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STONE SETTING FILLED WITH RED OCHRE FROM THE KEELAHARJU SITE, NORTHERNMOST BALTIC SEA REGION: A STONE AGE GRAVE IN THE CONTEXT OF NORTH EUROPEAN BURIAL TRADITIONS

Abstract

A characteristic feature of the Stone Age coastlines on the Finnish side of the Gulf of Bothnia is a wide range of stone structures, such as so-called 'Giants' churches', settlement embankments, heaps of fire-cracked rocks, and other heaps of stones, some of which may be burial cairns. In 2011, a low and almost rectangular stone setting (size c. 3.5 x 4 x 0.3 m) filled with red ochre was excavated at the Keelaharju site. The site surrounding the structure is interpreted as a seasonally used camp originally located on top of a tiny island in a maritime environment. Based on shoreline displacement chronology the site is dated to c. 4600 cal. BC. In northern Europe, amounts of red ochre comparable to what was found in the Keelaharju stone setting have only been recorded in burial contexts. Furthermore, similar structures found in Sweden can unambiguously be identified as graves. In order to clarify the cultural context of the Keelaharju stone setting, a range of red ochre graves with stone structures are presented and discussed. As an outcome, the stone settings with red ochre around the Gulf of Bothnia in Finland and Sweden, as well as those in northern Norway, are interpreted as a local burial custom which is rooted in red ochre burials of the eastern part of the Baltic Sea, but in which the use of a stone setting or a low cairn emerges as an independent north European innovation, eventhough some clues may point to the eastern origin.

Keywords: Stone Age, stone settings, cairns, burials, graves, red ochre, Ostrobothnia, Finland, Baltic Sea, Fennoscandia, Northern Europe

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INTRODUCTION

According to present knowledge, the oldest stone settings and cairns in the southern part of Finland belong to a Bronze Age context (e.g. Tuovinen 2002; Lavento 2005). Along the Gulf of Bothnia, however, some heaps of stones (both fire-cracked and unburnt) have been identified on Stone Age dwelling sites, at altitudes that according to shore displacement chronologies suggest a Stone Age origin. This phenomenon has been observed on both Finnish (Okkonen 2003) and Swedish (Liedgren 1993; 1994; Forsberg 1999) coastal regions of the gulf.

In northern Norway and northern Sweden, a few of the cairns or stone settings of Stone Age date have contained human skeletal remains (Simonsen 1961; Liedgren 1993; 1994), but in Finland (more precisely in the Ostrobothnian region) cairns have not yielded any human bones or grave goods – that is, finds that could verify the presence of a burial. It is worth noting that such finds are uncommon in the Bronze Age and Early Iron Age cairns of Ostrobothnia as well (Okkonen 2003: 58–76, 127, see also Mäkivuoti 2006). Poor preservation of unburnt bones is caused by the acidity of podzolic soil, the most common soil type in Finland, which has normally soon dissolved unburnt organic matter (see e.g. Miettinen 1990; Edgren 1993: 32–3, 59–65; Halinen 1999; Lappalainen 2007; see also Katiskoski 2004). For this reason, no Stone Age skeletons are known from Finland and only tiny pieces of bone or tooth enamel occasionally occur in Stone Age inhumation burials (most of them featuring the use of red ochre; e.g. Katiskoski 2004).

Ostrobothnia is well-known for its diverse Stone Age sites, such as large numbers of dwelling sites with housepits or the characteristic large stone enclosures, also known as 'Giants' churches' or 'megastructures', as well as heaps

Fig. 1. Location of the Keelaharju site and some other sites mentioned in the text. The box around the Keelaharju site marks the location of the map shown in Figure 6.

of fire-cracked stones and possible burial cairns. This rich array of stone structures is dated mainly to 3300–2000 cal. BC (Okkonen 2003; Núñez & Okkonen 2005), which in Finland corresponds to Middle and Late Neolithic, even if some copper was already in use (see Nordqvist et al. 2012). In Central Ostrobothnia, some 'Giants' churches' may have been built already during the Typical Comb Ware period, 4000–3400 cal. BC (H.-P. Schulz 2009), and some cairns have been found associated with dwelling sites of the 4th and early 3rd millennia cal. BC (Okkonen 2003: 122–3). In Ostrobothnia, the cairns located at the highest altitudes above sea level are in general thought to have been disconnected from the shoreline, meaning that such cairns are probably not as old as shoreline dating would suggest, but they may still date to Stone Age (Okkonen 2003: 112, 125–6).

In the summer of 2011, an almost rectangular stone setting that was filled with a layer of red ochre was excavated at the Keelaharju site, in the Ii municipality (Northern Ostrobothnia; Fig. 1). The Keelaharju stone setting is clearly distinct from all other contemporary structures excavated in Finland. However, although the Keelaharju stone setting is unique in Finland, a few parallels exist in Sweden at the same latitudes (Liedgren 1993; 1994).

This paper describes the discovery of the Keelaharju site and discusses the various aspects of dating concerning both the site itself and the stone setting more specifically. Although conclusive proof of a burial is missing, the closest parallels to the stone setting are Stone Age burials, and the structure is accordingly here interpreted as a grave. In order to understand the Keelaharju stone setting in the wider context of Stone Age burial traditions, a review on the north European Stone Age burial customs is included.

ARCHAEOLOGICAL SITES AROUND THE KEELAHARJU SITE

The Konttilanperä area in the Ii municipality, where the Keelaharju site is located, is recognized as an area with numerous stone structures, many of

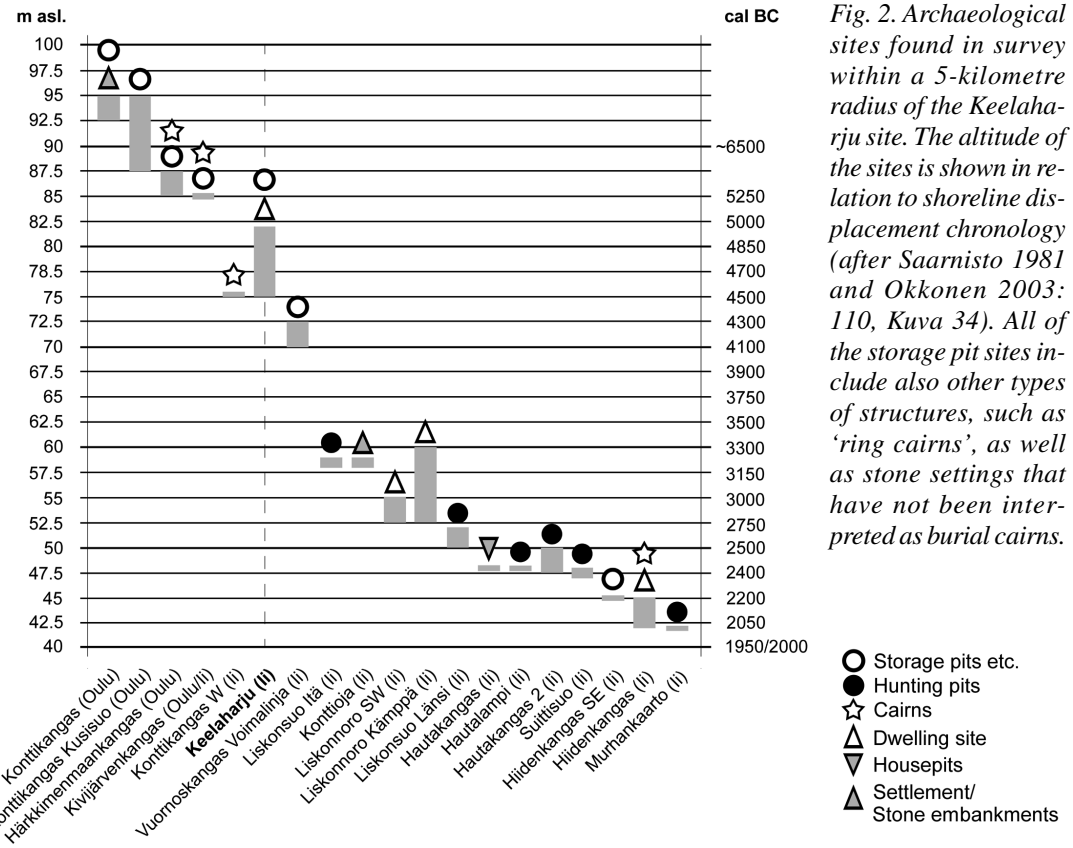

Fig. 2. Archaeological sites found in survey within a 5-kilometre radius of the Keelaharju site. The altitude of the sites is shown in relation to shoreline displacement chronology (after Saarnisto 1981 and Okkonen 2003: 110, Kuva 34). All of the storage pit sites include also other types of structures, such as 'ring cairns', as well as stone settings that have not been interpreted as burial cairns.

which are found on unusually high altitudes (Okkonen 2003: 125). Out of ten stone structures lying on the highest elevations in Northern Ostrobothnia (corresponding to the period 5300–3150 cal. BC), seven are located near Keelaharju (Okkonen 2003: 110, Kuva 34, 115, Kuva 36), including one with a cairn and other types of stone structures (Fig. 2). There are also sites with storage pits built in boulder fields, accompanied by various other elements on the same site, such as settlement embankments, dwelling sites without any visible structures, cairns, and so-called 'ring cairns' (similar to cairns, but with a pit in a centre). Some of the cairns are atypical: for example, the cairn known as Konttikangas W (size 7 x 9 m) is described as an 'embankment-like structure' (Sarkkinen 1998). Whether the different types of structures at these sites are contemporary or not is an unresolved question. Unlike the sandy moraines suitable for habitation, which occur at all altitudes in the area, the distribution of storage pits is regulated by the natural distribution of boulder fields. It is thus possible that storage pits and other structures found in the boulder fields are not contemporary with the actual dwelling sites.

The group of structures on the highest altitudes above sea level is a clear anomaly. They have been variously explained as being associated with hunting and reindeer herding of the Historical Period (Korteniemi 1990: 82, 155; Okkonen 1990: 123–4), known to have been carried out (at least) by the Forest Sámi (Korteniemi 1990: 209), or as sites disconnected from the shoreline but possibly still dating to the later part of the Stone Age, thus corresponding with the dating given to most of the stone structures (Okkonen 2003: 125–6).

The University of Oulu has pursued active research on the various stone structures in this region, and two of the sites have been excavated. In 1988–90, a roundish cairn with a central depression and a part of the associated dwelling site were excavated at the Hiidenkangas site, located at a distance of c. 4 kilometres from Keelaharju. The cairn did not produce any finds but was considered to be contemporary with the shore-connected dwelling and, based on shore displacement and a

single radiocarbon date acquired of charcoal from the dwelling site, was dated to 2100–1500 cal. BC (Hel-2786, 3460±130 BP; Jarva & Okkonen 1991; 1993; Edgren et al. 1994). In 2008, a second cairn was excavated at the site of Muhojoen eteläranta. The cairn was almost rectangular (size 5 x 5 m) and 50 cm high. Although the excavation likewise failed to produce any artefacts, a quadrangular structure with high phosphate levels in the middle of the cairn indicate, most probably, the place of a completely decomposed inhumation burial. According shoreline displacement chronology the site is dated to the Early Metal Period, or about 1000 cal. BC (Okkonen 2009).

If the sites around Keelaharju were associated with the shoreline, then the higher group of sites would be older than 4000 cal. BC. Those found at lower altitudes are clearly dominated by hunting pits, which are usually located on the ridges near present-day bogs. Even if the few excavations carried out in the area have been modest in size and have produced only a limited amount of data, a comparatively recent survey (Sarkkinen 1998) confirms that the area was not a Stone Age population centre, but rather a domain for other activities than regular habitation. At present, 18 archaeological sites are found within a 5-kilometre radius around the Keelaharju site (Fig. 2). The meagre finds found in survey consist of just a few quartz flakes and no datable artefacts. No pottery has been found in survey, but a couple of stray finds can be roughly dated. An ice pick (KM 5075), found 65 m asl some 300 metres off the Keelaharju site, is most probably of a Comb Ware date (Huurre 1983: 108–9), i.e. c. 5200–3000 cal. BC, even though a somewhat wider dating range is also possible. An another chance discovery, a rhomboid perforated stone (KM 15011) was found at c. 55 m asl 2 kilometres to the west of Keelaharju. It dates to the Stone Age, most probably the later part of the Comb Ware period.

PREVIOUS RESEARCH AT THE KEELAHARJU SITE

The research history of the Keelaharju area goes back to the 19th century. Early sources document stone heaps (Calamnius 1868) and pits dug in boulder fields with some sort of an embankment surrounding the pit (Snellman 1887: 52), but none the sites can be identified as the Keelaharju site. The first archived source dates to 1908, when the find spot of a Stone Age ice pick was inspected by an archaeologist (Appelgren-Kivalo 1908). The investigation took place at the yard of a farmhouse adjacent to the Keelaharju site, but the report also mentions that 'inward-slanted cairns' were located on a moraine esker, at that time called Keilakenttä. In 1976, the find location at the farm was inspected again (Erä-Esko 1976; Purhonen 1976), but only in the 1980s was the actual Keelaharju site visited by archaeologists.

At first, only the highest part of the site with possible cairns (called 'ring cairns' or 'stone circles' in the report) and storage pits was observed (Purhonen 1980a), while the lower part of the site with other types of depressions (Okkonen 1988) and a dwelling site was discovered later (Sarkkinen 1998; Fig. 3). The depressions that are located on a sandy area between the boulder field and the dwelling site area have receved varying interpretations, including hunting pits (Okkonen 1988; Korteniemi 1990: 155; Koivunen & Rossi 2005) and cooking pits (Sarkkinen 1998). The largest one has even been interpreted as a housepit (Korteniemi 1990: 155; Koivunen & Rossi 2005).

In 2005, a test excavation at the site produced only a small number of finds (Koivunen & Rossi 2005). Out of altogether 90 test pits dug at the site, only 12 yielded any finds, and these consisted of just 154 quartz flakes and a single quartz scraper (KM 35236). Nearly all of the test pits that bore artefacts were located higher than 75 m asl, with two pits (each with a single flake) forming an exception (Fig. 3). Based on the results, the excavators distinguished two find concentrations: one on the highest part of the ancient islet, and another on its western shore, both on top of the terrace as well as near the ancient shoreline right below the bank. Furthermore, a rectangular stone setting (measured as 1 x 2 m in size) was found within the upper find area, and a fireplace (1.5 m in diameter) was spotted a hundred metres southwards on a lower elevation (73 m asl). The latter was totally excavated in 2005, but no artefacts were discovered. Based on the nature of the finds from the site and its elevation above sea level, Keelaharju was interpreted as a seasonal camp dating approximately to 4500 cal. BC (Koivunen & Rossi 2005).

The present article concerns chiefly the work done by the author in 2011, when the dwelling site and the stone setting were excavated. Work at the site was continued by Simo Vanhatalo. Between 2011 and 2012, the 'cairns' and storage pits in the

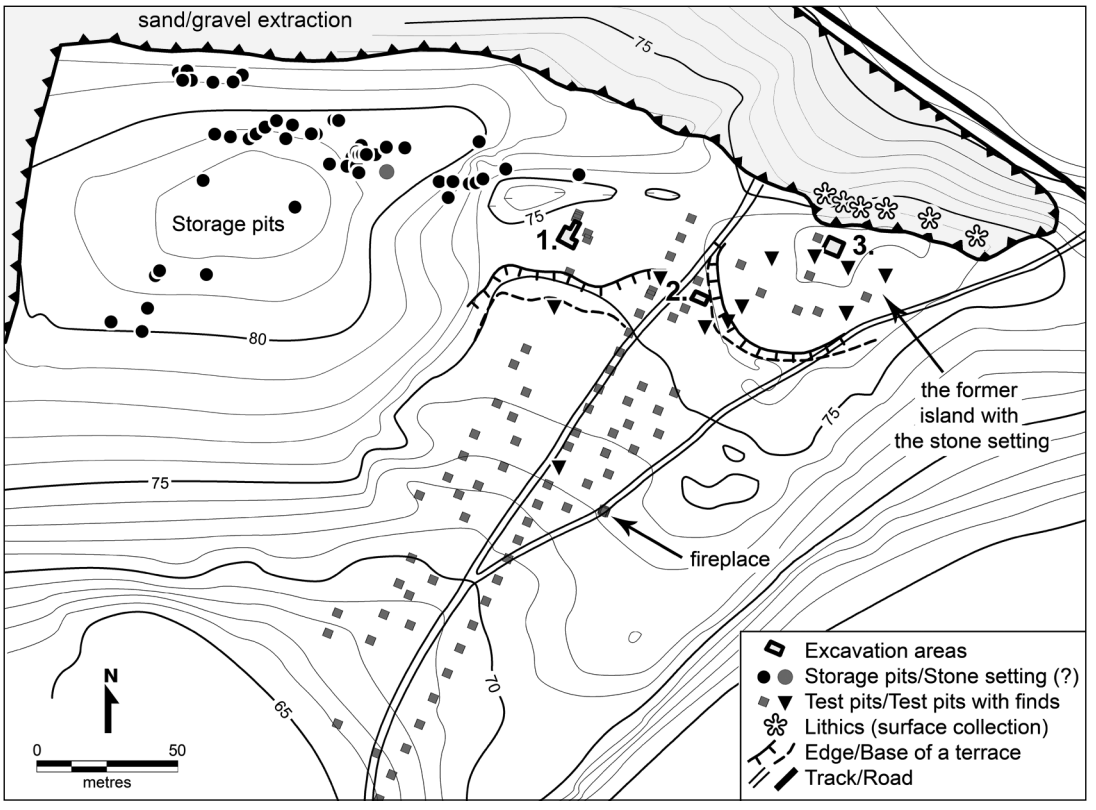

Fig. 3. Top plan of the Keelaharju site. The excavation areas shown in the plan: 1 – depressions caused by wind-toppled trees, 2 – the 'richest' find area, located at at the base of the terrace, 3 – the stone setting. Drawing: M. Nyholm, S. Vanhanen & T. Mökkönen. Storage pits according to Vanhatalo (pers.comm. 2012a).

boulder field were systematically surveyed for the first time, with altogether 49 stone structures documented, and one of the structures referred to as 'ring-cairn' was excavated. The excavation did not produce any artefacts and no inner structures were discovered (Vanhatalo, pers.comm. 2012b). After the fieldwork done in 2011–12, the legal protection of the area was discontinued and the exploitation of the ridge for sand and gravel extraction was permitted.

THE 2011 EXCAVATIONS

In 2011, three excavation trenches were opened by the author at the dwelling site area of the Keelaharju site (Fig. 3). The first one was located in the area with the depressions, seven of which were partly excavated. These turned out to be natural formations caused by wind erosion in places where fine sand had been exposed by the roots of wind-toppled trees (Mökkönen 2012). The second excavation area was situated in the 'richest' part (in terms of find numbers) of the dwelling site, immediately at the base of an ancient shore formation (c 75.8–76.0 m asl), while the third excavation area was opened on the highest spot of the ancient island (77.5 m asl), which is surrounded by the said shore formation. This is the area where the rectangular stone structure was located, as well the majority of test pits that yielded any prehistoric artefacts.

Altogether 272 lithic flakes were found from excavation areas 2 and 3 in the course of the 2011 excavations, 88% of them being quartz and the remaining 12% other types of stone. It is notable that no cultural layers were observed at either area, and that no bones were found, even if all of the soil was sifted. The lithic artefacts discovered during the excavation did not significantly alter the picture that emerged in the 2005 test excavation, but also give the impression of a seasonal campsite. The main focus of interest at the site, however, turned out to be the stone setting excavated in 2011.

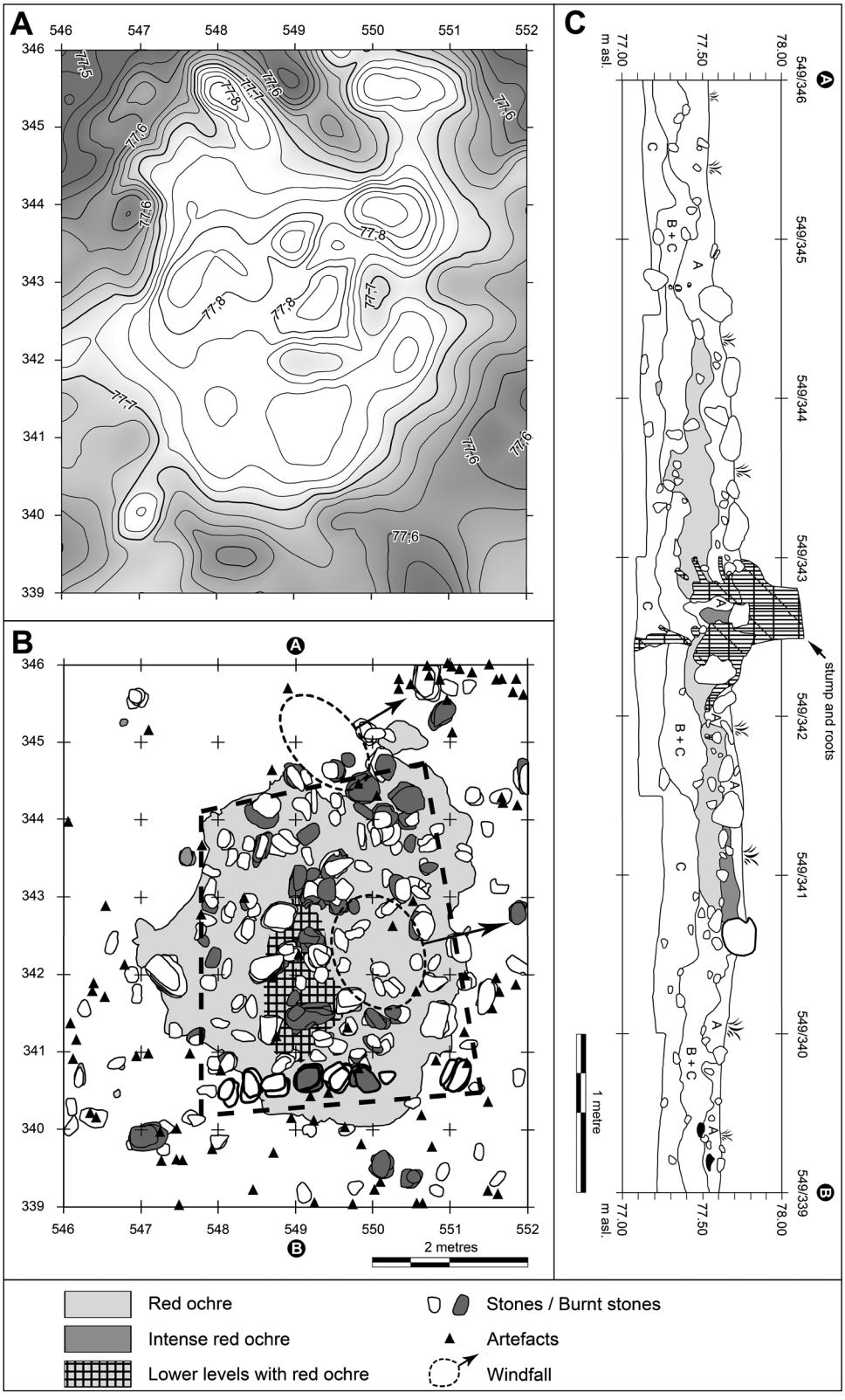

Fig. 4. The Keelaharju stone setting. A – Surface elevation model, contour interval 2.5 centimetres (m asl); B – Combined map over the distribution of stones, red ochre, and finds. The dashed line shows the outlines the stone setting. The stones that form a line in the southern end of the setting are marked with thicker outlines; C – Cross-section. Natural podzol soil profile: A = illuvial layer, and B = enrichment layer, and C = bottom layer. Drawing: S. Vanhanen & T. Mökkönen.

The Keelaharju stone setting

The stone setting was located on the top of a small moraine hillock, on excavation area 3 (Fig. 3). In the 2005 excavation report, the stone setting was described as a rectangular structure c. 2 metres long and 1 metre wide (Koivunen & Rossi 2005). The stones were approximately 10–20 centimetres higher than the surrounding soil surface, and most of them were covered by turf and vegetation. Only on the southern edge of the setting were the stones fully visible, as here the turf had accidentally been removed by a logging machine. A closer inspection suggested that the area with stones was much wider than what was visible to the surface. Before excavation, the structure appeared as a slightly elevated area, c. 20–30 cm high and with a size of 4 x 4.5 metres (Figs. 4 & 5).

Immediately below the turf, a layer of stones (some of them fire-cracked) and red ochre was encountered. In the southern end of the structure, a straight edge had been made using larger-than-average stones, but on the whole the edges were not very clear. Some red ochre was visible already in the uppermost part of the mineral soil, and the entire red ochre area could be observed as a red 'gleam' underneath the thin, greyish illuvial horizon of the podzol soil. This indicates that in the original structure, the red ochre layer extended to the very surface, which in turn indicates that the structure may originally have been covered by some organic matter that has since decomposed, as otherwise one would expect the powdery red ochre layer to have been blown away with the wind.

In the course of the excavation, it became evident that only c. metre wide section in the southernmost part of the setting had remained intact, with the spaces between larger stones filled with a red ochre layer and some smaller stones (a little larger than the pebbles naturally present in the moraine). In this seemingly undisturbed part of the setting the thickness of the powdery sandy layer, strongly coloured by red ochre, varied between 5 and 15 centimetres (Fig. 4). Moreover, here it was possible to make a clear distinction between the actual red ochre layer and the natural coarse moraine horizon below, which had simply been coloured red by the iron oxide seeping from above (Fig. 4C).

By contrast, in the central and northern parts of the setting, there were areas disturbed by two toppled trees (Figs. 4A & B). There was no significant difference in the amount of smaller stones between the disturbed part of the setting and those outside the setting. It seems that the southern, undisturbed part of the structure reveals the manner in which it was originally built. The unclear edges and somewhat confused nature of the structure as a whole do not appear to be original, but have been caused by toppled trees that have mixed the stones and the red ochre cover of the setting with the natural moraine layers.

After the first 15 cm of excavation, most of the red ochre and stones had been removed, even if some red ochre could be observed as low as 55 cm below surface as a pale red component in the moraine soil. Approximately in the middle of the setting, however, there was an area with more intense reddish colour that extended c. 30–45 centimetres below the surface (Fig. 4B). The exact borders of this area, roughly 2 x 1 metres in size, were difficult to determine. It is documented in the top plans, but due to unfavourable circumstances during documentation could not be observed in the section. The feature is interpreted, however uncertainly, as a possible burial pit under the stone setting.

These observations indicate that the stone setting was built above ground, with only the area of a possible burial pit dug underground. It is interesting to note that no signs of older soil profiles were discovered underneath the setting. There are two possible interpretations: 1) either the stone setting was erected on barren ground before the area became forested and the development of a podzol profile had begun, or 2) the uppermost layers with the characteristic podzol strata were removed from the area of the setting before it was built. I prefer the first alternative.

As the setting was erected on a dwelling site, none of the artefacts found could be unquestionably associated with the setting. Most of the flakes from excavation area 3 (in total 116 pieces) were discovered outside the structure, and those few found inside were not discovered in an undisturbed red ochre layer but were encountered beneath the stone setting, i.e. on a moraine surface upon which the setting was erected (Fig. 4B).

A tiny islet in the archipelago

Almost all the finds from the site were distributed above and close to an ancient shore formation (c 76 m asl; Fig. 3). Studies on shore displacement (Saarnisto 1981; Okkonen 2003: 88–92) indicate that the terraces on this elevation date approximately to

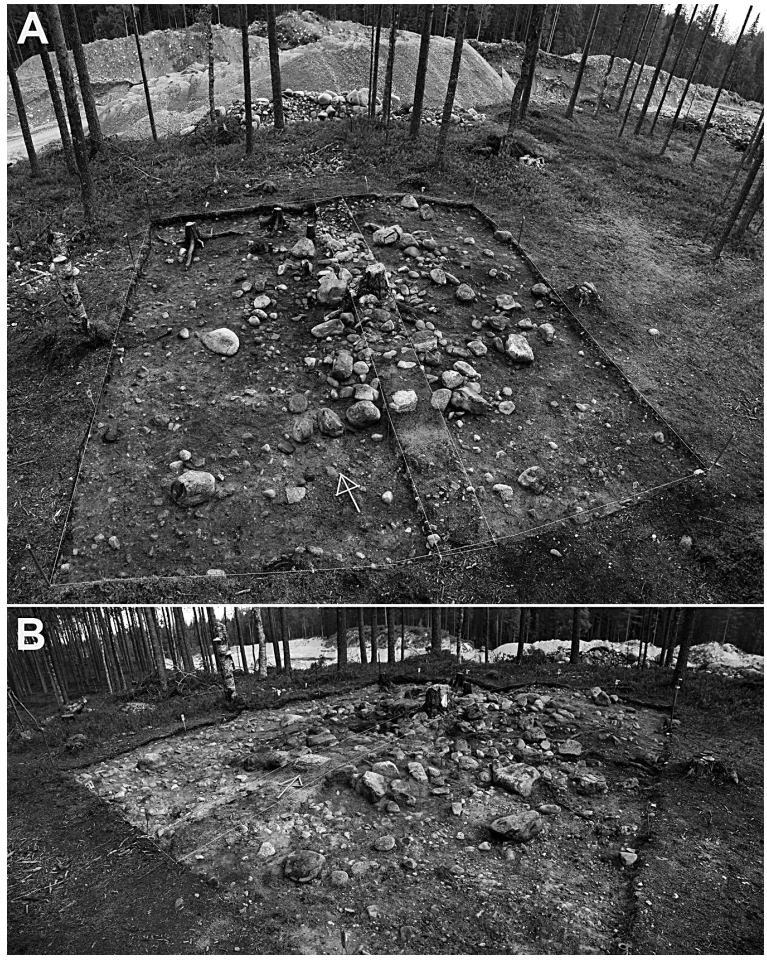

Fig. 5. The Keelaharju stone setting. A – After removing 10 centimetres of mineral soil. The red ochre layer covers the whole area of the setting; B – The southern end of the setting after removing the turf and 5 centimetres of mineral soil. Photos: T. Mökkönen/National Board of Antiquities, DG2560:30–31.

4600 cal. BC. There are no topographic obstacles or major changes in soil type, which could limit human activity or force it to concentrate on the highest elevations. Thus, the ancient shoreline can be assumed to be the factor that has limited occupation to the highest parts of the site, and the site can be interpreted as having originally been located on a tiny island or islet no more than 60 x 70 metres in size. The island stood adjacent to a promontory, c. 250 metres offshore from the mainland (Fig. 6), but even though the distance from the mainland was not great, the site faced the open sea.

Despite the steep topography, the shore-connected period of the site was quite short. Around 3500 cal. BC, the seashore was already over half a kilometre away from the site. By 2300–2000 cal. BC, i.e. the period indicated by the radiocarbon dates from the site (see below), the shoreline had dropped to roughly 45 m asl, and the distance to seashore was nearly 3 kilometres (Fig. 6). It is possible that the present-day bog areas at the edges of the Keelaharju moraine ridge were still lakes during the Late Stone Age, but even if this assumption were true, the distance to the nearest water system would have been around 500 metres.

Despite its relatively short period at the shore zone, it is probable that the Keelaharju site has witnessed different types of activities at very different times, as suggested e.g. by the fireplace on a lower elevation, excavated in 2005. Similarly, the adjacent storage pits may be completely unrelated to the dwelling site, as their location is dictated by the availability of suitable boulder fields.

Radiocarbon dates

In order to get some datable organic material and to outline the vegetation at the time when the

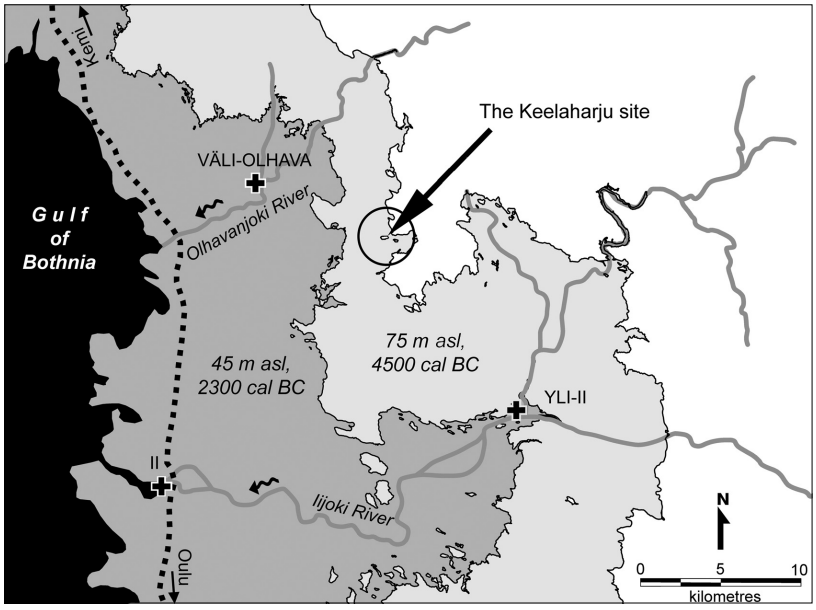

Fig. 6. Two environmental reconstructions of the Keelaharju site. The older one (in light grey) shows the situation around 4500 cal. BC, based on the distribution of the finds, while the date for the younger one (in dark grey) around 2300 cal. BC is suggested by the two radiocarbon dates acquired from the stone setting.

setting was erected, macrofossil samples were collected from inside the setting. Altogether 15 samples from layers 10–30 centimetres below the surface of the mineral soil – with a total volume of 27 litres – produced only 10 charred seeds of bearberry/crowberry (*Arctostaphylos uva-ursi/Empetrum nigrum*) and some charred parts of pine (*Pinus sylvestris*; Vanhanen 2012). One seed and a charred twig of pine, both of them found in the red ochre layer in the seemingly intact part of the stone setting, were chosen for radiocarbon dating and produced a very similar result: 2290–2030 cal. BC (Table 1).

The Late Neolithic radiocarbon dates are at odds with the anticipated dating of the site, based on the combined evidence of shore displacement chronology and the distribution of finds. However, here it should be noted that dated material may derive from a later forest fire and thus be unrelated to the construction of the stone setting. A dry pine forest is susceptible to recurrent forest fires, and the dated samples were taken from a layer of soil just 15–25 centimetres below surface. Although, on the face of it, the find context seemed undisturbed, small particles such as charred seeds may easily find their way into the lower layers with growing or decaying roots, burrow holes or the movements caused by frost or by wind-toppled trees. The plant species *per se* offer no clues for dating: bearberry, crowberry and pine could all have grown at the site already when it was but a tiny islet, and were certainly present later on when the site was connected to the mainland.

Even if the radiocarbon dates may not give a definite dating to the structure, they do indicate a Late Neolithic minimum age (*terminus ante quem*). Thus, the dating of the Keelaharju stone setting ought to lie somewhere between the earliest possible date allowed by shore displacement chronology, c. 4600 cal. BC, and the date offered by the radiocarbon samples, which set the minimum age at 2300–2000 cal. BC.

Table 1. Radiocarbon dates from the Keelaharju stone setting.

Code	Date (BP)	cal. BC (2σ)*	$\delta^{13}C$	Material	Context
Ua-43683	3747±35	2290–2030	–27.9	Charred seed (bearberry/cowberry, *Arctostaphylos uva-ursi/Empetrum nigrum*)	Red ochre layer inside the stone setting (340/549, 3rd layer)
Ua-43684	3762±36	2290–2030	–27.1	Charred twig of pine (*Pinus sylvestris*)	Red ochre layer inside the stone setting (340–431/549, 4th layer)

*Athmospheric data from Reimer et al (2009), OxCal v3. 10 Bronk Ramsey (2005); cub r:5 sd:12 prob usp[chron]

STONE STRUCTURES AND RED OCHRE IN STONE AGE BURIALS

Before the excavation, the Keelaharju structure bore a closer resemblance to a hearth than a stone setting or cairn. Both the topographic location of the setting and its rectangular form suggested a type of hearth associated with Sámi sites dated to the Late Iron Age and Medieval Period (see e.g. Hedman 2003: 56, 100–40; Hedman & Olsen 2009). I am aware of the misinterpretation of rectangular Sámi hearts as burials in northern Norway (Simonsen 1979: 5–21; cf. Storli 1994: 57–60), but Keelaharju is not an analogous case. First, the Keelaharju stone setting is more than twice as large as a typical Sámi rectangular hearth (Hamari 1996; Carpelan 2003: 68; Hedman 2003: 122–40; Hedman & Olsen 2009). Second, the stone setting did not bear any evidence of having ever functioned as a hearth: only some of the stones were burnt, and there were no charcoal or soot layers, nor were any other finds characteristic of Sámi hearths present, such as burnt bones or metal artefacts. Third, radiocarbon dates give a Late Neolithic *terminus ante quem* for the setting. And above all, the red ochre layer clearly sets the Keelaharju structure apart from hearths, associating it instead with Stone Age burial customs where the use of red ochre is common.

Red ochre is a natural earth pigment, which contains large amount of haematite, or dehydrated iron oxide. The colour of the pigment becomes more intense when the powdery, clayey soil is heated. This is also the reason for the red coloured 'burnt' earth occasionally associated with fireplaces. Small patches of red ochre are found at dwelling sites every now and then, but in northern Europe amounts comparable to that found at Keelaharju have been found only in red ochre burials and at a few known places of red ochre production (see Käck 2009: 120–2). Combined with the fact that parallel structures in Sweden have contained human bones (see below), the amount of red ochre found at the Keelaharju setting makes it reasonable to interpret the Keelaharju setting as a grave.

In the following, the Stone Age burial traditions with stone structures, that occures occasionally combined with red ochre, in northern Europe will be shortly reviewed, and examined in relation to the Keelaharju stone setting.

Stone Age burials in Finland

Inhumation burial with red ochre was a common burial custom in Finland during the Stone Age (e.g. Edgren 1966: 99–106; 1993: 60–4; Halinen 1999). As a rule, red ochre burials without grave goods are older and date to the Late Mesolithic, while those bearing artefacts (sometimes very rich assemblages) are younger, dating to the Typical Comb Ware period (Edgren 1993: 32, 60–4). The few known burials dated between the two said periods, associated with the Early Comb Ware (5200–4000 cal. BC), are mostly devoid of red ochre (Edgeren 1993: 61). After the Typical Comb Ware period the number of red ochre burials clearly declined, but the tradition of red ochre inhumation continued to the very end of Stone Age (2300–2000 cal. BC), as indicated by recent excavation results from Northern Ostrobothnia (Pesonen 2013).

Usually, red ochre graves are simple pit graves without accompanying stone structures, although there are exceptions to this rule. Red ochre graves with some rounded natural stones laid down to the grave pit are known from both Mesolithic and Neolithic contexts (Purhonen 1980b; Karjalainen 1992). At the Jönsas site, located within the present-day city of Vantaa (southern Finland), various customs can be observed in how stones were used in Mesolithic burials. In some graves, there was a large stone at the end of a pit, while others had stone settings or nearly rectangular frames made of smaller stones (Purhonen 1980b; Edgren 1993: 31; Leskinen & Pesonen 2008: 182). Some of the graves have been visible on surface, as the stones emerged right below the turf, and the fill of the grave was coloured with red ochre all the way up to the Stone Age topsoil (Purhonen 1980b: 12; 1998: 29). The burials are not dated directly, but based on radiocarbon dates of wood charcoal from the associated dwelling site, a Mesolithic date (7000–5500 cal. BC) has been suggested (Leskinen & Pesonen 2008: Liite 4).

Most of the Finnish examples of stone structures in Stone Age inhumation graves are found at Neolithic dwelling sites in south-western Finland. At the Nästinristi site, Laitila municipality, five pit graves with a stone setting inside the pit – only one of which featured some red ochre – have been excavated (Vikkula 1987). The site is associated with Typical and Late Comb Ware, but only one burial contained some Late Comb Ware shards.

Radiocarbon dates made of charcoal from burials and fireplace at the site indicate a dating between c. 4000 and 2900 cal. BC (Grave I: Hel-1348, 4460±130 BP; Grave II: Hel-1349, 4910±130 BP and Hel-1350, 4850±130 BP). Further, altogether 14 rock cairns were also found at the site, but the excavated cairns did not produce any skeletal remains or datable artefacts, just some red ochre. Because the intensively exacavated site has not produced any artefacts dating to the Bronze or Iron Ages, it has been held probable that the cairns really are contemporary with the Stone Age occupation (Edgren 1993: 63). Another site of this type, called Hiittenharju ('Laurilan hiekkakuoppa'; Harjavalta municipality, south-western Finland), has produced one red ochre grave with a frame structure made of stones of c. 15–30 centimetres in diameter. The site and the burial are associated with Late Neolithic Pyheensilta Ware (3200–2300 cal. BC; Taskinen 1984).

A few inhumation burials with stone frames have come to light also from south-eastern Finland and one from Northern Ostrobothnia. In the town of Hamina (south-eastern Finland), three graves were discovered at the Kylänpää (Reitkalli) site. The best-preserved one had a stone frame 2.0 x 2.5 metres in size, and the upper parts of the burial pits were filled with small stones (Rosén 1953). The burials did not contain any grave goods, but a sharp-butted axe and a work axe found together at the same spot by an amateur archaeologist just before the excavation connect these burials to the Corded Ware culture and to the Late Neolithic, c. 2600–2000 cal. BC (see Mökkönen 2008: 127–8).

Like the Reitkalli burials, a burial from Kuoppakangas (Merijärvi municipality, Northern Ostrobothnia) can be associated with the Corded Ware culture. Two axes, identified as imitations of Finnish and east European battle axes manufactured outside the actual sphere of the Corded Ware culture, were found in a layer of gravel at the bottom of a pit (2.0 x 0.7 m in size, 0.5 m in depth) that was fully packed with stones (Äyräpää 1952). The axes were found near the ends of the approximately east–west oriented pit, one in each end. The grave has been interpreted as a double burial of two males, and the stone fill has been suggested to link the burial to similar graves known from a Corded Ware context in southern Scandinavia, although it may also simply relate to the extremely stony soil at the site (Äyräpää 1952). Although skeletal material was missing, subsequent writers have agreed in interpreting the pit as a grave (Huurre 1983: 191; Edgren 1993: 89). In addition, there are only a few other graves with stone structures from a pure Corded Ware context: a grave with an oval stone frame and a stone in the centre from the Viikka site (Lieto municipality, south-western Finland) and a grave with a pyramid-shaped (unmodified) stone at the end of the grave from the site of Dalamalm (Siuntio municipality, southern Finland; Edgren 1993: 88–9).

Yet another excavated stone structure is known from the Merijärvi municipality (Northern Ostrobothnia), where a low cairn (4.5–5 x 3 m in size, height 0.5 m) was excavated at the site of Ilvessalomäki in 1998 (Mäkivuoti 1998; 2006). The cairn had been built on open bedrock, and a rock cleft under the cairn had been paved. The stones on the outer edges of the cairn were somewhat larger than inside, and large elongated stones found on the short ends of the structure were interpreted as having stood upright in the original cairn. Two pathways, one of them 10 metres long and the other 20 metres, built on top of the bedrock and lined with stones, led to the cairn. The finds consisted of flakes (quartz and other types of stone), a quartz scraper, and a hammerstone. As no definite signs of a burial were found, it is possible that the cairn functioned as a sacrificial structure. The cairn is located next to a Stone Age dwelling site, and based on this fact, as well as its altitude above sea level indicating a shore displacement dating between 2500 and 2000 cal. BC, the cairn has been argued to be of a Late Neolithic date. Together with the Kuoppakangas burial and some stray finds collected nearby, the site has tentatively been seen as reflecting the influence of Corded Ware culture (Mäkivuoti 1998; 2006).

Cist graves below ground level containing red ochre burial deserve to be mentioned in this context, even if this type of burials are known only at two sites in south-western Finland, namely Kolmhaara (Eura municipality) and Aisti (Mynämäki municipality). Initially, these graves were thought to be synchronous with the Jäkärlä Ware found at the sites and dating c. 4600–4000 cal. BC (Edgren 1966; 1999), but later AMS-dates of tiny pieces of skull and other human bones gave ages that extend to the Early and Middle Iron Ages (from 380–60 cal. BC to cal. AD 440–650, see below; Edgren 1999). An element of distrust remains concerning

the dating of the Kolmhaara cist graves (see E.-L. Schulz 2006), and I will return to this question in the discussion section below.

In Finland, the oldest cairns on the Gulf of Bothnia are seen to date to the Neolithic, c. 3000–2500 cal. BC (Okkonen 2003), even individual cairns occur on elevations that might suggest an even older dating (see above). However, a few unexcavated cairns found next to housepit sites associated with the shoreline in Central Ostrobothnia are thought to belong to the same context with the habitation, which has yielded Typical and Late Comb Ware as well as Pyheensilta Ware (Okkonen 2003: 122–3). These types of pottery have been in use during the 4th and 3rd millennia cal. BC.

The excavated cairns located at elevations that correspond to Stone Age shorelines have not produced any evidence of burials. For example, in the town of Raahe, Northern Ostrobothnia, nine cairns – located on a site that lies on Stone Age shorelines (mid-4th millennium cal. BC) and associated with Stone Age dwelling sites – have been excavated, but none of them produced any datable artefacts or clear inner structures (Karjalainen & Seppä 2007). Likewise, the cultural layers found underneath some of the cairns contained only quartz and quartzite debris, which did not provide any precise chronological clues.

A few cairns in south-western Finland have been indirectly or directly dated to the Late Neolithic. A cist grave found in a cairn at the Uotinmäki (Juhola) site (Eura municipality) falls to the first category, as it has been assigned to the Late Neolithic mainly because it was found at a dwelling site that belongs to the Kiukainen culture (c 2300–1700 cal. BC; e.g. Salo 2008: 83–6). In the lake district of the Finnish interior, a cairn excavated at the site of Pyykkisaari 1 (Viitasaari municipality) has been radiocarbon dated to the Late Neolithic/Bronze Age transition or c. 2130–1750 cal. BC (2 sigma, GrA-18302, 3570±60 BP; Taavitsainen 2003). The material subjected to dating was a piece of burnt seal bone.

The rest of the inland cairns have been dated to the Bronze or Iron Ages (e.g. Taavitsainen 2003; Perttola 2005: 11–3; Saipio 2011: 66–76). Most of them do not feature the use of red ochre, but a cairn at site of Kukkosaari (Suomussalmi municipality, north-eastern Finland) forms an exception. The Kukkosaari cairn was located on a stony ridge at the highest point of a small island that has been inhabited from the Early Neolithic (6th–5th millennium cal. BC) to the Early Metal Period (500 cal. BC – cal. AD 200/400; Matiskainen 1979). The structure was not completely excavated, and its dimensions therefore remain somewhat unclear. Some burnt soil and a charred tree trunk emerged in the upper excavation layers (c 15–20 cm below surface). Actual cultural layers came to light a bit lower and contained one shard of Early Iron Age asbestos ware (Luukonsaari-type). Around 45–60 cm below surface, a red ochre lens c. 50 cm in diameter emerged. The lowest part of the lens was only c. 5 cm lower than the bottom of the cultural layer.

The Kukkosaari setting was originally interpreted as a red ochre burial on top of which a rock cairn had been erected. It was compared to the 'Lapp cairn' tradition of the Finnish interior and, at the same time, to the red ochre burials of the Stone Age (Matiskainen 1979). The burial pit was interpreted as having been dug through a pre-existing cultural layer, and the pottery shard could thus be discounted as unrelated to the burial context. In the year 2000, the excavation of the cairn was continued. No traces of red ochre were found, but the authors agreed with the previous interpretation of the structure (Hyttinen et al. 2000). A charcoal sample collected from an ashy layer inside the setting was dated to 360 cal. BC – cal. AD 55 (Beta-149530, 2090±70 BP). However, based on a reading of the excavation reports, the Kukkosaari cairn could equally well be interpreted as a fireplace, even if the interpretation as a grave cannot be completely ruled out.

Although there is great variation in the sizes and shapes of the oldest cairns and other stone structures, the Keelaharju stone setting bears some resemblance to the oldest cairns on the Ostrobothnian coast of Finland. Approximately 40% of these cairns are smaller than 5 metres in diameter, 11% are of quadrangular shape, and 61% are less than 50 centimetres high (Okkonen 2003: 100–1, 134–9). The physical characteristics of the Keelaharju stone setting thus fit in the category of the early cairns, but the excessive use of red ochre makes it unique among the early cairns and stone settings in Finland.

Stone Age burials in northern Sweden

Structures resembling the Keelaharju stone setting have been found on the western shore of the Gulf

of Bothnia. In particular, in the Swedish province of Norrland approximately 20 stone settings with red ochre, interpreted as graves, have been discovered (Norberg 2008: 22). These sites lie at altitudes between 75 and 95 m asl (Liedgren 1994). The Swedish sites include round, oval and rectangular stone settings with red ochre and a more or less extensive stone fill inside. Their sizes vary between 3 and 5 metres in diameter, and they are low, only 10–30 centimetres in height. The stone settings are thought to be shore-connected, and interpreted as having been erected on ancient islands and capes, often adjacent to Stone Age dwelling sites (Liedgren 1993; 1994). Based on shore displacement chronology and radiocarbon dates, the settings can be dated roughly to the late 6th and 5th millennium cal. BC.

So far, only two such stone settings have been excavated in Norrland. At the site of Manjärv (Älvsby municipality) a round stone setting (4 m in diameter, 20 cm in height) that was completely covered with red ochre was excavated in 1991 (Liedgren 1993; 1994; Norberg 2008: 96–7). Several layers of stones were observed: under the first layer of packed stones, a smaller layer of stones (size 2.8 x 0.6–1.2 m) was found and immediately below this layer some remains of a human skeleton were discovered. Below the first burial, a nearly rectangular pit contained a second burial featuring a better-preserved individual. The lower skeleton was discovered within a 1–7 cm thick layer of sand mixed with red ochre. The quartz flakes and artefacts found underneath the layer of stones were interpreted as grave goods. A piece of charcoal found under the lower burial was radiocarbon dated to c. 5320–4840 cal. BC (2 sigma, Ua-2502, 6150±100 BP).

A similar grave was excavated at the Ansvar site (Överkalix municipality), where three stone settings containing red ochre were found associated with a dwelling site. Two of the settings were of a rounded form, while the one excavated in 1996 was a rectangular stone frame filled with a layer of red ochre. Inside the frame, the red ochre layer continued 10–15 cm below the surface, being followed by c. 40 cm deep pit, in which human remains were found. There is no direct date available for the burial, but a piece of charcoal from the setting was dated to 2460–2030 cal. BC (2 sigma, Ua-10797, 3775±65 BP). As the dwelling site is dated to 5200–4600 cal. BC, the charcoal from the setting appears to have been younger than the setting itself (Liedgren n.d.; see also Norberg 2008: 97; Länsstyrelsen i Norrbotten 2009).

Although excavated Stone Age stone settings exist in the province of Norrbotten as well, none of them have produced any red ochre or human bones (e.g. Norberg 2008: 90–2, 99, 100). In this region, most of the settings without red ochre are located on low altitudes and are associated with younger dwelling sites than those featuring the use of red ochre. One of the so far unexcavated stone settings is of particularly great interest here and must be included in this discussion. On the highest parts of a site called Stor-Brändberget (Överkalix municipality), a largely rectangular stone setting (size 5 x 3 x 0.25 m), heavily coloured with red ochre, has been recorded. Pottery found at the site represents the older variant of Early Comb Ware, also known as 'Ka I:1' (Halén 1994: 147–51, see also Liedgren 1994) that as a pottery style dates to 5200–4500 cal. BC (Pesonen & Leskinen 2009). Based on shore displacement chronology, the site of Stor-Brändberget can be dated to c. 4550 cal. BC (Halén 1994: 150–1). In addition to this site, Liedgren (1994) refers to a few other recorded stone settings that are associated with red ochre and located on Stone Age shorelines.

Even though the number of excavated Stone Age cairns in Swedish Norrland is small (Norberg 2008: 97–100), the recorded structures are so evenly distributed – starting from sites located on Mesolithic shorelines and continuing to younger ones at lower elevations – that they have been interpreted as evidence of continuity in local settlement and traditions (Klang 2002).

Furthermore, a number of Middle Neolithic pit graves featuring stone structures have been excavated in northern Sweden. These include an underground stone cist (c 1.7 x 0.6 m in size, the bottom 57 cm below surface) at the Lagmansören site in the province of Medelpad, excavated in 1923 (Hallström 1924; Baudou 1977: 45–8; Dutra Leivas 1997). The cist, which was not covered by a mound or a cairn (Hallström 1924: 157), contained the skeletons of a 30-year-old woman and a 7–8-year-old child, both set in a supine position. A radiocarbon date of the first mentioned gave the result 2620–1950 cal. BC (2 sigma, St-11612, 3840±120 BP; Dutra Leivas 1997; Lindholm 2007). A second example of a red ochre grave with an associated stone structure comes from the site of Bjästamon (Örnsköldsvik

municipality), where a small chamber/cist (0.6 x 0.5 m in size) made of stones had been built on top of a pit. Three stones of the chamber, which was visible above ground, were stained with red ochre. No human skeletal material was preserved, but two radiocarbon dates were made of charcoal found in the grave (4130±45 BP, 4170±45 BP). The result, c. 2800–2600 cal. BC, coincides with the older occupation phase of the dwelling site. A slate arrowhead found in the grave can be associated with the Pitted Ware culture, while the stone chamber itself is thought to indicate influence from the Corded Ware domain (Lindholm 2007).

Finally, some burials in northern Sweden fall outside the types described above. For example, red ochre graves – one of them accompanied by a stone fill – have been discovered at Lillberget, a site associated with the Typical Comb Ware culture (Halén 1994: 72–8, 82–3). In addition, Lindholm (2007, with references) mentions two red ochre graves at the site of Fräkenrönningen (one of them with stones lined up on side of the burial), and a triangular stone structure with an underlying burial from at the Mårtsbo site (Early/Middle Neolithic A transition, c. 3200 cal. BC).

Stone Age burials in northern Norway

In northern Norway, Stone Age burials have been discovered in low cairns as well as shell middens. The first cairns have been discovered in the Varangerfjord region, where several cairns were excavated already during the fist half of the 20th century (Gjessing 1942: 416–7, 439). The dimensions of these oval or roundish cairns have mostly varied between 2 and 5 metres in diameter, with a height usually less than 0.5 metres (Simonsen 1974: 388; Magnus & Myhre 1986: 104–5; Henriksen 2001; 2003; Ramstad 2003). The diameter of the stones used is typically 25–35 centimetres, although larger stones occasionally occur (Henriksen 2003).

By the 1970s, 35 low cairns had been registered in the Varanger area (Simonsen 1974: 388). Some 30 years later, in 2003, the total number of possible Stone Age low cairns was already as high as 128 (Henriksen 2003). This number includes all cairns that appear to be of similar size and shape as the excavated ones, found above Stone Age shorelines and associated with Stone Age dwelling sites.

In the province of Finnmark, the number of excavated Stone Age low cairns is less than 20 (see Simonsen 1974: 388; Henriksen 2003). According to Henriksen (2003), at least 13 of them can be interpreted as graves. The cairns that contained the remains of the deceased were emphasized in the early studies, and in the early 1970s skeleton remains were registred in nine cairns in the Varanger area (Simonsen 1974: 389). The cairns are described in more detail in the following.

I shall begin my review from the Varangerfjord region, where three cairns have been recorded at the Gropbakkeengen site, two at the site of Nyelv Nedre Vest, and a single cairn has been reported from the sites of Advik, Storsanden and Bugøynes (Gjessing 1942: 416, 439; Simonsen 1961; 1974: 388; Olsen 1994). The excavated Cairn C at Gropbakkeengen was oval in shape (size c. 4.0 x 2.4 m, height 30 cm) and contained a skeleton in a crouched ('Hocker') position (Simonsen 1961: 182). Following the Norwegian periodization of the Younger Stone Age (see Hesjedal et al. 1996: 188), the dwelling site was dated to Period II, (4000–3300 cal. BC), but a bifacial retouched point discovered in the cairn rather points to Period I (5000–4000 cal. BC; Simonsen 1974: 388; Olsen 1994: 79–80; Skandfer 2003: 278). A radiocarbon date made of a marine shell from the cairn (T-2159; Helskog 1980: 49–53) gave the result 6210±110 BP. When the 'reservoir effect', which makes samples of marine origin appear c. 350–450 years too old in northern Norway (CHRONO), is taken into account, this result can likewise be taken to indicate a date belonging to Period I.

At Nyelv Nedre Vest, a cairn (or 'rock mound burial') 4 metres wide and 0.5 metres high contained skeletal remains of an adult (possibly female), including a skull that shows marks of trepanation, but no grave goods. This cairn was excavated by Nummedal already in 1939. A second cairn from the same site (diameter 3.5 m) featured a stone slab with a geometric red ochre painting, but no signs of the deceased (Gjessing 1942: 416, 439; Simonsen 1961: 430–2; Hood 1995: 86). The slabs in the grave have been associated with cist graves (Henriksen 2003). According to Hood, the elevations of these cairns indicate a dating to the beginning of Period III (3300–2000/1800 cal. BC, Hood 1995: 86; see also Simonsen 1974: 388).

A few cairns have been excavated at several sites in the Varanger region. At the Advik site, a cairn (size 4.4 x 2.2 m, height 0.5 m) featured a roughly rectangular stone-free space (1.8 x 1.1 m in size) in the middle (Simonsen 1961: 241–4). Remains of skeleton and a base fragment of a

bipolar quartzite point were discovered under the cairn. The occupation at the site is dated to the Periods II and III (Helskog 1980, Olsen 1994: 87). At the Storsanden II site, two stone axes were found amidst the stones of a rock cairn (Simonsen 1961: 494). Based on the typology of the axes and the altitude of the cairn, the find is dated to Period III (Henriksen 2003). At the site of Bugønes III, knapped stone tools made of quartz and quartzite were discovered in an oval cairn (3 x 2.5 m in size), but were not interpreted as grave goods (Odner 1966: 52–5). The cairn supposedly dates to the Younger Stone Age, thus being much younger than the adjacent dwelling site, which is associated with the Mesolithic Komsa culture.

A cairn (diameter 6 m) at the site of Gressbakken Nedre Øst produced no traces of a skeleton, but a slate dagger was found in the course of the excavations. In the middle of the grave, there was a chamber-like area (1.4 x 0.8 m) covered by a stone-free sand layer. The grave had been dug 0.5 m below ground. Simonsen (1961: 387–9) dated the cairn to his Period IV, which corredponds to the Early Metal Period. However, according to present knowledge, a Stone Age dating – falling within Periods II and III – seems more plausible (Henriksen 2003). In addition to the above-mentioned sites, Henriksen (2003) mentions a cairn at the site of Kramvik that is dated (albeit with some uncertainity) to the Younger Stone Age, and a cairn at the site of Bugøfjord that most probably belongs to the Early Metal Period (Simonsen 1961: 472).

Turning on to Slettnes at Sørøya, the site of extensive investigations conducted between 1991 and 1993, it is worth noting that although several stone settings were excavated, only two were interpreted as graves (both of them located at the Slettnes V B site). One elongated pit (0.3 – 0.4 m in depth), filled with stones and found in the space between two housepits, was regarded as a grave even if it did not contain any skeletal material. A radiocarbon date from the pit gave the age 4500–3630 cal. BC (94.1%, Beta 58663, 5200±220 BP; Hesjedal et al. 1996: 110–1). The second possible grave from Slettnes was an oval cairn (Røys F 79, 5 x 4 m in size), under which there was a pit lined with stone slabs. The structure did not contain any human remains, but a slate point of the Sunderøy-type was found in the pit. A radiocarbon date from the pit gave the result 3010–1930 cal. BC (2 sigma, Beta-58671, 3970±200 BP), which is approximately a thousand years younger than the housepit located next to the cairn (Hesjedal et al. 1996: 117).

Finally, a group of Stone Age cairns have been found at the island of Melkøya, more precisely the site of Sundfjæra Midtre. All of the three cairns excavated at this site were modest in size and had flat profile. The first cairn (Str. 7) was circular in shape (size 2 x 2 m, height 0.3 m) and built of burnt stones, cobblestones and boulders. It was erected in an empty space left between a housepit, a boulder and exposed bedrock. Inside the cairn, there was a circular structure made of larger cobblestones and slabs. Near the outer rim of the cairn, an amber pedant was found. The radiocarbon dates made from samples found in the structure place it in the period between 3900 and 3640 cal. BC (2 sigma, Wk-12021, 4933±43 BP; Wk-12023, 4949±42 BP; Ramstad 2003; Hesjedal et al. 2009: 229, 254–8).

The second cairn (Str. 1) from the same site was built on the place of a rock cleft (2 x 1 m in size). The cairn was built of burnt stones, cobblestones, and to a lesser extent of blocks and slabs that had been extracted from the surrounding bedrock. At the bottom of the cairn, the colour of the silty soil between the rocks varied from dark grey to black and contained a lot of ash. In total, eight amber pedants were found in the cairn and were interpreted as grave goods. A layer of birch bark inside the cairn was interpreted as the remains of a cover that separated the body of the deceased from the pile of stones on the top. The slabs found on the top of the cairn were viewed by the excavators as the remains of a structure that marked the grave. The cairn is dated to 3940–3660 cal. BC (2 sigma, Wk-12022, 4986±51 BP; Ramstad 2003; Hesjedal et al. 2009: 260–4).

The third cairn (Str. 10) from the site was likewise circular in form (c 2.5 x 3 m in size), its extent limited by large boulders and the exterior wall of a housepit. On top of the cairn, three stone slabs lay together, their corners partly overlapping. One of these slabs covered a large whetstone. The uppermost part of the cairn consisted of burnt stones and coarse sand mixed with carbonized fragments of a broadleaved tree, while the lower parts the structure featured burnt stones and cobblestones in equal portions. The cairn did not contain any human remains and the interpretation of the structure as a grave is thus based simply on its size and shape, as well as with

parallels in the Varanger region. Charcoal dated from the structure gave the result 4240–3990 cal. BC (2 sigma, Wk-12015, 5289±46 BP; Ramstad 2003; Hesjedal et al. 2009: 216–7).

Features shared by all of the Stone Age cairns in northern Norway are limited size, flat profile, and location at dwelling sites or at least in the immediate vicinity of contemporary habitation. As the cairns typically consist of just a single layer of stones, the height of the structures (usually between 0.2 and 0.5 m) depends on the size of the stones used. The shape of the Norwegian low cairns is mostly described as being round or oval. Underneath the stones, there has been a burial pit, c. 10–50 cm deep. Occasionally, some structures made of stone slabs are associated with the grave. Grave goods are rare: artefacts registered from a burial context include arrowheads, axes, amber jewellery, a whetstone and some lithics. Human remains have only been encountered in the early discoveries from the Varanger region (Simonsen 1974: 388; Henriksen 2001; 2003; Ramstad 2003).

A summary of the stone architecture of Stone Age graves in the Baltic Sea region

By contrast to the northern and the eastern parts of the Baltic Sea, in the southern and south-western parts, the emergence of stone architecture in burial context is an older phenomenon, first associated with the spread of the Funnel Beaker culture (TRB) c. 4100 cal. BC. In Sweden, TRB culture made its way as far north as the region of Mälardalen in central Sweden, where it is dated to 4000–3300/3000 cal. BC (Hallgren 2008; 2010). However, the main distribution of 'megalithic burials' – that is to say long barrows (gallery graves), dolmens, and passage graves – is in Sweden restricted to the southernmost coastal areas, as well as the highland areas between Lakes Vänern and Vättern (Malmer 2002: 26–7, 51; Sjögren et al. 2009). In southern Scandinavia the first megalithic graves, built during the Early Neolithic (after 4100 cal. BC), were collective graves that stayed in use throughout the Neolithic (Burenhult 1999: 385; Stensköld 2004: 134–5; Ebbessen 2006: 132, 233). Also, contemporary with the megaliths, flat graves with stone frames and sides lined with stones were built in Denmark (Ebbessen 1992).

The construction of passage graves with stone chambers is a somewhat younger phenomenon, the beginning of which in Sweden dates to the latter part of the Early Neolithic or the Early Middle Neolithic, c. 3200 cal. BC (Persson & Sjögren 1995). At the northern limit of the TRB culture, the earliest graves included both burnt and unburnt human bones, found in various types of pits, some of them associated with a stone fill (Hallgren 2008: 100–6). There is only one stone chamber grave known from the Mälardalen area (Hallgren 2008: 110–1). During the Middle Neolithic, some other types of stone structures in graves were present, too. For example, 'stone-fill graves' are known from Jutland (Denmark) dating to c. 3200–2800 cal. BC (Ebbesen 1992), while in Gotland (Sweden) pit graves containing inhumations and a stone fill are associated both with Corded Ware and Pitted Ware cultures, dated between 3200 and 2400 cal. BC (Janzon 1974: 16, 19–20, 322–32). In Sweden, graves with a stone fill, stone frames and other types of dry masonry were all present by the Late Neolithic or c. 2350–1700 cal. BC (Burenhult 1999: 369; Stensköld 2004: 137).

Later on, when some of the TRB graves were still in active use, various stone structures became well-established in inhumation burials for the remaining part of the Neolithic. For example, a half of inhumation burials of the south Scandinavian Battle Axe culture (c 2900–2300 cal. BC), a regional version of the wider complex of Corded Ware cultures, bear evidence of stone structures (Malmer 2002: 91; see also Ebbessen 2006). Inhumations in stone cist graves connected to Corded Ware culture do exist, but are quite rare (Malmer 1962: 235–7; 2002: 137; Ebbesen 2006: 130–1, 233). In Sweden, most of the stone cist graves generally date to the Late Middle Neolithic (2700–2300 cal. BC) and, in particular, the Late Neolithic (2300–1700 cal. BC), even though the construction of this type of graves continued in Sweden until the Early Bronze Age (Burenhult 1999: 364, 385).

The main change in Swedish inhumation burials during the Middle to Late Neolithic transition is thought to be related to the position of the body, the orientation of which changed from the crouched ('Hocker') position to a supine position (Stensköld 2004: 135). Cist graves were usually concealed by a cairn or mound, although examples of cist graves below ground level are also known (Burenhult 1999: 385; Stensköld 2004: 136). The main distribution area of the cist graves lie to the south and south-west of Lakes Vänern and Vättern, but also extended to the Mälardalen

region in north. The Lagmansören cist grave, located in Swedish Norrland, is the northernmost example of this trend (Stensköld 2004: 136, 185).

Even though the overall picture of the emergence of stone architecture in graves is dominated by research conducted on the cultures of the southern parts of the Baltic Sea region, the excursion made above demonstrates that stone constructions were present in burials in northern Fennoscandia very early on. Although the number of excavated sites remains low, it seems that stone settings or cairns were associated with burials in the northernmost part of the Baltic Sea and northern Norway already during the late 6th or 5th millennium cal. BC. Interestingly, the bifacial retouched point discovered in the Cairn C at the site of Gropbakkeengen and the earliest radiocarbon dates from the low cairn burials of northern Fennoscandia fall within the same time period as the first occurrence of eastern pottery technology in the North. The association of Early Comb Ware and the stone setting at Stor-Brändberget, Sweden, may likewise suggest 'the East' as a possible source of cultural influx. There do not seem to exist any antecedents for this type of burial, which thus appears to be indigenous to northern Fennoscandia, even if most Stone Age graves with stone architecture in the region are younger and contemporary with the well-established stone architecture of the agrarian cultures further south.

Trends in red ochre burials

In general, red ochre burials characterize the Mesolithic cultures, including the Ertebølle culture as 'pottery Mesolithic,' around the Baltic Sea (e.g. Jensen 1988: 82; 2001: 223–33; Larsson 1999) but are not known from the sphere of Neolithic cultures of southern origin. After the appearance of these southern cultures, red ochre graves have been particularly identified among the Neolithic cultures of the eastern part of the Baltic Sea, where the Neolithic Stone Age has been traditionally labelled as 'Forest Neolithic' or 'Sub-Neolithic', as well as among the Swedish Pitted Ware culture (Janzon 1974: 108–11). Here, a short excursion will be made to certain trends in the use of red ochre in inhumation burials in the eastern part of the Baltic.

In north-western Russia (Republic of Karelia), the small island of Olenyi Ostrov at Lake Onega features one of the most important Mesolithic cemeteries in Europe. Most of the nearly 200 burials known from the site, dated between 7000 and 6000 cal. BC, were associated with red ochre (Gurina 1956; Price & Jacobs 1990; Mannermaa et al. 2008). In Finland, the oldest examples of red ochre burials are likewise dated to the Mesolithic, but the tradition practically ceased during the following Early Comb Ware period. With the exception of a single red ochre grave encountered at the Sopenkangas site in Northern Ostrobothnia (Edgren 1993: 61; see also Purhonen 1998: 29), the use of red ochre was discontinued in a burial context. The vast majority of red ochre graves in Finland belong to the Typical Comb Ware period (Edgren 1993: 30–2, 60–4; Halinen 1999; Katiskoski 2004; Lappalainen 2007), but the burial tradition continued to a lesser extent almost to the beginning of the Bronze Age.

The extensively excavated cemetery of Zvejnieki in Latvia neatly illustrates the development of Stone Age burials in the south-eastern part of the Baltic Sea. There the oldest graves are rich in red ochre and date to the Mesolithic (c 7300–5700 cal. BC), while during Early Neolithic (5300–4500 cal. BC) the use of red ochre was restricted to certain parts of the body, or was missing altogether (Zagorska 2006; 2008). During the Middle Neolithic (4400–3500 cal. BC), the intense use of red ochre in burials once again intensified, but eventually came to an end with the Corded Ware culture (c 2900/2800–2300 cal. BC), which did not make use of red ochre in burial rituals.

The two periods of intense use of red ochre in burials, 7300–5700 cal. BC and 4500/4000–3500 cal. BC, outlined above, occurred pretty synchronously. It must be noted, however, that red ochre burials were not common everywhere throughout the eastern part of the Baltic Sea region. Even if red ochre burials were plenty in Finland as well as in Latvia, in Estonia, only three inhumation burials that belong to the Late Comb Ware culture have been associated with red ohre (Kriiska & Tvauri 2007: 60).

DISCUSSION

In conditions such as in Finland, where human skeletal material has not been preserved, identifying an inhumation burial can be nearly impossible if the grave does not feature red ochre, artefacts, or stone structures. As evident from the above overview of Stone Age burials in northern Eu-

rope, multiple burial customs have been in use at the same time in the same areas. For example, even though inhumations obviously dominate the picture, recent studies have shown that cremation was also occasionally practised already during the Late Mesolithic (Koivisto 2009) and Typical Comb Ware periods (Katiskoski 2004).

The physical dimensions of the Keelaharju stone setting are highly similar to Norwegian and, especially, northern Swedish Stone Age burial cairns, even if they are not identical in every respect. While red ochre was found in the Keelaharju setting and the excavated Swedish examples, it was not present in the Norwegian cairn burials, even if one of the Norwegian cairns did feature a stone slab painted with red ochre (Simonsen 1961: 432). Also, the shape of the stone settings seems to indicate regional differences: for example, in northern Norway the low cairns are of an oval or a roundish shape, while in the northernmost Baltic Sea area rectangular stone settings and frames occur together with more roundish cairns.

In Finland, heaps of stone dating to the Stone Age have been divided into two categories: possible burial cairns built of unburnt stones and refuse heaps consisting of burnt stones. However, as some Norwegian burial cairns (e.g. Melkøya) feature extensive use of burnt stones, the nature of the stone material should not be viewed as decisive evidence on the nature of the structure. At Keelaharju, too, some of the stones were fire-cracked, which may not simply be a result of forest fires but may in fact be a feature of the original structure.

Different terms are in use to refer to low and modest-sized Stone Age burial structures made of stones. The term *cairn* (No. *røys*), that is used in Norway, makes a direct association to Bronze and Iron Age burial cairns, and though possibly, perhaps unconsciously, also to systems of beliefs of that time. On the contrary, the Swedish term *stone setting* (Sw. *stensättning*) is quite clear of associations. The Norwegian Stone Age low cairns have been compared to analogous burial customs, descripted in ethnographic or archaeological sources (Henriksen 2003) in order to outline the possible Stone Age religious beliefs. However, the use of stone cover on top of a grave is known from historical graves in Finland (Ruohonen 2005: 67–8, with references) as well as among the etnographically known hunter-gatherers (Henriksen 2003, with references). Therefore, the distinct use of red ochre in cairns and stone settings in different areas might refer to practical purposes to protect the deceased from the wild animals, or perhaps even dogs, and not to a common belief system or burial practises. A practical point of view has been put forth earlier, too, as Stone Age burial cairns have been proposed to have been winter graves that were used during the period when the ground was frozen (Simonsen 1974: 390).

The dates from Keelaharju and the Swedish site of Ansvar both suggest the period 2300–2000 cal. BC, but in both cases the dated material (charcoal and charred seed) was dismissed by the excavators relating to younger events such as forest fires rather than actual interments. Both sites were instead deemed contempory with the adjacent dwelling sites, the one at Keelaharju being dated to 4600 cal. BC and that of Ansvar between 5200 and 4600 cal. BC. The only plausible radiocarbon date in relation to the archaoleogical context, 5300–4900 cal. BC, derives from the Manjärv grave in northern Sweden (see. Liedgren n.d.; Norberg 2008: 97–8).

In Norway, the oldest low cairn at the Gropbakkeengen, dating c. 5000–4000 cal. BC, is contemporary with the spread of Early Comb Ware (of the Sär1-type) to the Atlantic coast (Helskog 1980; Skandfer 2005). Other excavated cairns have been dated younger; the ones from Melkøya and Slettnes are radiocarbon-dated from the later 5th to the 2nd millennia cal. BC, and other chronological indicators employed include ancient shorelines, artefacts discovered in cairns, and datings of associated dwelling sites (Henriksen 2003). However, the radiocarbon dates acquired so far suggest that the cairns and the adjacent dwelling sites are not necessarily contemporary, and that the age difference can be quite substantial.

On the whole, the currently available radiocarbon dates on northern Stone Age burial cairns are of poor quality, as they have been made of charcoal and charred seeds found inside the structures and not of the buried individuals, burial structures or burial goods *per se*. However, even if the need for more and better dates is dire, the current data offers some confidence in situating the oldest phase of cairn burials in northern Fennoscandia as early as the late 6th and 5th millennia cal. BC. Due to poor preservation of skeletons and other unburnt organic material, the radiocarbon dates made of the available charred material that might be secondary to the interment have led to a conflict between the dating of the burial and that of associ-

ated dwelling site.In such cases, the context and nature of the dated sample has been viewed critically and the dating of the site has been favoured. But even if the discarded datings turned out to be correct, which I do not find probable, these burials would be something totally new both in terms of their dating and environmental setting.

Admittedly, the date here suggested for Keelaharju and the oldest Swedish cairns is in conflict with the trend noted above, as it falls within a period when the use of red ochre in burials appears to plummet. However, as noted above, some examples of red ochre graves are known from Early Comb Ware context which, together with the cairns under discussion, suggests that our current knowledge of burial traditions during the 5th millenium cal. BC might be based on too slender material. In the northernmost Baltic Sea, the tradition of red ochre burial may not have experienced a similar break as further south.

It is interesting to note that the earliest cairn burials in northern Fennoscandia are contemporary with the earliest phase of Early Comb Ware, and that a few sites have also provided concrete evidence (pottery and a bifacial retouched point) of an Early Comb Ware connection. Whether cairn burial had its origins in religious thought or practical issues (burying the dead during the winter, or protecting the deceased from animals) is difficult to say, but whichever the case, the custom apparently emerged during the Mesolithic/Neolithic -transition. Our current knowledge suggests that the northern cairns are a local innovation, but it may also be hypothesized that the phenomenon has an eastern origin – as is the case with the earliest pottery tradition that reached northernmost Europe. Cairn burials have not yet been documented elsewhere in the Early Comb Ware world, but I would not be too surprised if they were found – in the future – even in the forested regions, where low cairns are much more difficult to spot than in areas of light vegetation near or above the Arctic Circle.

The Keelaharju burial has no known prototypes in the southern part of the Baltic Sea, but some similarities exist with the Late Mesolithic burials of Jönsas in the sense that in both cases stones and red ochre were visible above ground. At Keelaharju, it appeared that the stones and red ochre had initially been covered by some organic matter that has since decomposed. A comparison with one of the cairns at the Sundfjæra Midtre site, suggests that the material may have been birch bark (Hesjedal et al. 2009: 260–4; see also Henriksen 2003).

The uncertain nature of radiocarbon dates, unfortunately, applies to the younger stages of the cairn burial tradition as well. However, in the light of present knowledge, it seems that the utilization of stone slabs in burial structures emerged during a period when southern contacts are fairly obvious in the archaeological materials of northern Fennoscandia. The oldest Norwegian cairns (at Sundfjæra Midtre) featuring structures made of stone slabs date to c. 4200–3700 cal. BC, while cairns at Nyelv Nedre Vest and Slettnes with similar structures have been dated to Period III (3300–2000/1800 cal BC). During the same period, the structures composed of stone slabs occur at the burials of Lagmansören and Bjästamon in northern Sweden. In both cases, the integration of stone slabs and local burial customs can be observed. In northern Norway the slabs were intergrated in the low cairn tradition, while in northern Sweden the slabs (used to build a chamber or a cist) were adopted into the red ochre burial tradition – at least, that seems to be the case at the site of Bjästamon. The use of stone slabs in grave structures during the 3rd millennium seems to be related to the impact of the 'invading' Corded Ware culture, an impact that is also evidenced by the distribution of artefacts belonging to the said culture, which in Finland extends almost to the Arctic Circle (see Carpelan 2004).

As noted earlier, a group of 15 cist graves featuring the use of red ochre have been excavated at the sites of Kolmhaara (11 graves) and Aisti (4 graves). As these graves have frequently been mentioned in discussions on the northern burials (e.g. Baudou 1977: 48; Liedgren 1994; Detra Leivas 1997; Lindholm 2007), this paper will end with a short discussion on their dating.

When Torsten Edgren in 1966 published a study on the so-called Jäkärlä Ware, a distinct ceramic tradition within the Early Comb Ware complex in south-western Finland, he chose to interpret the cist graves – which have never produced any datable artefact finds – as belonging to this tradition. The argument was rather straightforward. Three pottery types were present at the dwelling sites with which the cist graves are associated, namely Jäkärlä Ware, Typical Comb Ware, and Corded Ware. Because the cist burials differed from known burials of both Typical Comb Ware[1] and Corded Ware cultures, Edgren thought

they were connected to the Jäkärlä group, the burial practices of which were otherwise unknown (and still are; Edgren 1966: 94–7; 1999).

At the time, it was thought that only one kind of burial was in use in each culture (Edgren 1966: 95). Further, following the contemporary archaeological chronology, Edgren argued that the cist graves represented a local grave form which did not have any counterparts elsewhere (Edgren 1966: 106). Later, a piece of charcoal from the bottom of one of the cist graves was dated to same period as the Jäkärlä Ware found at the site (4400–4050 cal. BC; Hel-20, 5410±150 BP; Edgren 1999), which seemed to confirm the earlier dating. However, when the advent of AMS-dating technique made it possible to date minute organic samples, small pieces of human bone found from two of the Kolmhaara graves were subjected to dating, and these, surprisingly enough, produced results that fall in the Early and Middle Iron Ages (Hela-179, 2180±55 BP; Hela-244, 2210±65 BP; Hela-245, 1505±55 BP; Edgren 1999).

As the AMS-dates of the Kolmhaara cist graves are clearly anomalous, other lines of evidence are needed, and a comparative approach presents one possibility. When it comes to the use of red ochre, the Kolmhaara cist graves exhibit both intensive use all over the grave and more restricted use, where ochre has only been applied to certain parts of the body (Edgren 1966). On the whole, this type of red ochre usage corresponds with the Typical Comb Ware burial tradition (see Katiskoski 2004).

The nearest counterparts to the Finnish cist graves are in Norrland, Sweden, where the cists of Bjästamon and Lagmansören are of same size as the Finnish examples. Both of these date to the 3rd millennium cal. BC. At Lagmansören, two bodies were buried in supine position, as was supposedly the case also in one of the Kolmhaara cists (Grav XI; Edgren 1966). Although the intensive use of red ochre is characteristic of the Typical Comb Ware period, the other features – namely the cists themselves, the supine position of the buried body, and the dating of similar structures in Sweden – gives a reason to believe that the 3rd millennium cal. BC (particularly the latter part) is the most likely dating also for the Finnish cist graves below ground level. At least, it would be in much better agreement with the known evolution of graves than either 5th millennium cal. BC (Jäkärlä Ware) or the Iron Age. There can be no question concerning the origin of the tradition that brought cist burials to Finland: it is surely derived from the western shores of the Baltic Sea, from Sweden, which also fits well with the general picture of intensifying western contacts (at the expense of eastern influences) in south-western Finland during the 3rd millennium cal. BC.

CONCLUSIONS

In sum, the review of parallel structures in the Baltic Sea region and northern Norway, as well as the extensive use of red ochre, strongly supports the interpretation of the Keelaharju stone setting as a grave. In the acidic podzol soils of Northern Ostrobothnia, bones are not preserved over any greater lengths of time, and thus the lack of human skeletal material – at Keelaharju and elsewhere in the area – is simply a natural state of affairs in Finnish Stone Age graves.

The dating of red ochre burials covered by stone settings is still rather uncertain. Our current understanding – which places the initial period to the late 6th and 5th millennia cal. BC – is based on indirect radiocarbon dates (carbonized matter found in the grave, or datings made of materials found in the associated dwelling sites), dates of the artefact types discovered in burials and shoreline displacement chronology. According to shore displacement chronology, the Keelaharju stone setting (as well as the associated dwelling site) is here argued to date approximately to 4600 cal. BC, while the radiocarbon dates from the charred plant macrofossils found within the red ochre layer in the setting, which gave the dating range 2290–2030 cal. BC, are associated with a more recent forest fire bearing no relation to the actual burial event.

No cultural layers were observed at the Keelaharju dwelling site, and all the finds collected in the course of fieldwork were distributed above a certain altitude and a particular shore formation. These observations indicate that the Keelaharju stone setting was erected on a seasonal dwelling site located on a tiny, barren islet in highly maritime environment.

The results obtained from Swedish Norrland and the Keelaharju site in north-western Finland support the view that some of the cairns and stone settings found on 'improbably' high elevations could actually be graves and, moreover, much older than ealier thought. Some of the earliest Finnish cairns may be Mesolithic, others perhaps Early Neolithic or early Middle Neolithic, dating

between c. 6th and 4th millennia cal. BC (cf. Okkonen 2003: 125–6, 148). Most probably, the Norwegian low cairns without red ochre represent a related burial tradition. Current data suggests that the emergence of the early burial cairn tradition and the almost synchronous occurrence of the oldest pottery in northern Fennoscandia (Early Comb Ware) may be related in some way.

The Late Mesolithic burials from Jönsas, southern Finland, form an interesting parallel to the northern phenomenon, but on the whole this early burial tradition seems to have little in common with the stone architecture and burial traditions that spread to the southern Baltic Sea region with the Funnel Beaker culture beginning around 4100 cal. BC. During the 3rd millennium cal. BC, burial structures made of stone slabs (i.e. chambers or cists) were integrated with local burial traditions. In northern Norway, the use of slabs became a part of the low cairn tradition, while in northern Sweden and probably south-western Finland as well, stone slabs emerged as an element of red ochre inhumation burials. Even if the number of documented burials remains rather limited, the occurrence of stone slabs in burials can – most probably – be interpreted as resulting from the impact of the Corded Ware culture.

It appears that in the northernmost Baltic Sea region and northern Norway, there existed a possibly independent burial tradition in which stone settings or low cairns marked a grave. In the northern part of the Gulf of Bothnia, this tradition was integrated with burial traditions that made use of red ochre. The northern Stone Age burials, in general, seem to bear elements of local trends, which do not correspond to the developments further south, even if some obviously shouthern elements (such as chambers) were later integrated with these traditions. It seems evident, too, that the use of red ochre in graves continued in the northern Baltic Sea region (that is, beyond the northern limit of Coded Ware cultures) much later than in the southern areas, where the red ochre burials came to an end at the same time as the Corded Ware culture made its proper appearance.

NOTES

[1] It is worth noting that there is a rich Typical Comb Ware cemetery with red ochre inhumation burials at Kolmhaara as well (Edgren 1966).

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