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MEMORY, LANDSCAPE & MORTUARY PRACTICE UNDERSTANDING RECURRENT RITUAL ACTIVITY AT THE JÖNSAS STONE AGE CEMETERY IN SOUTHERN FINLAND

MARJA AHOLA

ABSTRACT

Stone Age people handled their dead in various ways. From the Late Mesolithic period onwards, the deceased were also buried in formal cemeteries, and according to radiocarbon dates, the cemeteries were used for long periods and occasionally reused after a hiatus of several hundred years. The tradition of continuous burials indicates that the cemeteries were not only static containers of the dead but also important places for Stone Age communities, which were often established in potent places and marked by landscape features that might have had a strong association with death. The paper explores the tradition of burials in cemeteries exemplified through Jönsas Stone Age cemetery in southern Finland. Here the natural topography, along with memories of practices conducted at the site in the past, played a significant role in the Stone Age mortuary practices, also resulting in the ritual reuse of the cemetery by the Neolithic Corded Ware Culture.

INTRODUCTION

During the Stone Age, people handled their dead in various ways. Archaeological evidence has shown that people were inhumed, cremated, used as relics and buried under water, just to mention some of the practices (e.g. Grøn & Skaarup 1991; Nilsson Stutz 2003; Brinch Petersen & Meiklejohn 2003; Pettitt 2011; Törv 2016). Towards the end of the Palaeolithic era, some of the deceased were also buried in cemeteries (e.g. Pettitt 2011; Nilsson Stutz 2014), formally defined, recognisable and visible places of the dead (Pettitt 2011, 251). This preference appears to intensify at the end of the Mesolithic in Europe (Nilsson Stutz 2014, 720–721). Thus the appearance of places allocated for formal cemeteries has been considered as part of the ‘agricultural thinking’, i.e. connected with the rise of the territorial notions of land and social spaces (Gamble et al. 2005; see also Pettitt 2011, 249–251).

Perceptions of the people interred at the cemetery sites have varied (e.g. Gurina 1956; Edgren 1966; Strassburg 2000; Nilsson Stutz 2003; Törv 2016). However, the tradition of continuous burials at a designated place indicates that the cemeteries were not only disposal areas for the dead, but also important places for the Stone Age communities (Borić 1999; Nilsson Stutz 2014; Brinch Petersen 2015; Peyroteo Stjerna 2015; Törv 2016). According to radiocarbon dates (e.g. Price & Jacobs 1990; Zagorska 2006; Piezonka et al. 2014; Gibaja et al. 2015), the same cemetery site was often used for long periods of time and was occasionally reused after a hiatus of several hundred years. The sites themselves were often marked by landscape features that might have had a strong association with death (Conneller 2013, 354), and certain landscapes and sites could have been rooted deeply in the individual and collective memories of the Stone Age societies (Tilley 1994, 27; Peyroteo Stjerna 2015).

In this paper, I will examine a Stone Age practice of burials in cemeteries from a Finnish perspective. By using the Mesolithic-Neolithic cemetery of Jönsas in southern Finland (Fig. 1) as an example, I aim to understand how Stone Age people perceived and understood the cemetery and how this can be seen in the overall formation of the site (1). The task is not a simple one, since, due to the poor preservation of organic materials in the acidic soils of Finland, the Stone Age graves usually lack human bone material and, accordingly, radiocarbon determinations (Ahola et al. 2016).

In this paper, I aim to move beyond the issues of preservation and demonstrate that important insights into the Stone Age funerary practices can be gained despite such impediments. I will regard the Jönsas site from two different perspectives. First, I will approach the site from the aspect of the sacred landscape and argue that anoma-

Fig. 1. Sites mentioned in the article.

lous natural landscape features might have contributed to the location of the cemetery and the positioning of the burials. Second, I will analyse the Jönsas cemetery as a whole with its different phases of use and suggest that, at the same time, memories and myths attached to the site played a significant role in the mortuary practices conducted at the site. Differing from recent publications concerning Stone Age hunter-gatherer mortuary practices (Nilsson Stutz 2003; Peyrotero Stjerna 2016; Törv 2016), I will not dwell upon the remains of the deceased; this is an impossible task in the case of Jönsas, where no human skeletal material has been preserved, but rather consider the site itself as a social agent revealing the behavioural elements related to the mortuary practices. Because the Jönsas burials have never been published collectively in a single study, I will also provide a necessary summary of the grave structures.

CEMETERY AND SETTLEMENT SITE AT JÖNSAS

The Jönsas cemetery consisted of more than 20 ochre earth graves (usually associated with the Mesolithic or the Neolithic Combed Ware Culture) and five graves connected with the Corded Ware cultural tradition (ca. 2800/2700–2300 BC) (Fig. 3). The site is one of the largest Stone Age cemeteries in the Finnish territory and was excavated over the course of four decades, from the 1960s until the 1990s (Leskinen & Pesonen 2008, 180–185). Today, with an excavated area of ca. 8,300 square metres and an overall area covered by trial pits and trenches of ca. 30,000 square metres (Purhonen & Ruonavaara 1994, 88), Jönsas is considered as completely excavated and is covered by a modern suburb of Myyrmäki.

The cemetery was discovered within a multi-period settlement site containing find material such as worked

ARCHAEOLOGICAL PERIOD	DATES
Late Mesolithic	c. 6800-5200 BC
Early Neolithic	c. 5200-4000 BC
Middle Neolithic	c. 4000-2300 BC
Late Neolithic	c. 2300-1800 BC
Bronze Age	c. 1800-500 BC
Early Iron Age	c. 500 BC-400 AD

Fig. 2. Chronology of Coastal Finland from the Late Mesolithic to the Early Iron Age (based on Nordqvist & Herva 2013).

Fig. 3. Overview of the Jönsas cemetery (based on map in Purhonen & Ruonavaara 1994).

lithics, consisting primarily of quartz, ceramics and burnt bone dating to the Late Mesolithic, the Middle Neolithic (Corded Ware Culture) and the Bronze and Early Iron Ages (Purhonen & Ruonavaara 1994, 89) (Fig. 2). Also, a small flint blade connected with the Neolithic Pitted Ware Culture (Manninen & Hertell 2011, 126) and a single sherd of the Late Combed Ware Culture have been discovered at the site (Leskinen & Pesonen 2008, 82). Since an Early Neolithic settlement has been discovered c. 50 metres south-east of the Jönsas burial site, the presence of the Early Neolithic inhabitants at the site has also been suggested (Purhonen 1980, 8; 1986, 113).

Although all of the Jönsas graves lacked human skeletal material, the Jönsas Corded Ware graves were easily recognised as burials due to the uncovered grave structures and find material typical as Corded Ware grave goods (Purhonen 1986). The situation was quite different with the Jönsas ochre graves, which lacked the artefacts (2). The earliest Jönsas ochre structures were excavated in the 1960s (Luho 1965), immediately following the discovery of the first ochre cemeteries of the Middle Neolithic hunter-gatherers in Finland (Lappalainen 2007, 2). The graves in these Neolithic cemeteries were usually marked with ochre and only occasionally contained grave goods of stone or amber (one of the graves did contain small fragments of human bones) (Edgren 1959, 8). But this led to the realisation that pits lavishly littered with ochre were actually Stone Age burials with completely decomposed human remains (Edgren 1966, 97). This has also facilitated the recognition of the ritual nature of the Jönsas ochre features (Luho 1965, 27–31). Although the Jönsas features lacked the rich find material seen in the discovered Middle Neolithic burials, the ochre-coloured features were shaped and sized as adult inhumation burials and contained carefully placed, water-polished cobbles (Luho 1965, 27–31) (Fig. 4).

By the 1990s, the number of Jönsas ochre features had increased to more than 20, and the uniformity of the features supports the interpretation of a cemetery of inhumation graves that could also have yielded decomposed organic grave goods. Supporting the ritual nature of the site are also the ‘rings of ochre’ (Figs 5 and 4c), pit- or ditch-shaped features filled with ochre, soot and water-polished cobbles, found at the site (Arponen & Wallenius 1987, 12; Ruonavaara 1992, 7). The function of these features is unknown, but their location next to the ochre burials and

the use of ochre and water-polished stones suggest that they are related to the cemetery.

In addition to recognising the ochre graves, the lack of organic materials has also complicated the dating of the burials. The ochre cemetery is often given a Late Mesolithic date of ca. 7000–5500 BC (e.g. Purhonen 1980; Halinen 1999; Grünberg 2000; Leskinen & Pesonen 2008; Oshibkina 2008). However, there are no direct radiocarbon dates from any of the graves. Thus, the dating is based on the tradition of ochre use (Luho 1965; Purhonen 1980), common in Mesolithic hunter-gatherer burials (Zagorska 2008; Grünberg 2013), and on the location of the graves at the Mesolithic occupation level of the site (Luho 1965, 30–33). Thus, even when further support for the relative dating is seen in the absence of grave goods and in the presence of the water-polished stones and traces of fire that bear a resemblance to the Mesolithic burials of Russian Karelia (Purhonen 1980, 15), the Mesolithic date cannot yet be reliably determined. For example, water-polished cobbles have occasionally also been discovered in the Neolithic earth graves in the Finnish territory (Huurre 1959; Karjalainen 1992, 7; Pesonen 1997, 7; Katiskoski 1999), whereas traces of fire appear to be common in the hunter-gatherer burials of the Baltic area throughout the Stone Age (e.g. Zagorskis 2004 (1987); Lõhmus 2007).

Furthermore, the tradition of ochre earth graves continued throughout the Stone Age in the Finnish territory (Halinen 1999; Lappalainen 2007; Edgren 2007; Ahola 2016). Thus, although the Jönsas burials clearly differ from the richly equipped Middle Neolithic graves, little is known of the burial practices of the Early and Late Neolithic societies in Finland. The few known gravesites from these periods suggest a continuation of the practice of inhumation burial, although artefacts and ochre were used more sparsely (Edgren 2007, 513–514). Recently, the use of heavy stone settings has also been connected with the Early Neolithic period (Mökkönen 2013).

To conclude, the lack of radiocarbon dates, artefacts and even human skeletal material has led to a situation in which the Jönsas graves are often referred to simply as ‘inhumation graves in which the deceased were covered or painted with ochre, and the pit furnished with water-polished cobbles’ (Edgren 1984, 23; Halinen 1999, 173; Halinen 2015, 54–55). At the same time, the Corded Ware graves (Fig. 6) are presented as a separate feature that has no connection to the ochre cemetery (Purhonen 1980;

Fig. 4. Examples of the Jönsas ochre graves: a) ochre Grave 8, with a linear stone setting along the axis of the burial. Photo: S. Ojonen 1975 / The National Board of Antiquities, Finland; b) ochre Grave 18, with a rectangular-shaped heavy stone setting. Photo: L. Ruonavaara 1987 / The National Board of Antiquities, Finland; c) small ochre Grave 22 (115 x 55 cm), next to a hearth with an ochre-stained pit structure in the background. Photo: L. Ruonavaara 1991 / The National Board of Antiquities, Finland.

1986; Halinen 1999; Leskinen & Pesonen 2008). Even when sherds from a Corded Ware vessel were found in a stone setting of an ochre grave, the presence of the pottery was interpreted simply as an accidental inclusion caused by frost (Purhonen 1980, 14). However, these sherds might also indicate a votive deposit placed intentionally on the older grave (Ahola 2016). This new interpretation not only proposes a connection between the ochre graves and the Corded Ware graves, but also introduces the possibility of studying the site further from the perspective of continuity in ritual activities.

ROLE OF MEMORY AND LANDSCAPE IN STONE AGE. MEMORY, LANDSCAPE & MORTUARY PRACTICE

MORTUARY PRACTICES

MEMORY

In archaeology, continuous ritual activity is often interpreted from a perspective of social memory, i.e. the construction of a collective notion about how things were in the past (Halbwachs 1992 (1950); Connerton 1989; Zerubavel 2003). In prehistoric and historic times, social memory was manifested particularly in the frequent reuse of ancient sites and objects (Tilley 1994; Williams 1997; Holtorf 1997; Wessman 2010). Following the historian Pierre Nora (1989), these sites are usually referred to as 'sites of memory', i.e. places in which social memory is recalled and passed on (Zerubavel 2003, 6). The tradition is known worldwide and is currently commonly accepted as an intentional behaviour relating to how people perceived the remains of the past activities in their surroundings (Bradley 2002; van Dyke & Alcock 2003; Borić 2010; Williams 2013).

The act of reuse has been documented, in particular, at burial sites and is often explained by a need to connect or re-connect with the past generations (e.g. Williams 1997; Wickholm 2006; Wessman 2010, 95). In general, the act of reuse can be divided into two different traditions. The first tradition consists of repeatedly used cemeteries and the second of sites that have been reused after a considerable break in time (Wessman 2010, 94). According to the archaeologist Anna Wessman (2010, 94–95), repeatedly used cemeteries can be viewed as communal places in which links to the ancestors were considered strong, whereas sites reused after a hiatus of several hundred

years should not be considered examples of direct social memory but rather places that were important at a mythical level. Such places could have been reused, for example, by immigrating groups to justify their presence in a new area (e.g. Williams 1997).

Although most of the examples of burial reuse have been documented from the visible monuments of the Bronze and the Early Iron Age Europe (Tilley 1994; Williams 1997; Bradley 2002; Wessman 2010), both traditions can also be observed in the Stone Age contexts. Even though these examples derive from different regions of Europe, they nevertheless suggest that a particular state of mind regarding the reuse of ancient sites and objects was also present during the Stone Age. Indeed, as has been suggested previously (Borić 1999; Nilsson Stutz 2004, 2014; Peyroteo Stjerna 2015; Brinch Petersen 2015), many of the repeatedly used Late Mesolithic hunter-gatherer cemeteries can be considered communal places to which people repeatedly returned to bury their dead. In the lives of non-sedentary hunter-gatherers, these sites would also have served as navel points within the landscape (Törv 2016), i.e. places where social memory was passed on.

The phenomenon is also present in many Neolithic hunter-gatherer cemeteries in the Baltic area, in which new burials were intentionally positioned among the older ones (Burenhult 1997; Andersson 2004; Nilsson Stutz 2010; Nilsson Stutz et al. 2013; Ahola 2015; Nilsson Stutz & Larsson 2016). For example, at the cemetery of Ajvide on Gotland (Fig. 1) new burials were aligned vertically in relation to the old burials, with skulls from the old burials removed and the head-end of a new burial positioned in their place (Andersson 2004). A similar symbolic link with the past can also be observed in the Middle Neolithic inhumations of the Mesolithic-Neolithic cemetery of Zvejnieki in Latvia (Fig. 1), in which more than 300 inhumation earth graves dating to ca. 7500–2600 BC have been discovered (Zagorskis 2004 (1987); Zagorska 2006; Nilsson Stutz & Larsson 2016) (see also Larsson et al., this volume). At this cemetery, new burials were not only positioned among the older ones, but the soil from a Mesolithic habitation area of the site was also intentionally placed in these burials (Zagorskis 2004 (1987); Nilsson Stutz et al. 2013).

With respect to the Jönsas cemetery, it is interesting that the Corded Ware people also reused old burial sites (Jeunesse 2014). In central Europe, the reused sites

Fig. 5. 'A ring of ochre', i.e. an ochre-filled circular ditch discovered in 1986. Photo: A. Arponen 1986 / The National Board of Antiquities, Finland.

were often monumental burials – visible and thus perhaps even demanding attention (e.g. Bradley 2002, 13). But in the Baltic area the Corded Ware graves are also found in the less visible hunter-gatherer earth grave cemeteries (Torvinen 1979; Loze 2006; Zagorska 2006; Butrimas 2012; Ahola 2016). For example, several Corded Ware graves have been discovered at the Zvejnieki cemetery mentioned above (Zagorskis 2004 (1987); Zagorska 2006). Although the Zvejnieki cemetery remained in use throughout the Stone Age, radiocarbon dates (Zagorska 2006, 105–107) have shown that there was a hiatus of approximately 700 hundred years between the Middle Mesolithic and the Late Mesolithic phase of use and a gap of approximately 800 years in the use of the cemetery before the Corded Ware burials appeared. These considerable gaps in the use of the cemetery seem to indicate that, from time to time, the mortuary practices at the Zvejnieki cemetery ceased until the place was eventually again reclaimed via new burials. It appears that the Stone Age inhumation cemeteries and their invisible

earth graves could have been remembered even after a considerable temporal hiatus in their use, and although these sites might not have been as monumental as megaliths or stone cairns, they might still have been portrayed as monumental in the minds of the prehistoric people (cf. Nilsson Stutz 2004).

LANDSCAPE

Although the Stone Age cemeteries have often been considered as territorial markers (e.g. Saxe 1970; Clark & Neeley 1987; Zvelebil & Dolukhanov 1991; Halinen 1999), another line of interpretation has stressed the significance of landscape for the location of a cemetery (e.g. Nilsson Stutz 2004; Borić 1999; Zvelebil 2008; Connelley 2013). For example, since the Stone Age cemeteries are often located either on islands (O'Shea & Zvelebil 1984; Larsson 1989; Zagorskis 2004 (1987)) or with a close connection to rivers and lagoons (Larsson 1989; Borić 1999; Brinch Petersen 2015), a strong association between death and water has been suggested (Zvel-

ebil 2003). Indeed, water was fundamental in many ritual practices and conceptions of the cosmos in several prehistoric religions (Oestigaard 2011), and it has often been seen as functioning as a boundary between the sacred and the profane (e.g. Pentikäinen 1990; Lahelma 2008; Westerdahl 2015). At the same time, the cemeteries themselves have also been viewed as liminal places between different worlds (Zvelebil 2004), in which being part of the place itself has been considered a crucial part of the mortuary practice (Nilsson Stutz 2010, 38). It must, however, be noted that none of these interpretations necessarily rule the others out. Rather, the Stone Age cemeteries might have been packed with multiple meanings (Nilsson Stutz 2003, 363–365), all of which could have simultaneously contributed to the reason for locating a cemetery in a particular place.

However, as an anthropologist of religion, Veikko Anttonen has suggested (1992; 1994; 2003), a common approach to setting apart specific sites for ritual action is the perception of a topographical anomaly. According to Anttonen (1992, 37), topographical anomalies, such as stone and boulder fields, rocks, springs and cracks in the ground, have served as fixing points for boundaries that separated the sacred from the profane and were thus selected, for example, as places for burial. Although Anttonen draws his archaeological examples from the locations of Finnish Bronze and Iron Age burial sites (Anttonen 1994, 2003), similar ideas have also been presented by archaeologist Richard Bradley (2000), who has suggested that many unaltered natural places might also have assumed a sacred character in the minds of Stone Age people.

Bradley's point of departure lies in the sacred landscape of the Saami people, the *siedi*, in which a sacred stone or other feature is located in places with unusual topographic features that stand out from the surrounding countryside. As Bradley explains (2000, 13): 'The stones and other features that were selected from the wider terrain were credited with special powers and allowed contact with the supernatural. Those contacts were made through sacrifices that were entirely integrated into the daily lives of the Saami. At the same time, these places were only the visible signs of a complex cosmological scheme that involved three different worlds. These came into contact at natural locations such as caves and mountains.'

The significance of the *siedi* sites is that, due to ethno-

graphic evidence, we also know a certain amount about their significance in the Saami cosmology (Bradley 2000, 13). Although the case is not as clear when working with deep prehistory, Bradley suggests that a similar analysis is perfectly feasible if we stay close to natural places in which the archaeological material is also available (Bradley 2000, 43). As possible examples of such sites, Bradley suggests rock art and production sites and places of votive deposits that are fixed at a particular point in the landscape (Bradley 2000, 37–41).

In Finnish archaeology, the concept of a sacred landscape has already been presented in connection with Stone Age rock art. Because the rock art sites are often located on impressive cliffs that occasionally appear to be anthropomorphic in shape, archaeologist Antti Lahelma (2008) has suggested that the rock art might belong to the same tradition as the *siedis*. Drawing from Saami ethnography and the Finnish-Karelian folklore, Lahelma (2007, 130–131) has also suggested that sensory aspects, such as touching the cliff with ochre paint or listening to the powerful sounds of rapids or echoes, could have contributed to the notion that the cliffs were inhabited by spirits (Lahelma 2007, 130–131). Similar ideas have also been presented by archaeologist Tiina Äikäs (2015), who has argued that the *siedi* sites were not experienced solely through sight, but through multiple senses as well. According to Äikäs (2015, 112–120), the soundscape of the sites, for example, the sound of echoes or the silence of still water, might also have caused these sites to be perceived as significant.

When the perception of a topographical anomaly is considered in relation to the Stone Age cemeteries, it is interesting to note that in many Mesolithic and Neolithic hunter-gatherer cemeteries throughout Europe, the burials were placed according to the surrounding landscape features (Borić 1999, 61–61; Halinen 1999, 174; Löhmus 2007, 39; Piezonka et al. 2014, 59). For example, at the Middle Neolithic hunter-gatherer cemetery of Hartikka in central Finland (Fig. 1), all of the burials were oriented towards a round, peculiar looking natural hill located at the highest point of the surrounding landscape, suggesting that, similarly to the rock art and the *siedi* sites, the anomalous natural formation was considered significant (Miettinen 1992, 32).

The phenomenon is not entirely surprising because, at least in the Finnish territory, the Stone Age burials and rock art already shared the tradition of ochre use along

Fig. 6. Examples of the Jönsas Corded Ware graves: a) Corded Ware Grave I, with pottery vessels and adzes in situ. Photo: T. Seger 1976 / The National Board of Antiquities, Finland; b) poorly preserved grave feature of Corded Ware Grave V, white arrow shows the location of the pottery vessel. Photo: A. Arponen 1986 / The National Board of Antiquities, Finland; c) the Corded Ware pottery vessel discovered in Grave V in situ. Photo: A. Arponen 1986 / The National Board of Antiquities, Finland.

with the occasional deposition of anthropomorphic amber pendants (Lahelma 2008, 37; Ahola 2015, 26). In a Mesolithic context, it has even been suggested that the sites themselves might have been used for the primary treatment of the corpse before inhumation (Lødøen 2015). In this sense, it is interesting that the Hartikka cemetery mentioned above is located only five kilometres from the large Saraakallio rock art site (Miettinen 1992, 8).

Although no human bones have been discovered at the rock art sites, the similarities between the ritual practices connect the ochre graves to the shamanistic cosmology of the rock art sites (cf., Nilsson Stutz 2006, 232), suggesting that other points of connection, perhaps relating to the location of the site, could also exist. In fact, because the Stone Age cemeteries are also associated with caves (Conneler 2013; Grünberg 2013) and strange-looking hills, boulders or mountains (Edgren 1966; Miettinen 1992; Borić 1999), water might not have been the only topographic feature that contributed to the location of the cemetery. Rather, all unusual topographic features might have been considered liminal boundaries. Similarly to the *siedi* and rock art sites, other sensory aspects, such as the darkness and coldness of a cave, could also have caused these sites to be perceived as significant. Perhaps it was through such features that connection with the supernatural was made and, accordingly, the location of the cemetery chosen. Indeed, during the Stone Age the Zvejnieki cemetery was also located on an island (Eberhards 2006), and perhaps this location on a liminal boundary caused the site to be as visible as burial sites associated with monumental burial architecture. At the same time, the memory of the practices conducted at the site (Nilsson Stutz et al. 2013; Nilsson Stutz & Larsson 2016) could have become entwined with the landscape and thus contributed even further to the recognition, remembrance and ritual reuse of the ancient cemetery.

RE-ANALYSING THE JÖNSAS BURIAL MATERIAL

With these observations in mind, it is time to return to the Jönsas cemetery. In order to combine the relevant literature on the role of memory and landscape in Stone Age mortuary practices to the case of Jönsas, I conducted a detailed examination of archived burial material from the cemetery. At the same time, I visited the site to observe its location in relation to the surrounding landscape. As the site is considered completely excavated, no new excava-

tions were being conducted.

The archival study was conducted in spring of 2015 at the premises of the Finnish National Board of Antiquities in Helsinki. The re-examined sources consisted of written reports, maps, photographs and the scarce find material from the Jönsas site, all of which are kept in the collections of the Finnish National Board of Antiquities. Keeping in mind that the archaeological archives do not contain objective documents of past processes, but rather, are susceptible to the interpretations of the subjects involved (Swain 2012), I carefully read all of the reports and collected detailed information (i.e. length, width, depth, location, find material, amount of cobbles and ochre) on each grave. In order to understand the excavation process, I also compared the written description to the detail maps and photographs of its features and examined and photographed all of the find material.

For the purposes of this article, the archived material has been compiled in Tables 2 and 3. Table 2 consists of the Jönsas ochre graves and Table 3 of the Corded Ware graves. Since the placement of cobbles varied in the Jönsas ochre graves, the grave features were divided into three categories: 1) structures with only one or a few cobbles, 2) structures with a heavy stone setting and 3) stone settings in a linear formation along the axis of a grave feature. Similarly, according to the variations observed in the Jönsas Corded Ware grave structures, the Corded Ware graves were divided into two categories: 1) an earth grave and 2) a grave connected with an encircling ditch (3). In order to visualise the data, the categories were also placed on a map (Fig. 7).

After the archival study, I visited the Jönsas site on several occasions during the spring and autumn of 2015. The landscape of the site has changed considerably, not least because of the presence of a modern suburb. However, as has been noted by Tilley (1994, 73–75), the bones of the land, such as hills, rocks and valleys, remain substantially the same and thus enable the use of personal spatial experiences when observing the patterned relationships between the site and its settings. Although Tilley stressed (1994, 74) that spatial experience is something shared by modern and prehistoric humans due to our common biology, the cultural differences even between modern-day societies are so considerable that it is highly unlikely that the method could adequately control for ethnocentrism and produce reliable results (Trigger 2007, 474). However, as was noted in the previous section, the perception

Fig. 7. Variation map of the Jönsas graves.

of a topographical anomaly has clearly been an important part of ritual activities throughout prehistory. From this perspective, information provided by the ‘bones of the landscape’ should not be overlooked, because it is in these features that anomalies are most often perceived.

When visiting the location of the Jönsas site, I discovered remains of the ancient landscape in the form of smoothed bedrock (Fig. 8), located in a small park in the centre of the suburb. Although this bedrock was located at the very centre of the site, it is not mentioned in any of the reports or articles written about Jönsas. Because the Jönsas site surrounds the bedrock (Fig. 3), it is, however, reasonable to assume that the formation, located at the highest point of the area, was part of the prehistoric activity area. During the summer, not only would the bedrock have been warm to sit on, but also the several quartz veins visible on the surface of the bedrock could have provided the raw material for tool making. Curiously, even today the smoothed bedrock is a popular meeting place for people to spend time together (Fig. 8c).

MEMORY AND LANDSCAPE AT THE JÖNSAS CEMETERY

FORMATION OF THE JÖNSAS OCHRE CEMETERY

Due to isostatic land uplift, the landscape of the Jönsas site had already changed tremendously in prehistoric times. During the Late Mesolithic period, when the shoreline was c. 33–32 metres above the present-day sea level, Jönsas was an island situated roughly one kilometre from the adjacent mainland (Purhonen & Ruonavaara 1994, 91; Leskinen & Pesonen 2008, Appendix 3). By the Early Neolithic period, the land uplift had connected the Jönsas site to the mainland, with the shoreline being c. 25 metres above the present-day sea level. During the Corded Ware period, the Jönsas site was already located far from the open sea, being most likely a natural meadow near a small lake or river (Purhonen & Ruonavaara 1994, 91–92; Leskinen & Pesonen 2008, Appendix 3).

The dynamics of the land uplift most likely affected the ways people perceived the ancient coastal sites like Jönsas. Indeed, as has been suggested by archaeologists Vesa-Pekka Herva and Timo Ylimaunu (2014), the rapid emergence of new land from the sea could have been packed with several symbolic and metaphorical meanings

relating to the cosmological role of sea and water. Indeed, in north-western Europe, the memory of the changing coastlines has already been connected with the locations of the megaliths in the area (Midgley 2013, 430). A similar ideology could well have also been present at the Jönsas site.

Aside the changing coastline, an even more apparent landscape feature at the Jönsas site would have been the smoothed bedrock. Indeed, when the bedrock is observed in connection with the cemetery, just as with the burials at the Hartikka cemetery, most of the ochre graves face towards the bedrock (Fig. 3), suggesting that the natural formation of the site was considered when burying the dead. Although the smoothed bedrock was located at the highest point of the area, the flatness of the formation might have prevented the bedrock from being visible at all points. In fact, when the site is visited today, the bedrock is apparent only when standing close to the natural formation. However, to the people burying their dead in the Jönsas cemetery, the visibility of the bedrock might not even have been as important as the mere knowledge of its presence, which could also have contributed to the orientation of the burials.

When the Jönsas ochre graves, with their varying use of cobbles, are observed in relation to each other (Fig. 7), it is interesting to note at least two clusters in the cemetery area; the ochre graves with a heavy stone setting form one cluster at the highest point of the cemetery area next to the smoothed bedrock, whereas several graves with a linear stone setting are located together at a slightly lower elevation. The locations of graves consisting of only a few cobbles, boulders or stone settings with unpolished natural stones are more scattered.

Although it has been proposed (Purhonen 1998, 29) that the use of heavy stone settings at the ochre burials could emphasise the status of the deceased when viewed in the context of the sacred landscape, the use of a heavy stone setting might relate to the location of the burials near the central bedrock. Perhaps the burials located next to the sacred bedrock received more of the water-polished stones than other burials located further away.

Whatever the reasons behind the varying number of cobbles, the orientation of the ochre graves and the location of the graves with a heavy stone setting near the bedrock suggests that the natural formation held symbolic value to the people connected with the ochre graves. Since Grave 5, located in the western part of the area (Fig. 3), was also dug into a protuberance of a smaller bedrock for-

Fig. 8. The Jönsas bedrock: a) a panoramic photo of the bedrock photographed from Southeast; b) the bedrock photographed from East; c) modern activity area at the bedrock. Photos: K. Lassila 2015.

mation (Table 2), the connection of the burial site to the natural stone formations appears to have been important for mortuary practices at the Jönsas ochre cemetery. Indeed, when the Jönsas bedrock with its adjoining ochre cemetery is assessed from the standpoint of the sacred landscape, it appears reasonable to assume that the location of the cemetery was chosen because of the central bedrock. Apart from being the most prominent feature at the site, sensory experiences relating to the smoothness and warmth of the bedrock could also have caused the natural formation to be perceived as significant. Perhaps, similarly to the rock art tradition, the bedrock was even considered to be inhabited by spirits.

At the same time, the memory of the changing coastline, i.e. a changing liminal boundary with respect to otherness could have rendered the site as significant (cf. Herva & Ylimaunu 2014). In fact, the water-polished cobbles could even have been collected from the emerged ancient sea bottom and thus served as mnemonic references to the ancient coastline. Simultaneously, the smooth cobbles, associated with similar sensory experiences as the smoothed bedrock, might also have been connected with the central bedrock.

JÖNSAS AS A PLACE OF THE ANCESTORS AND A MYTHICAL PAST

MANIFESTATION OF SOCIAL MEMORY AT THE JÖNSAS OCHRE CEMETERY

Given the number and uniformity of the Jönsas ochre burials, Jönsas appears to have been a repeatedly used cemetery, one to which people repeatedly returned to bury their dead. The ochre cemetery might even have yielded more burials because the large gravel pit near the burials (Fig. 3) could have destroyed parts of the cemetery before the excavations (Leskinen & Pesonen 2008, 182). Although the Jönsas ochre cemetery appears uniform, including the lack of artefacts and the use of ochre and water-polished cobbles, my new analysis has brought to light a subtle variation in the ways the cobbles were placed on the graves. This could relate to individual treatment of the dead, but the variational patterns form clusters in different areas of the cemetery and could thus also indicate different phases of use. The water-polished cobbles and the use of ochre could also be seen as a mnemonic reference between the graves. In fact, how the cobbles and ochre were used might have changed over the time. However,

at the same time, the sheer practice of using these materials could have been considered important because it was something that had always been done (e.g. Berggren & Nilsson Stutz 2010; Williams 2013).

When viewed in this light, an interesting phenomenon at the Jönsas cemetery is the location of the ochre burials comprising a linear stone setting. These seem to be located next to the Corded Ware graves (Fig. 7). This phenomenon could suggest that these graves date back to a younger phase of use than, for instance, the graves with a heavy stone setting. Although this hypothesis would need the support of radiocarbon dating, it is interesting to note that in Neolithic Sweden, for example, old settlement sites were also reused as burial sites (Tilley 1996, 112; Wallin 2015, 53). When seen in this light, the Jönsas cemetery should not be connected so firmly to the Mesolithic settlement phase of the site. Rather, given the evidence of multi-period activity at the Jönsas site, the ochre cemetery might also have been established intentionally on an ancestral dwelling site that was also located next to a prominent landscape feature connected with the sacred landscape.

My analysis indicates that new burials were also placed among the older graves. Even without preserved skeletal material, the practice can be seen, for example, in the case of Grave 6, located next to a cluster of Corded Ware graves (Fig. 3). Previous researchers had drawn this grave as a single feature, concluding that the shape and the size of the ochre-coloured sediments varied in between the excavation layers (Ruonavaara 1988, 19–20). However, when I followed the feature layer by layer from the photographs, it became obvious that the shape and the size of the ochre feature did not simply vary between layers. Rather the large feature appears to have been formed by at least three partly overlapping graves with both linear stone structures and the use of small boulders (Fig. 9). As noted earlier, Graves 10 and 11 partly overlap (Seger 1986, 7); thus, it appears that social memory is also manifested at the Jönsas ochre cemetery in the positioning of the burials among the older graves, suggesting a further diversity in the mortuary practices.

MEMORY IN THE CORDED WARE MORTUARY PRACTICES

In the Finnish territory, Corded Ware dwelling sites are often found at the locations of the Early Neolithic hunt-

er-gatherer settlements (Edgren 1984, 75). Since the landscape and the vegetation of these sites would have differed from the surrounding wilderness due to ancient activities, the phenomenon has generally been seen as indicating the presence of people who relied on pastoral farming (Äyräpää 1939, 118; Edgren 1984, 75). A similar phenomenon has also been noted in Sweden, where Corded Ware settlements have been found at the locations of the Early Neolithic Funnel Beaker sites (Larsson 2009, 68). According to Swedish archaeologist Åsa M. Larsson (2009, 68, 410), disregarding the shared preference for light sandy soils in ancient agricultural traditions, this phenomenon could also indicate a conscious attempt by the Corded Ware people to connect with a mythical past in terms of the material culture, settlements and lifestyle attested at these sites.

In this light, the presence of the Corded Ware Culture at the Jönsas site could be explained not only by the means of subsistence, but also from the perspective of the ritual reuse of the old settlement and cemetery site. In fact, when the Jönsas Corded Ware graves are observed in relation to the Corded Ware burials outside the Finnish borders, it appears that the location of the graves in the ochre cemetery represents intentional behaviour related to the role of memory in mortuary practices of the Corded Ware Culture. Since the Jönsas Corded Ware graves are located in two distinct clusters (Fig. 3), the Corded Ware people might also have buried their dead with reference to their own ancestors while at the same time maintaining the connection with a mythical past.

The dating of the Jönsas ochre graves is vague. Therefore we do not know whether the Corded Ware graves represent continued use of the cemetery with differing mortuary practices or belong to a tradition of reuse after a hiatus in the use of the cemetery. We cannot be certain whether the ochre graves even predate the Corded Ware graves. Moreover, because the ‘rings of ochre’ (Fig. 5 and 4c) bear a resemblance to the encircling ditches of the Jönsas Corded Ware graves, even a contemporary date could be plausible. However, since Corded Ware graves are also found in other Mesolithic or Neolithic hunter-gatherer cemeteries in the Baltic area (e.g. Torvinen 1979; Loze 2006; Zagorska 2006; Butrimas 2012), the most probable scenario is that the Corded Ware graves also have superseded the ochre graves at the Jönsas site.

I have suggested in several previous studies (Ahola 2015, 35–36; 2016) that the location of the Corded Ware

Fig. 9. Overlapping burials of Grave 6 photographed from South: a) Grave 6 at a depth of ca. 40 cm, with a linear stone setting and an extensive area of ochre; b) Grave 6 at a depth of ca. 45 cm, with the appearance of new water-polished cobbles; c) Grave 6 at a depth of ca. 60 cm, with the appearance of a new linear stone setting and the placement of the ochre having changed; d) Grave 6 at a depth of ca. 75 cm, in which at least two rectangular-shaped burial features can be observed. Photos: H. Männistö 1973 / The National Board of Antiquities, Finland.

graves within preceding ochre cemeteries could be explained by a tradition in which immigrating people reclaimed the mythical places of the original populations. Although this hypothesis is supported by recent aDNA analyses, according to which a genetic transformation, possibly relating to migrations, occurred near the end of the 4th Millennium BC in Europe (Allentoft et al. 2015; Haak et al. 2015), the ways how these migrations unfolded in the various regions remain unclear (Sjögren et al. 2016). Indeed, many scholars have suggested that instead of large-scale migrations, the Corded Ware cultural traditions were formed as a result of extensive networks to which the local populations also contributed (Lõugas et al. 2007; Vander Linden 2007; Larsson 2009; Furholt 2014, Nordqvist & Häkälä 2014).

In this light, some of the Finnish Corded Ware graves might actually be the graves of indigenous people who had adopted a Corded Ware identity, for example, through adoption or marriage (Larsson 2009, 255–260; Sjögren et al. 2016). Thus, the tradition of reuse could be understood as a practice that was conducted by the local people who still used the old cemeteries but buried their dead according to the new mortuary practices. For example, in the case of Jönsas this phenomenon can be seen in the diversity of the grave structures, which, aside from their temporal variations (4) (Purhonen 1986, 124), could also be interpreted based on differing origins of the Corded Ware population.

Conversely, if the tradition of reuse was a part of the newly adopted mortuary practices, people could also have reused mythical places based on their own traditions. Indeed, this possibility could also explain why the invisible earth grave cemeteries were reused, as identifying with and reclaiming the sites would have been easier for people with intrinsic spiritual knowledge of local traditions and sacred places. However, because some of the cobbles of the Jönsas ochre graves emerged right below the turf, and because the fill of a grave was often coloured by ochre all the way up to the Stone Age topsoil (Purhonen 1980, 12), people at the time might have intended to enhance the visibility of the Jönsas graves (Purhonen 1998, 29; see also Mökkönen 2013, 22). Since the Neolithic societies in the Finnish territory were predominantly hunter-gatherers (Edgren 1984, 27–29; see also Herva et al. 2014), centuries of cultivation would not have destroyed these special features of the graves. In fact, they could have been visible even during the Corded Ware period,

an idea that is supported even further by the presence of a fragmented Corded Ware vessel discovered in the stone setting of the ochre Grave 10 (Table 2). Thus, the Corded Ware people might not even have needed the local transcendental knowledge; instead, the subtle monumental features connected with the material remains of previous inhabitants could also have revealed the place of the old cemetery, serving as a suitable place for offerings and for new burials (Ahola 2016).

DISCUSSION

Although the poor preservation of the Jönsas burials rules out bioarchaeological research, thus meaning that many of the hypotheses presented above cannot be verified, the long-term use of the site nonetheless suggests that Jönsas was an important location for the local prehistoric population. In the light of the preserved archaeological materials, it appears that the site was revisited on several occasions, and from time to time the ritual practices conducted at the site intensified. It thus appears reasonable to assume that the Stone Age cemeteries and other important places containing the material remains of prior inhabitants were remembered and recognised for long periods.

According to my analysis, the Jönsas ochre cemetery was established intentionally next to a smooth bedrock. Although not altered in any way, the bedrock might have acted as a monumental feature for the site and thus helped people find the place repeatedly. Because the Jönsas ochre burials were clearly aligned in accordance with the bedrock, at least during the use of the ochre cemetery, the bedrock itself might also have been held as sacred. Indeed, due to frost Stone Age earth graves were most likely dug during summertime (Núñez 2015, 97), when the bedrock would also have been warm. Thus, the sensory perception of warmth could also have caused the bedrock to be perceived as significant and, just as has been proposed in the case of the rock art cliffs, people might have believed the bedrock to be inhabited by spirits. Although this idea remains pure speculation, unusual natural landscape features can be clearly connected with the mortuary practices conducted at the Stone Age cemeteries.

It is interesting to note that, in contrast to the ochre graves, all of the Jönsas Corded Ware graves are located further away from the central bedrock, with varying degrees of orientation (Fig. 3), which could indicate that at

this phase of use, the bedrock might not have been at the core of the funerary practices. However, if the bedrock was still recalled as having once been held sacred by the local inhabitants, its presence might nevertheless have contributed to the reason why the Corded Ware people discovered the subtle Jönsas burial monuments in the first place. Indeed, as Bradley has stated (2000, 147), the creation of monuments does not reduce the significance attached to natural places in the landscape, although the significance will gradually be transformed. Thus, the Jönsas bedrock might still have been considered important, although its symbolic meaning might relate more to myths and stories than, for example, to spirits living inside the sacred cliff.

Considering the above proposition, the bedrock might have held different meanings even during the use of the ochre cemetery, which could be seen, for example, in the tradition of positioning new burials among the old ones, suggesting that at some point it became more important to bury the deceased in connection with past generations rather than the natural landscape. From this perspective, it is interesting to note that these burials are largely graves with linear stone settings (Table 2) that are not located in close proximity to the central bedrock. Moreover, when the Corded Ware practice of reuse is seen in relation to this phenomenon, aside from viewing it as a need to connect with the ancestral sites, it could also be viewed as a continuation of the practice of positioning new burials among the older ones. In fact, although the ways how the grave was constructed and reused differed, the practice itself can be viewed as something that has always been done – a manifestation of social memory.

CONCLUSIONS

In this paper I used the concepts of social memory and sacred landscape as a means for understanding how Stone Age people perceived and understood cemetery sites. Instead of analysing individual burials I have focused on how the burial site engaged with the surrounding landscape and acted as a social agent that contributed to the ways in which mortuary practices were conducted. As a result, I compared my own personal spatial experiences of the site with ideas about how the sacred landscape might have been formed, and have suggested that the Jönsas ochre cemetery was established intentionally next to a smooth bedrock located at the highest point in the area.

Since most of the ochre graves are oriented towards the bedrock or are even located in close vicinity to the bedrock, it appears that the bedrock might have held a special symbolic meaning for the population burying their dead on the site.

To understand the recurrent use of the Jönsas cemetery, I also observed the site from the perspective of social memory, suggesting that the Jönsas ochre cemetery was a repeatedly used communal place for the local Stone Age population, and new burials were intentionally interred among the older ones. Thus, the site appears to have been a well-remembered sacred place connected to the myths and stories of the past generations as well as memories of a changing coastline. People worldwide have commonly reused such places to connect with previous inhabitants. In line with this observation, I have also suggested that the Jönsas ochre cemetery was ritually reused by the Corded Ware people, as were many other Stone Age burial sites outside the Finnish borders.

To conclude, although the poorly preserved Stone Age cemeteries in the Finnish territory are problematic in many ways when approached from a different perspective important insights into how the Stone Age people might have perceived and understood the landscape and the places of the dead can still be gained. In the light of the Jönsas cemetery, it appears that these places were considered important for a long period and that the memory of sacredness could have remained over time, although the symbolic meanings attached to the places might have changed over time. Thus, succeeding phases of use should always be considered when studying Stone Age cemeteries. Apart from telling their own story, they also bear echoes of the meanings the site might have held in the past.

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NOTES

(1) Preliminary ideas relating to the topic have been presented in an abbreviated conference paper (Ahola 2016).

(2) Quartz flakes and artefacts have been found in the filling at some of the burials (Table 2). However, the items seem to be accidental inclusions from the layers of the settlement. During the excavations in 1986 a so-called south Finnish even-bladed adze was reported to have been found in an ochre grave context (Arponen & Wallenius 1987, 13). However, the find context of the adze is not certain, because the given coordinates (Arponen & Wallenius 1987, 18) place the adze outside the burial feature. Unfortunately, no photos of find circumstances are

available. This adze type is considered as a very common find and can be an accidental inclusion from the settlement debris.

(3) It must be noted that when compared with the central European Corded Ware graves surrounded by an encircling ditch (e.g. Haak et al. 2008; Turek 2014), the ditch structure is much smaller and not as clear (Fig. 6 a-b). Although this could be due to the conditions of preservation, it is also possible that the grave structure is not related to a similar practice.

(4) Because the only radiocarbon date from the Jönsas Corded Ware graves (Table 3) is not in accordance with the oldest reliable radiocarbon data from central European Corded Ware contexts (Mökkönen 2011, 17 with references), the Jönsas Corded Ware graves lack reliable radiocarbon dates. Moreover, although the tempering of the pottery vessels also varies, it is not possible to automatically assume a significant time difference between organic and mineral-tempered ceramics either (Nordqvist 2016, 60). Thus, temporal variation is plausible but difficult to verify.

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TABLES

Table 1. Summary of the Jönsas ochre graves

Grave No	Excavation year	Orientation	Size (L x W) of the ochre feature, cm	Depth, cm	Findings	Thickness and shape of the ochre	Form of the stone setting	Use of small boulders / headstones	Additional information	Reference
1	1962	N-S	150 x 60-70	c. 70	Quartz flakes and artefacts in the filling	Ochre feature with a thickness of 50 cm. Divided into two separate features at a depth of 40 cm	Only one or few cobbles	-	Traces of fire	Waris 1962; Purhonen 1980
2	1962	N-S	?	c. 90		Single ochre feature with thickness of c. 10 cm	Only one or few water-polished cobbles	-	Traces of fire, partly destroyed in modern land use	Waris 1962; Purhonen 1980
3	1962	N-S	150 x 60-70	c. 80		Two separate, overlapping ochre features with max. thickness of 50 cm	Only one or few cobbles	+	Traces of fire	Waris 1962; Purhonen 1980
4	1971	N-S	400 x 400	c. 50	Quartz flakes and artefacts in the filling	Mixed feature of ochre, stained soil and soot with a thickness of c. 50 cm	Heavy stone setting (water-polished cobbles)	+	Traces of fire	Purhonen 1975; Purhonen 1980
5	1972	N-S	240 x 170	c. 70		Ochre feature with a thickness of c. 50 cm. Contained blotches of soot. A 10 cm layer of stained soil underneath the ochre at a depth of 60 cm.	Only one or few cobbles	-	Located in a protuberance of a natural bedrock	Purhonen 1980; Ruonavaara 1987
6	1973	NE-SW	c. 150 x 70	c. 100		Large area of ochre that divides into three separate ochre features at a depth of ca. 75 cm	2 x linear formation along the axis of the burial (of water-polished cobbles), 1 x only one or few cobbles	+	Three overlapping burials?	Ruonavaara 1988
7	1974	ENE-WSW	220 x 80	c. 90		Large area of ochre that divided into two separate ochre features at a depth of 35 cm	Linear formation along the axis of the burial (of water-polished cobbles)	+	Double burial?	Pajari 1974; Purhonen 1980
8	1975	ENE-WSW	200 x 20-50	c. 50		A cone-shaped feature of ochre with a thickness of c. 50 cm	Linear formation along the axis of the burial (mainly of unpolished stones)	+	Stone setting also included two water-polished cobbles	Ojonen 1978; Purhonen 1980

Grave No	Excavation year	Orientation	Size (L x W) of the ochre feature, cm	Depth, cm	Finds	Thickness and shape of the ochre	Form of the stone setting	Use of small boulders / headstones	Additional information	Reference
9	1976	NE-SW	150 x 100-130	c. 50	Quartz and stone flakes in the filling	Mixed feature of ochre and stained soil with a thickness of 40-50 cm.	Heavy stone setting (mainly of unpolished stones)	-	Stone setting also included few water-polished cobbles	Ojonen & Linturi 1979; Purhonen 1980
10	1976-1977	E-W	?	c. 60	Sherds of Corded Ware pottery in the stone setting, quartz flakes and artefacts from the filling	Mixed feature of ochre and stained soil with a thickness of c. 60 cm	Linear formation along the axis of the burial (of water-polished cobbles)	+	Partly overlapping with Grave 11 (graves dug against each other)	Ojonen & Linturi 1979; Seger 1986
11	1977	NE-SW	160 x 60	c. 50		Mixed feature of ochre and stained soil with a thickness of c. 50 cm	Linear formation along the axis of the burial (of water-polished cobbles)	-	Traces of fire, partly overlapping with Grave 10 (graves dug against each other)	Seger 1986
12	1977	E-W	220 x 20-80	c. 50		Large cone-shaped ochre feature.	Linear formation along the axis of the burial (of water-polished cobbles)	-		Seger 1986
13	1977	E-W	?	c. 60		Mixed with stained soil	Linear formation along the axis of the burial (of water-polished cobbles)	-	Only partly excavated	Seger 1986
14	1977	E-W	180 x 120	c. 100	Quartz flakes in the filling	Ochre feature with thickness of 90 cm	Only one or few cobbles	-		Seger 1986
15	1977	E-W	?	c. 90		Ochre feature with thickness of 70 cm	Only one or few cobbles	-	Only partly excavated	Seger 1986
16	1982	SE-NW	270 x 90	c. 60		Mixed feature of ochre and stained soil with thickness of 40 cm	No stone setting / water-polished cobbles	+		Katiskoski 1983
17	1986	NE-SW	180 x 35-80	c. 50	Three quartz points in the filling (one ochre-stained), an even-bladed adze?	A cone-shaped feature of ochre with a thickness of c. 40 cm	Linear formation along the axis of the burial (of water-polished cobbles)	-		Arponen & Wallenius 1987

Grave No	Excavation year	Orientation	Size (L x W) of the ochre feature, cm	Depth, cm	Finds	Thickness and shape of the ochre	Form of the stone setting	Use of small boulders / headstones	Additional information	Reference
18	1987	NNE-SSW	200 x 100	c. 30		Mixed feature of ochre and stained soil with thickness of c. 30 cm	Heavy stone setting (of water-polished cobbles)	+		Ruonavaara 1990
19	1987	NE-SW	150 x 70	c. 20		Burial feature with separate features of ochre and stained soil, both underneath the heavy stone setting	Heavy stone setting (of water-polished cobbles)	-		Ruonavaara 1990
20	1987	N-S	200 x 150	c. 40		Two large, mixed areas of ochre with varying shape and thickness	Heavy stone setting (of water-polished cobbles)	-	Disturbed grave feature?	Ruonavaara 1990
21	1991	NE-SW	250 x 100	c. 50		Two large overlapping features of ochre (first feature at a depth of c. 10-40 cm and the second at a depth of 50 cm)	Heavy stone setting (of water-polished cobbles)	+		Ruonavaara 1992
22	1991	NE-SW	115 x 55	c. 30		Ochre feature with a thickness of c. 20 cm	Heavy stone setting (of water-polished cobbles)	-		Ruonavaara 1992

Table 2. Summary of the Jónsas Corded Ware graves

Grave	Excavation year	Orientation	Size (L x W), cm	Depth, cm	Finds	Grave structure	Additional information	Reference
I	1976	ENE-WSW	220 x 250	c. 80	Two pottery vessels (one in the NE corner and one in the SW corner of the grave) and two four-sided axes (located at the SW end of the grave)	Two oval shaped features of stained soil & soot side by side with and additional arch-shaped feature at the northeastern side of the grave	Double burial?	Ojonen & Linturi 1979; Purhonen 1986
II	1976	NE-SW	200 x 180	c. 85	A pottery vessel (NE end of the grave) and a four-sided axe (SW end of the grave)	Rectangular shaped feature of stained soil & soot next to a deep, ring-shaped feature of sooty soil (width 20-50 cm, depth 90 cm)	At a depth of 25 cm, a large feature of sooty soil covered both the burial feature and the ring-shaped feature indicating that the features are connected	Ojonen & Linturi 1979; Purhonen 1986
III	1976	NE-SW	200 x 100	c. 120	A small pottery vessel (cup) c. 10 cm outside the possible burial feature at a depth of 50 cm & small sherds of pottery from the feature	Oval shaped feature of stained soil & soot		Ojonen & Linturi 1979; Purhonen 1986
IV	1977	NNE-SSW	300 x 200	c. 100	A small pottery vessel and small ceramic sherds (located at the SW corner), a quartz scraper, quartz flakes, small fragments of burned animal bone (eastern side of the feature)	A rectangular shaped feature of stained soil framed by small fragments of charcoal (an inner structure?)	A radiocarbon date from charcoal collected from the filling: (Hel-1006) 3630-2900 cal BC. Calibrated using the OxCal v. 4.2.4 Bronk Ramsey (2013) with atmospheric curve IntCal13 (Reimer et al. 2013).	Seger 1986; Purhonen 1986
V	1986	ESE-WSW	90 x 40	c. 75	A pottery vessel and small ceramic sherds (N end of the grave)	A rectangular-shaped feature of stained soil & soot surrounded by two arch-shaped features of sooty soil	A large area of burned sand and charcoal beneath the features	Arponen & Wallenius 1987