandfer 2009). While this may be true for Finnmark, the evidence from Troms county is less obvious in those (above) directions. Yet, evidently causes and consequences may turn out various ways in different areas or regions. Coastal settlement remains evident, but the evidence from Ostu indicates that raw-material exploitation and the fabrication of bifacial implements disappears while the use of the pit-trap system continues. The latter is not surprising. Regardless of whether the coastal settlements were geared towards the sea or land, or both, people would have needed a buffer to make up for temporary economic failure. Fishing and hunting in the interior would have been a likely option. By the same token, bulk-kills of reindeer in the interior may have provided skin and antlers as an exchange commodity for iron. As noted by Jørgensen (2010), no iron production sites exist in Troms and Finnmark; only iron processing sites, so exchange networks to obtain iron would have been a necessity.

Southern and middle Troms county up to Malangen, just south of Tromsø, form the north-

ernmost area for crop cultivation, but not for husbandry (but see Vorren 2009; Sjøgren 2009). The recent excavations at Kveøya show that apparently Norse agriculturalists were well established there between 500 BC–BC/AD (Arntzen & Sommersteth 2010). It is also apparent that there was a low in agricultural activity immediately around BC/AD (Vorren 2009; Sjøgren 2009). As noted, however, since no one has a patent on neither crop cultivation nor husbandry and since know-how on marine exploitation would have remained within the population, and that a marine economic component would not have collided with agricultural or herd management, it is not unlikely that (following Sandmo 1994) at least some of the indigenous people took up this way of living, but continued to use the interior landscapes with a reorganization of their presence in season, space and location. What is generally apparent is a major re-organizational episode in a period marked by technological change (iron) and economic diversity.

Needless to say, the above preliminary account leaves many open-ended questions. It is hoped, however, that continuing excavations and research within the on-going LARM-project (LARM-prosjektet 2010) will help tie up the loose ends and throw new light on the issues. It is also hoped that the above will help generate renewed interest in Early Metal Age research in general and the period's cultural dynamics in the interior regions in particular.

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