

# The material culture of Finnish Stone Age hunter-gatherer burials

By *Marja Ahola*

Ahola, M., 2017. The material culture of Finnish Stone Age hunter-gatherer burials. *Fornvännen* 112. Stockholm.

This paper concerns the material culture of Finnish Mesolithic and Neolithic hunter-gatherer mortuary practices. Although the perishable materials – including the human remains – are poorly preserved, the graves nevertheless contain large numbers of objects made of unperishable materials. In this paper, this largely unpublished material is compiled for the first time into a single study. As a grand narrative, the find material is viewed in the light of change and continuity in the material culture of death among ancient hunter-gatherers. The general trends in how certain materials or artefact types were used in mortuary practices are also explored. In conclusion, it seems that although most of the finds derive from the graves of the Neolithic Typical Comb Ware Culture (c. 3900–3500 cal BC), the artefacts are not merely imported exotic raw material, but are also packed with symbolic overtones.

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Throughout the history of archaeological study, artefacts and other finds from graves have been used to shed light on issues such as subsistence strategies, ethnic identity, social status, and ritual and cosmological aspects of the past (Ekengren 2013). Depending on the archaeological tradition, the material culture of prehistoric graves has been perceived as representing the socio-political role of the deceased and the complexity of the society (e.g. Saxe 1970; Binford 1971; Chapman et al. 1981), or as symbolic communication relating to how the mortuary ritual was conducted or the deceased was seen in the minds of the people arranging the burial (e.g. Pader 1982; Hodder 1986; Shanks & Tilley 1992; small number 1994; Parker Pearson 1999; Nilsson Stutz 2003; Williams 2006).

This paper deals with Finnish Stone Age hunter-gatherer graves dating from the Mesolithic and the Neolithic (tab. 1). It does not cover Finnish Corded Ware burials, even though they mainly

follow the earlier tradition's grave customs (e.g. Larsson 2009, p. 62) and might even represent the burials of indigenous hunter-gatherers who adopted the Corded Ware way of life (Å.M. Larsson 2009a; Sjögren et al. 2016; Ahola in press). The material culture of these graves represents an identity related to animal husbandry and stands in contrast with the hunter-gatherer grave finds (Ahola et al. in press).

In contrast with the well-preserved graves in neighbouring areas (e.g. Gurina 1956; Jaanits 1957; Oshibkina 1989; L. Larsson 1989; Larsson & Zagorska 2006), Finnish Stone Age graves are a challenge to researchers because perishable materials, including human remains, are generally not preserved in the acidic soil of Finland. Thus, they are usually marked by the presence of ochre or stained, greasy soil rather than skeletal remains (fig. 1; Ahola et al. 2016). The lack of perishable materials also goes for the grave finds. Thus animal-

Dating	cal BC	Percentage of finds	Number of finds	Number of graves with finds
Mesolithic?	8850–5200	2%	68	5
Early Neolithic	5200–3900	1%	41	9
Neolithic (Typical Comb Ware)	3900–3500	67%	2667	74
Neolithic (Late Comb Ware)	3750–3250	6%	245	8
Neolithic (Pölja Ware)	3250–2500	1%	68	2
Neolithic (Pyheensilta Ware)	3200–2400	1%	53	1
Undefined Neolithic	5200–1900/1700	10%	401	12
Unknown		11%	425	9

Table 1. The distribution of the finds and graves according to the dates of the sites. Note that the category ‘Unknown’ includes undefined potsherds from graves with typologically identified pottery. The calibrated dates are based on the chronology of Haggren et al. 2015.

tooth pendants and bone and antler artefacts – which are common in Stone Age hunter-gatherer graves outside the Finnish borders – are almost completely missing from the Finnish inventory, leaving many possible grave features devoid of finds. Such features have been interpreted as graves mainly because of their shape and size, and the presence of ochre, and often lack dating evidence (Luhó 1965, pp. 27–31; Edgren 1966, pp. 97–106; Halinen 1999, pp. 173 f; Ahola et al. 2016, p. 97).

To date, 196 possible Stone Age hunter-gatherer graves from 57 sites (fig. 2) have been discovered in mainland Finland. Although these graves lack perishable materials, excavations conducted at the sites from the late 1950s onwards (Lappalainen 2007, p. 2) have resulted in a considerable collection of grave finds made of unperishable materials. Previous research (Edgren 1959; 1966; 2007; Torvinen 1979; Miettinen 1992; Halinen 1999; 2015; Katiskoski 2003; Ahola 2015) has paid particular attention to the large number of amber and flint artefacts, so called imported exotic raw materials, that do not occur naturally on Finnish territory, unearthed from the ochre graves of the Neolithic Typical Comb Ware culture (henceforth TCW; c. 3900–3500 cal BC).

Although occasional studies have taken issues relating to funerary practices into account (Miettinen 1992; Katiskoski 2003; Edgren 2006; 2007; Ahola 2015), with this focus on the amber and flint artefacts, the material culture of the hunter-

gatherer graves has mainly been used as an indicator of social complexity, documenting an increase in inter-communal contacts and the exchange of goods (Edgren 1966; Halinen 1999; 2015; Herva et al. 2014). How the mortuary ritual was conducted and how the deceased was perceived in the minds of the people arranging the burial have been largely overlooked. Moreover, given that the focus has been almost solely on the richly equipped TCW graves, the material culture and mortuary practices of the hunter-gatherer graves before and after the TCW period – i.e. the greater part of the Finnish Stone Age – have rarely been addressed (see, however, Halinen 1999; Edgren 2007; Pesonen et al. 2014).

In this paper I argue that there is more to the material culture of the Finnish Stone Age hunter-gatherer graves than the presence of amber and other imported goods. By compiling the material into a single study and observing it as a whole I aim to show not only that these materials possess other attributes than the commonly attached ‘exotic’ and ‘imported’, but also that they bring to light new information concerning the mortuary practices and cosmology of these ancient people. Furthermore, to clarify the overall picture of the Stone Age hunter-gatherer mortuary traditions on Finnish territory, I pay special attention to typological markers that might help to trace the less visible hunter-gatherer graves that precede and succeed the TCW period.



Fig. 1. Grave 3 at the Vaateranta cemetery, eastern Finland. Photo: K. Katiskoski 1998, National Board of Antiquities, Finland.



Fig. 2. Distribution of Finnish Stone Age hunter-gatherer burial. Map by author.

As a preliminary, however, I will give a brief account of the Finnish Stone Age for readers unfamiliar with the era. The first post-glacial pioneer settlement of Finland appears to date to c. 9000 cal BC, and to represent the hunting camps of people who relied on terrestrial mammals (Kankaanpää & Rankama 2011; Pesonen et al. 2014). As the climate warmed up the settlement became more established, and extended all the way to Finnish Lapland (Halinen 2015, pp. 31–34). The first sporadic Stone Age graves also date from this period (Schulz 1999; Pesonen et al. 2014, pp. 185–188).

Although pottery from around 5300 cal BC features in the Finnish material (Pesonen et al. 2012), it is not until around 4000 cal BC with the appearance of a new pottery style, the Typical Comb Ware, that the first clear signs of change in the material culture and ways of life first appear (Herva et al. 2017). The subsistence of the TCW communities was still based mainly on hunting, fishing and gathering (Ukkonen 2001; Koivisto & Nurminen 2015; Vanhanen & Pesonen 2016). But their settlement patterns of village-like clus-

ters of semi-subterranean houses, various forms of symbolic expression including the richly equipped burials, as well as the use of imported materials are nevertheless indicative of the so-called ‘Neolithic way of thinking’ (Mökkönen 2011; Nordqvist & Herva 2013; Herva et al. 2014; 2017). Indeed, with its rich find assemblages the TCW has long been regarded as the ‘golden era’ of the Stone Age in Finnish archaeology (Nordqvist & Herva 2013, p. 412).

It lasted until about 3500 cal BC, when the culture divided into local variants of Late Comb Ware (Nordqvist 2016, p. 53). Little is known about this period, but it is marked by the appearance of hunter-gatherer populations producing asbestos and organic-tempered wares that continued into the 3rd millennium BC (Nordqvist & Herva 2013; Nordqvist 2016, p. 53). Like in Southern Scandinavia, the introduction of the Corded Ware phenomenon to Finland also took place in the early 3rd millennium (Mökkönen 2011; Nordqvist & Häkälä 2014; Nordqvist 2016, p. 53).

*Material and methods*

The material of this study consists of all finds known in September 2017 from Stone Age hunter-gatherer inhumation graves in mainland Finland. It comprises c. 3900 objects from 120 graves at 45 sites. The sites include both variously sized cemeteries and single graves discovered at coeval or multi-component settlement sites.

Although recent studies on Stone Age hunter-gatherer mortuary practices have related the body of the deceased to the material culture (Nilsson Stutz 2003; Törv 2016), the scarce human skeletal material from the Finnish graves has already been published elsewhere (Ahola et al. 2016) and is thus excluded from this study. Similarly, sporadic fragments of burnt animal bones from grave context will be published separately (manuscript in preparation).

I collected the data from publications, the Finnish National Board of Antiquities' find catalogue (NM), and unpublished excavation reports. I examined and photographed all the finds available in the collections of the National Board of Antiquities in Helsinki. Most of the artefacts in museum exhibitions in other parts of Finland, for example, I studied from publications or unpublished reports. I compiled this material into a catalogue entitled 'Catalogue of Stone Age Hunter-Gatherer Earth Grave Finds from Mainland Finland (2017)' (henceforth Find-Cat), which is available online at [urn.fi/urn:nbn:fi:csc-kata20170811113955834443](http://urn.fi/urn:nbn:fi:csc-kata20170811113955834443).

During the archival study, I grouped the finds in the Find-Cat under five categories according to the material in question. The first category is stone, in other words all stone artefacts, flakes and natural stones; the second is amber, the third the rarely encountered bone and copper, and the fourth is pottery. I put all other materials, such as small fragments of bark or unburnt clay, in the fifth category.

I paid particular attention to the positioning of each find in the grave as well as to the material. In general, I made record of whether each object was in the fill or the supposed burial layer of the grave. I understand the burial layer as the floor of the grave cut, usually seen as a layer of stained soil or intensive ochre about 10 cm thick, sometimes with a greasy feel, and occasionally

small fragments of human bone (Ahola et al. 2016; see also Lehtosalo-Hilander 1973, p. 165). By the fill I mean the layer(s) of soil above this feature. I made this division in accordance with the excavation reports and documentation, and generally followed the interpretation of the field manager.

I collected descriptive data on the position, location and condition of the finds to provide additional information. If possible, I dated the graves either from the scarce radiocarbon data (Ahola et al. 2016, tab. 1) or in accordance with the artefact typology of the burial and/or the adjoining settlement site. Since dating the burial solely from the settlement site is problematic (Ahola et al. 2016, p. 100), such dates are identified with a question mark.

Although radiocarbon dates are rare, it has proved quite easy to date burials with a rich assemblage of finds. For example, I have identified inhumation graves of the TCW period from the amber, flint and slate artefacts typical of the period (Edgren 1959; 1966, p. 95). Similarly, v-perforated amber buttons appear in the Finnish archaeological material during the later part of the 4th millennium BC (Halinen 2015, p. 85), so the presence of such artefacts has served to identify graves later than the TCW. Moreover, if classifiable pottery was present in the grave context, I have dated the burial accordingly. Note though that the artefacts placed in a grave may have been in circulation for several generations, and thus the typology gives only a relative date for the finds, not necessarily the burial.

*Statistics*

According to the dating of the burial sites, 67% of the finds date from the early 4th millennium TCW period. Only about 10% date from the preceding and succeeding periods (tab. 1). As can be seen from tab. 1, the number of furnished graves follow a similar trend. However, given the lack of finds suitable for typological or radiocarbon dating, as much as 20% of the finds have been dated only vaguely to the Neolithic, or were impossible to date at all.

In accordance with previous studies (e.g., Edgren 1966; 1984; 2007; Torvinen 1979; Miettinen 1992; Halinen 1997; 1999; 2015), typical finds

Fig. 3. Flint and amber artefacts from TCW graves: a) 14717:4; b) 14717:17; c) 14898:67; d) 29906:2052; e) 26222:1. National Board of Antiquities, Finland. Photo: author.

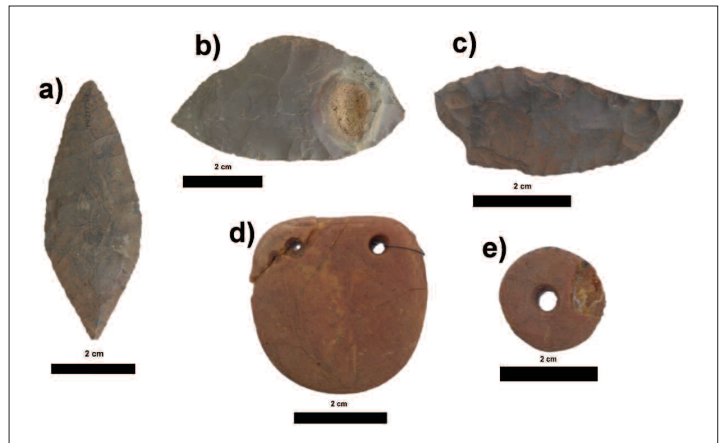


Table 2. The distribution of Typical Comb Ware finds according to type.

Find type	%	n	Find type	%	n
Potsherd	42	1108	Flint borer	<1	4
Flint flake	16	420	Flint sickle	<1	4
Amber pendant	11	297	Pot	<1	4
Quartz flake	8	211	Rock crystal undefined artefact	<1	4
Flint projectile point	3	74	Flint core	<1	3
Clay piece	3	69	Plant residue?	<1	3
Ochre lump	3	68	Slate adze	<1	3
Natural stone	2	47	Slate multipart fish hook	<1	3
Amber fragment	2	46	Bone figurine	<1	2
Amber piece	1	34	Rock crystal projectile point	<1	2
Flint undefined artefact	1	32	Stone scraper	<1	2
Amber bead	<1	21	Wood piece	<1	2
Amber ring	<1	21	Clay bead	<1	1
Stone flake	<1	18	Clay idol	<1	1
Flint scraper	<1	17	Clay lump	<1	1
Resin piece	<1	16	Flint figurine	<1	1
Rock crystal flake	<1	16	Metatuffite adze	<1	1
Slate ring	<1	16	Porphyrite adze	<1	1
Amber button	<1	13	Porphyrite flake	<1	1
Flint knife	<1	9	Quartz borer	<1	1
Quartz core	<1	9	Quartzite knife	<1	1
Quartz projectile point	<1	8	Quartzite mace	<1	1
Quartz undefined artefact	<1	8	Quartzite undefined artefact	<1	1
Stone artefact	<1	7	Rock crystal pendant	<1	1
Sandstone whetstone	<1	6	Rock crystal scraper	<1	1
Slate pendant	<1	6	Slate axe	<1	1
Amber disc	<1	5	Slate button	<1	1
Bark piece	<1	5	Slate gouge	<1	1
Partial pot	<1	5	Slate knife	<1	1





Fig. 4. Two fragmented bone figurines from Kotikangas grave 1, southern Ostrobothnia.  
Photo: K. Mannermaa.

from TCW burials include amber jewellery and flint projectile points (fig. 3; tab. 2). However, the most common ones are flint and quartz flakes and potsherds. Although slate rings, often made of metatuff, also tend to be referred to as common grave goods (Halinen 2015, p. 98f; Ahola 2015, p. 28), their frequency is in fact no higher than that of flint scrapers, for example (tab. 2).

As raw materials, flint and amber dominate the TCW material although there is also quite a lot of quartz (tab. 2). The survival of perishable materials is usually poor, but the TCW finds also include small amounts of bark, resin and wood, as well as two small bone figurines (fig. 4). Although these bone artefacts are unique in the Finnish material, similar figurines have been found in Neolithic contexts on Russian territory (e-mail E. Kashina, 16 February 2017).

Curiously, despite a substantial increase in the number of pottery finds from the TCW period (Mökkönen 2011; Seitsonen et al. 2012; Herva et al. 2017), complete pots have been discovered in only four graves while the total number of furnished TCW graves is over 70 (tab. 1). On the other hand, the amount of natural stone found in

Find type	%	n
Quartz flake	61	66
Slate flake	17	18
Natural stone	6	7
Quartz scraper	2	2
Slate axe (unfinished)	2	2
Slate gouge (unfinished)	2	2
Slate whetstone	2	2
Unfinished slate artefact	2	2
Flint flake	<1	1
Ochre lump	<1	1
Slate adze (unfinished)	<1	1
Slate core	<1	1
Slate raw material	<1	1
Stone flake	<1	1
Unfinished stone artefact	<1	1
Unworked rose quartz	<1	1

Table 3. The distribution of Mesolithic and Early Neolithic finds according to type.

the graves, such as ochre-stained water-polished pebbles or cobbles, is quite large (tab. 2).

Again in contrast to the large number of TCW period finds, the earlier Mesolithic and Early Neolithic periods account for less than 2% (tab. 1), with finds dominated by quartz and slate flakes (tab. 3). Interestingly, most of the stone artefacts from the burials of these periods are unfinished (tab. 3). Note that these Mesolithic–Early Neolithic finds do not include any material from the Jönsas cemetery. Although Jönsas is often referred to as Mesolithic (Purhonen 1980; Edgren 1984; 2007; Halinen 1999; Leskinen & Pesonen 2008), none of the burials have been radiocarbon dated. Moreover, given that the burials lack artefacts suitable for typological dating, and that the cemetery is located on a multi-periodic settlement site, the dating of the burials cannot be confirmed (Ahola in press). The Corded Ware potsherds found in an ochre grave at Jönsas (Find-Cat: pottery finds) seem to represent a votive deposit relating to the site's Corded Ware phase (Ahola 2016).

There are likewise few finds from the time after the TCW period (tab. 1). But these sporadic

burials include material suitable for typological dating (tab. 4). For example, the Uskela Ware pot from Nästinristi grave 9 (Find-Cat: pottery finds; see also Vikkula 1987; Edgren 2007, p. 514) dates the grave to the mid-4th millennium BC. Moreover, a large number of asbestos-tempered potsherds, identified as Pöljä Ware, were found in the Majaniemi ochre inhumation graves (Find-Cat: pottery finds), dating them to the 3rd millennium BC. Similarly, one identifiable rim sherd of Pyheensilta Ware together with around 25 unidentifiable potsherds were recovered from the fill of the Hiittenharju grave (Find-Cat: pottery finds), also indicating a possible date in the 3rd millennium BC (Taskinen 1984). Given the presence of v-perforated amber buttons, I have assigned a typological date after the TCW period to three further graves: Timonen 1, Lappfjärd-Rävåsen and Maarinkunnas).

#### *Find contexts*

On the contextual level, note that the most common find category, stone flakes, were found in the fill as well as in the burial layer (Find-Cat: stone finds). In graves dug through a culture layer, the flakes may be redeposited settlement debris (e.g., Katiskoski 2003, p. 102). However, discussing Kolmhaara grave I, Torsten Edgren (1959, p. 9; 2007, p. 512) points out that ochre-stained flint flakes were also found in the burial layer in a small pile, implying that they were placed there deliberately. In the current study, I noted similar piles of flint or quartz flakes in Vaateranta grave 2 and the single graves of Haavistonharju I and Äkälänniemi (Find-Cat: stone finds). Although rare, judging from the vague dates of these burials, the tradition may have been current in both the Mesolithic and the Neolithic.

Potsherds have also commonly been found in the fill (Find-Cat: pottery finds). However, just like the stone flakes, these sherds – especially rim sherds – were also deliberately placed around the head area of the deceased (Vaateranta grave 3) or, on rare occasions, used to line the walls of the grave (Katiskoski 1999, p. 9; Wickholm 2001, p. 6). Although this practice is not commonly reported in the Finnish material, it is interesting that the two sites at which it has been recorded – the Vaate-

Find type	%	n
Porphyrite flake	42	155
Quartz flake	30	109
Potsherd	17	64
Sandstone disc	4	15
Stone flake	2	7
Amber button	1	4
Whetstone	<1	3
Porphyrite scraper	<1	2
Copper ring	<1	1
Pot	<1	1
Quartz artefact	<1	1
Quartz scraper	<1	1
Slate fishing sinker	<1	1
Stone adze	<1	1
Unfinished sandstone artefact	<1	1
Unworked quartz	<1	1

Table 4. The distribution of Neolithic finds later than the Typical Comb Ware period, according to type.

ranta cemetery and the Säterigatan settlement site – are also similar in other respects. For example, unfinished pots were used at both sites as grave furnishings, and rock crystal, a very rare type of furnishing, was found here in the burial layer or in the fill of graves (tab. 2; Find-Cat: stone finds). Typologically, both sites date from the TCW.

Apart from Säterigatan and Vaateranta, pots are rare at these sites. As Edgren (1982, p. 58; 2007, p. 512) noted, in many graves the pottery is somewhat anomalous, consisting of bases or of miniature or partial vessels (fig. 5; Find-Cat: pottery finds). Of these, only the miniature vessels were found intact, placed either upside down (Laajamaa graves 2–4) or upright (Vaateranta grave 3), whereas the larger vessels or vessel bases were found as articulated sherds (Find-Cat: pottery finds). For example, one whole and one partial vessel (fig. 6) were discovered as articulated sherds beneath the burial layer of Vaateranta grave 3 (Katiskoski 2003, p. 102). Similarly, the intact and partial vessels and the bases found in Kukarkoski grave 1a, Nästinristi grave 9 and the Säterigatan and Bosmalm graves were also articulated sherds (Find-Cat: pottery finds).

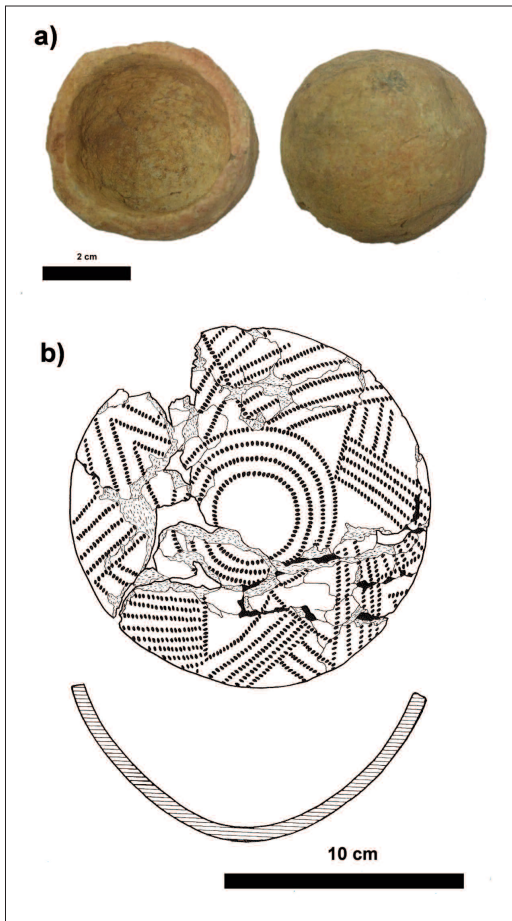


Fig. 5. a) Miniature vessel found in grave 2–4 at Laajamaa 1, northern Finland. Photo: author. b) Vessel base found in grave 1a at the Kukkaroski 1 cemetery, western Finland. After Edgren 1982, p. 57.

Fig. 6. Pottery found beneath grave 3 at the Vaateranta cemetery, eastern Finland. Photo: in situ, K. Katiskoski 1998, National Board of Antiquities, Finland.



Similarly with the rarely seen stone axes and adzes, most of which are unfinished. For example, an unfinished slate axe was found among the small water-polished pebbles placed along the axis of the floor of the Middle Neolithic grave at Vilkajärvi in eastern Finland (Karjalainen 1992, p. 28). Similarly, several unfinished or fragmented slate axes and adzes have been found in the stone pavements or burial layers of several graves at the Tainiara cemetery (Find-Cat: stone finds), radiocarbon-dated to the Early Neolithic (Ahola et al. 2016, tab. 1).

Axes and adzes are not common in the find material, but projectile points and scrapers of flint and quartz are. Some flint blades are in pristine condition, but in many cases the tips of the projectile points are broken, or only half of the

point was found in the burial layer (fig. 7). Furthermore, although most of these finds were placed in the burial layer (Find-Cat: stone finds), four flint projectile points in Hartikka grave 7 were carefully placed in a horizontal position in the fill (Miettinen 1992, p. 17 f), and a flint projectile point was found in the fill of Vaateranta grave 3, the tip of the blade pointing upwards (Find-Cat: stone finds). In some cases, however, projectile points or other stone artefacts were also found in the burial layer in an upward position with the tip of the blade pointing downwards (Kolmhaara grave XIV, Vaateranta grave C) or towards the head of the deceased. This could be observed in Vaateranta grave 3, for example, where human tooth enamel survived *in situ* (Katiskoski 2003, pp. 104–106).



Unlike the projectile points, most amber artefacts are found in the burial layer (Find-Cat: amber finds). This is in line with coeval amber finds from better-preserved burials outside Finland, and implies that amber artefacts were used as ornaments (e.g. Jaanits 1957; Zagorskis 2004 [1989]; Zagorska 2001; Piezonka et al. 2013). Moreover, as has been suggested by Edgren (2006), some of the amber rings or beads found in pairs, and occasionally together with lumps of ochre-mixed-clay (fig. 8), may indicate a plastered skull, a tradition that also known from the TCW graves of the Mesolithic-Neolithic cemetery of Zvejnieki in northern Latvia (Zagorskis 2004 [1987]; Zagorska 2001; Nilsson Stutz et al. 2013). In Finland, however, unburnt clay has also been found around fragments of tooth enamel without amber rings or beads (Hartikka grave 7, Vaateranta grave 9a; see also Find-Cat: other materials), indicating that a skull could be plastered without ornaments, or with ornaments made of perishable materials.

Ornaments discovered in these graves were made not only of amber, but also of slate, clay, copper and rock crystal. Of these, slate ornaments have been found either together with amber artefacts (Kolmhaara grave 5, Kariaho grave 3, Kukarkoski 1 grave 2, Kangas grave 3, Hartikka

grave 5, Vaateranta grave A & 2) or in a similar position (Laajamaa 1 graves 1–5, Pispä grave XVIII): these items were treated similarly to the amber artefacts.

#### Untangling the statistics

Although the numerical data on the graves give a rather straightforward picture of the assemblages, there are several points that warrant further discussion. The first is whether all the finds really belong to the grave context. This has seen much debate as the graves are often found on coeval settlement sites (e.g., L. Larsson 1989; Miettinen 1992; Rätty 1995; Kjällquist 2001; Katiskoski 2003). Indeed, although finds from the fill have been considered accidental inclusions (Purhonen 1980, p. 14; Katiskoski 2003, p. 101), it has been noted that soil from nearby settlement sites was also deliberately used for backfilling the grave (Zagorskis 2004 [1987], p. 81 f; Nilsson Stutz et al. 2013), or the finds from the fill may be connected with ritual practices at the graveside (L. Larsson 1989).

As shown here, stone flakes and potsherds have often been found in the grave fill. Although these find types are typical of Stone Age settlement sites, it appears from the Finnish burials that

Fig. 7. Fragmented flint projectile points:

a) 30887:903; b) 30887: 1085; c) 14717: 23; d) 14717: 25; e) 24461: 517; f) 17076: 48; g) 19727: 61. National Board of Antiquities, Finland. Photo: author.

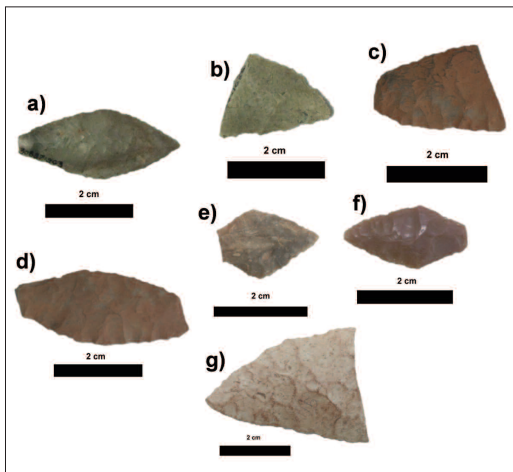
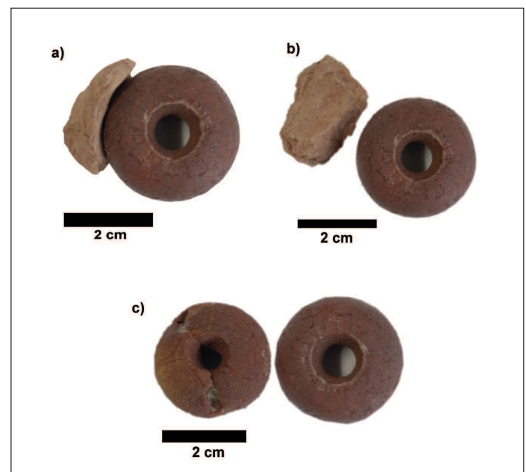


Fig. 8. Amber beads from grave X at the Pispä cemetery, western Finland, found together with small pieces of ochre-tempered clay. Photo: author.



stone flakes were also deliberately placed in small heaps and potsherds used to line the walls of the grave. Given that flint projectile points and sickles are also found, albeit sporadically, carefully positioned in the fills, it is difficult to distinguish between materials found in the burial layer vs. the fill. As stone axes and adzes were also used as parts of the grave architecture, it is possible that the artefacts and materials thus placed functioned on several levels.

Note also that certain sites with large amounts of material (e.g. the Vaateranta TCW cemetery with 21 graves) skew the data: the Vaateranta graves contribute 1030 Potsherds and 454 stone flakes. These find categories are actually typical of Vaateranta but not of all the sites. Similarly, of the total number of amber pendants, 258 derive from six burials at five TCW cemeteries (Hartikka grave 3, Kolmhaara grave V, Kukkarkoski I graves 1 and 1a, Pispä grave XIX and Kangas grave 1). Moreover, given that 68 flint projectile points (of a total of 74) are also from large TCW cemeteries (Hartikka, Kolmhaara, Kukkarkoski I, Pispä and Vaateranta), some graves being furnished with as many as 20, the rich deposits of flint and amber seem to be typical of ochre inhumation graves at TCW cemeteries. On the other hand, the TCW graves at settlement sites were furnished with considerably fewer artefacts, although flint and amber do occur.

Taking into account the problems with the numerical data and the variation, it is nevertheless clear that there is a boom in the number of grave finds from the TCW period. Indeed, in line with recent archaeo-environmental studies (Tallavaara 2015), the large numbers of graves, cemeteries and grave furnishings from this period indicate a rise in the population that can be attributed to the warmer climate of the mid-Holocene. The decrease in the numbers of graves and grave finds that coincide with the onset of late-Holocene cooling and a suggested population decline further supports this theory (Tallavaara 2015, pp. 45–47).

Nevertheless, it should be borne in mind that both Mesolithic and Neolithic graves outside of Finnish territory are often furnished with artefacts made of perishable materials (e.g. Gurina 1956; Zagorskis 2004 [1987]; Löhmus 2007; Piezonka et al. 2013). The large number of TCW

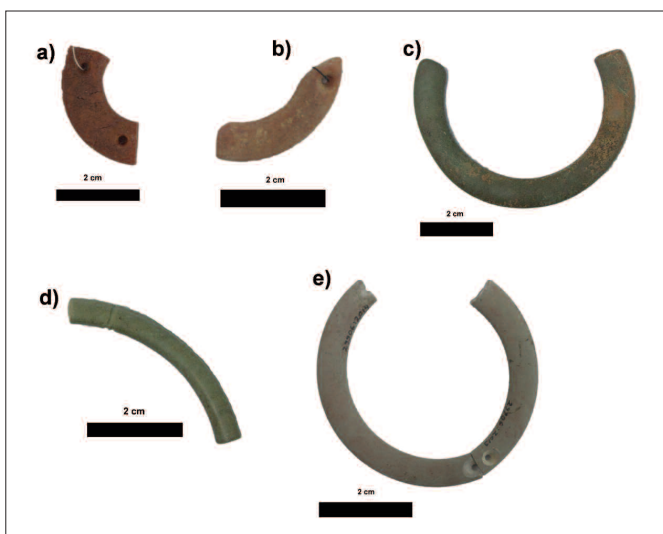
graves and grave furnishings could thus also be a matter of archaeological visibility. In fact, given the poor preservation of perishable materials in Finnish soils, graves furnished with artefacts made of these materials but without ochre may go unnoticed (Ahola 2015, p. 27). Indeed, the better-preserved hunter-gatherer inhumation graves from modern-day Russia and Sweden, for example (such as those of the Volosovo and the Pitted Ware Cultures) are only rarely furnished with ochre, and in many cases the furnishings are mainly made of perishable materials (Burenhult 1997; Kostyleva & Utkin 2010; Piezonka et al. 2013). It seems reasonable to assume that the sporadic inhumation graves we know of from the later 4th millennium represent rare occurrences of amber objects and ochre. And the large number of unfurnished ochre inhumations is likely to indicate burials furnished with perishable goods.

Even given the possibility of co-existing perishable artefacts, the use of large amounts of amber and flint is typical of mortuary practices at TCW cemeteries (cf. Ahola 2015). Moreover, almost all finds relating to the handling of the body (e.g., lumps of clay and fragments of bark; see Nilsson Stutz 2006; 2010; Törv 2016) also date from the TCW period and derive from cemetery contexts (Find-Cat: other materials). The individuals buried at the cemeteries were thus clearly treated differently from those buried at settlements. This, in turn, is indicative of the social complexity concomitant with the rise in population.

#### *From finds to burial practices*

From the perspective of funerary traditions, the TCW period's boom in the number of graves, furnishings and cemeteries goes along with new practices where cemeteries, inhumation graves and unperishable grave goods became more common. This does not rule out changes in the size and structure of society. Changes in mortuary practices are sometimes influenced by changes in living social reality (Härke 1994, p. 32). It has been suggested that not only do the TCW graves follow core Mesolithic mortuary traditions, viz primary burial in an inhumation grave with artefacts and ochre. They also reflect the new ways of life through the use of new materials and plastered skulls, associated with the emergence of the

Fig. 9. Fragmented amber and slate artefacts. a) 33288:5; b) 24472: 1588; c) 30460: 9831; d) 29906: 2049; e) 29906: 2013–2014. National Board of Antiquities, Finland. Photo: author.



Neolithic (Nilsson Stutz 2010a; Ahola 2015).

The numerical data can be used to unwrap this grand narrative of change and continuation. Focusing on single artefact types and find contexts in studying the material culture of these graves gives further insights into the funerary practices. In the case of the flint artefacts, for example, the tips of the projectile points are often broken, or only half of the blade or a fragment of a figurine is placed in the grave. Although observed only with naked eye and not subjected to further analysis, this could indicate a deliberate act of breakage before the final deposition of the artefact. In fact, two halves of the same flint blade (fig. 8g shows one) were deposited in graves 1 and 10 at the Kukkarokoski 1 ce-metery, indicating intention (Ahola 2015, p. 35).

It is difficult to ascertain the meaning behind ancient mortuary practices, and so the emphasis tends to be on the importance of the practice itself (Nilsson Stutz 2003; Berggren & Nilsson Stutz 2010). In the case of deliberate acts of breakage it is not too far-fetched, however, to suggest that the fragmentation of flint artefacts – a foreign material obtained mainly via inter-community contacts from the Valdai region in modern-day Russia (Halinen 2015, p. 85) – could relate to social exchanges in which holding fragments of the same object links people and places (e.g. Chap-

man 2000; Fowler 2004; Kriiska 2015). Indeed, as Chris Fowler (2004, p. 55) puts it: “A gift is basically a part of a person or collective, or place, or any other entity that is given to another. To give a gift is to give a part of oneself.”

In this sense, the flint artefacts are not merely ‘imported exotic material’ but rather objects packed with symbolic overtones. Indeed, if they were thought to be parts of people or places, for example, an act of intentional breakage may have been necessary before they could be taken out of circulation (e.g. Fowler 2004, pp. 55–65; Å.M. Larsson 2009a, p. 347 f).

The same reasoning can be applied to the amber artefacts. Although the intentionality of the fragmentation is not as clear with this fragile material, at least some of the amber objects are also partial (fig. 9). This is even clearer in the case of the slate rings (fig. 9), often made of metatuff, a foreign material from the Onega region of Russian Karelia (Kriiska 2015, p. 112). In fact, as Aivar Kriiska (2015, p. 118) suggests, the presence of these foreign materials indicates the existence of a systematic and extensive gift-giving system between the Neolithic-period communities of the European boreal zone.

Another interesting characteristic of the hunter-gatherer grave furnishings is the small numbers of pots, axes and adzes. Only the graves of the

Vaateranta cemetery contained large quantities of potsherds. The deposition of any form of pottery is sporadic. A similar pattern is seen at the Zvejnieki cemetery, at which only four of over three hundred hunter-gatherer graves were furnished with an axe or an adze, and pots were found in five (Zagorskis 2004 [1987], appendix 1). Although more comparative material is needed, it seems that the practice of a rare pottery or axe deposition was intentional, and continued after the TCW phase. It is therefore intriguing that the furnishings of the Corded Ware graves, dated in Finnish archaeological material from c. 2800–2700 cal BC on, consists precisely of the objects that are missing from the hunter-gatherer graves. Although beyond the scope of this paper, it seems to indicate differing identities reflected in funerary practices (Å.M. Larsson 2009a; Nilsson Stutz 2010b; Ahola et al. in press).

Reflecting the fragmented flint, amber and slate artefacts, most of the pottery placed in the graves is only half a vessel. In this sense, the ideology behind the practice may also relate to social exchange. The vessel may never have been intended to be whole – which could explain the vessel base discovered in Kukkaroski grave 1a, for example. In fact, as Marcus Brittain and Oliver Harris (2010, p. 588 f) suggest, considering the relationship of part of a vessel to the whole one should also consider the relations – the source of the clay and the generations of potters – within which the pot was formed that may also have contributed to its meaning. Indeed, the special properties of clay – a material ranging between fluid and solid that can be reworked endlessly and turned into a different kind of substance when fired – may have made it feel like a living and social material (Herva et al. 2017 w. refs). Consequently, it would have needed special treatment, such as intentional breakage or being turned upside down, before it could be removed from circulation.

Curiously, there are striking similarities between the Finnish hunter-gatherer tradition of pottery deposition and the mortuary practices of the Swedish Pitted Ware Culture, which was coeval with the Late Comb Ware. Indeed, although large amounts of pottery are deposited at the Pitted Ware settlement sites, pots are rare in Pitted Ware graves (Å.M. Larsson 2009b, p. 251). More-

over, as in the Finnish material, the few vessels deposited in the graves tend to consist of sherds of partial vessels, bases, or miniature vessels placed upside down (Å.M. Larsson 2009b, p. 252). There thus seems to be a certain uniformity in the ways in which the Neolithic hunter-gatherer populations of the Baltic area used, and did not use, pottery in their mortuary practices.

With respect to the stylistic origins of Pitted Ware, the connection in mortuary practices between the TCW and the Pitted Ware culture supports the idea that the pottery tradition of the latter took inspiration from Comb Ware communities, and that a close-knit social network existed between south-east Sweden and western Finland already during the 4th millennium (Timofeev 2000; Å.M. Larsson 2009a). Indeed, according to Åsa M. Larsson (2009a, p. 260 f), this network of contacts and exchange may have contributed to the spread of the Corded Ware culture to Swedish territory, making the Finnish material an important source for the study of that culture in Sweden. From the perspective of the Finnish material, the presence of this long-lived network and the evident connection in mortuary practices between TCW and Pitted Ware groups lend significance to the better preserved Pitted Ware graves as a means of understanding the poorly preserved Comb Ware burials on Finnish territory – an idea that merits further research.

#### *Acknowledgements*

I am grateful to Antti Lahelma (University of Helsinki) for reading and commenting on drafts of this paper. I also wish to thank Teemu Mökkönen (University of Oulu), Kristiina Mannermaa (University of Helsinki), Santeri Vanhanen (University of Helsinki), Milton Núñez (University of Oulu) and Åsa M. Larsson (Swedish National Heritage Board) for discussing the material and offering many new insights. Thanks also to the Finnish National Board of Antiquities, particularly Leena Ruonavaara for her expertise in archaeological collections. This paper was written with financial support from Nordenskiöld-samfundet i Finland and from the doctoral programme for history and cultural Heritage at the University of Helsinki.

## References

- Ahola, M., 2015. Tracing Neolithic funerary practices from Finnish ochre graves – a case study from Kukkarokoski Comb Ware burial ground. Honkasalo, M.-L. et al. (eds). *Theme issue: Images of Afterlife. Thanatos* 4, 2/2015:2. [thanatosjournal.files.wordpress.com/2016/01/ahola\\_neolithic.pdf](http://thanatosjournal.files.wordpress.com/2016/01/ahola_neolithic.pdf)
- 2016. Re-thinking the Stone Age burial ground of Jönsas, Southern Finland. Grünberg, J. et al. (eds). *Mesolithic burials – rites, symbols and social organisation of early postglacial communities*. 18–21. *International Conference Halle (Saale), Germany, 18th–21st September 2013*. Tagungen des Landesmuseums für Vorgeschichte Halle 13/I 2016. Landesamt für Denkmalflege und Archäologie Sachsen-Anhalt. Halle (Saale).
- In press. Memory and landscape in Stone Age mortuary practice. Understanding recurrent ritual activity at the Jönsas cemetery in Southern Finland. *Acta Archaeologica*. Copenhagen.
- Ahola, M., Kirkinen, T., Vajanto, K. & Ruokolainen, J. in press. On the scent of an animal skin: new evidence on Corded Ware mortuary practices in Northern Europe. *Antiquity*. Cambridge.
- Ahola, M., Salo, K. & Mannermaa, K., 2016. Almost gone: human skeletal material from Finnish Stone Age earth graves. *Fennoscandia Archaeologica* XXXIII. Helsinki.
- Binford, L., 1971. Mortuary practices: their study and their potential. Brown, J. (ed.). *Approaches to the social dimensions of mortuary practices*. Washington D.C.
- Brittain, M. & Harris, O., 2010. Enchaining arguments and fragmenting assumptions: reconsidering the fragmentation debate in archaeology. *World Archaeology* 42:4. London.
- Burenhult, G., 1997. Gravarnas vittensbörd. Burenhult, G. (ed.). *Ajvide och den moderna arkeologin*. Stockholm.
- Chapman, J., 2000. *Fragmentation in archaeology: people, places and broken objects in the Prehistory of South-Eastern Europe*. London.
- Chapman, R., Kinnes, I. & Randsborg, K. (eds). 1981. *The archaeology of death*. Cambridge.
- Edgren, T., 1959. Kolmhaara-gravarna. *Finskt Museum* LXVI (1959). Helsinki.
- 1966. Jäkärälä-gruppen. En västfinskt kulturgrupp under yngre stenåldern. *Suomen muinaismuistoyhdistyksen aikakauskirja* 64. Helsinki.
- 1970. Studier över den snökeramiska kulturens keramik i Finland. *Suomen Muinaismuistoyhdistyksen Aikakauskirja* 72. Helsinki.
- 1984. Kivikausi. Blomstedt, Y. (ed.). *Suomen historia* I. Espoo.
- 1999: Alkavan rautakauden kulttuurikuva Länsi-Suomessa. Fogelberg, P. (ed.). *Pohjan poluilla. Suomalaisien juuret nykytutkimuksen mukaan*. Bidrag till kännedom av Finlands natur och folk 153. Finska vetenskaps-societeten. Helsinki.
- 2006. Kolmhaara reconsidered. Some new observations concerning Neolithic burial practice in Finland. In Larsson & Zagorska 2006.
- 2007. On the non-megalithic mortuary practices in Finland. Larsson, L., Lüth, F. & Terberger, T. (eds). *Innovation and continuity – non-megalithic mortuary practices in the Baltic. New methods and research into the development of Stone Age society. International workshop at Schwerin on 24–26 March 2006*. Bericht der Römisch-Germanischen Kommission 88. Frankfurt.
- Ekgren, F., 2013. Contextualizing grave goods. Theoretical perspectives and methodological implications. Tarlow, S. & Nilsson Stutz, L. (eds). *The Oxford handbook of archaeology of death and burial*. Oxford.
- Fowler, C., 2004. *The archaeology of personhood. An anthropological approach*. London & New York.
- Gurina, N., 1956. Olenoostrovski mogilnik. Materialy I issledovanya po areologii. SSSR 47. Moscow.
- Haggren, G., Halinen, P., Lavento, M., Raninen, S. & Wessman, A., 2015. *Muinaisuutemme jäljet. Suomen esi- ja varhaishistoria kivikaudelta keskiajalle*. Viljandi.
- Halinen, P. 1997. Kaustisen Kankaan asuinpaikka ja punamultahaudat. *Muinaistutkija* 1997:2. Helsinki.
- 1999. Burial practices and the structure of societies during the Stone Age in Finland. Huurre, M. (ed.). *Dig it all. Papers dedicated to Ari Siirriäinen*. Helsinki.
- 2015. Kivikausi. Haggren, G. et al. (eds). *Muinaisuutemme jäljet. Suomen esi- ja varhaishistoria kivikaudelta keskiajalle*. Viljandi.
- Herva, V-P., Nordqvist, K., Lahelma, A. & Ikäheimo, J., 2014. Cultivation of Perception and the Emergence of the Neolithic World. *Norwegian Archaeological Review* 47:2. Oslo.
- Herva, V-P., Mökkönen, T. & Nordqvist, K., 2017. A northern Neolithic? Clay work, cultivation and cultural transformations in the boreal zone of north-eastern Europe, c. 5300–3000 BC. *Oxford Journal of Archaeology* 36:1. Oxford.
- Hodder, I., 1986. *Reading the past: current approaches to interpretation in archaeology*. Cambridge.
- Härke, H., 1994. Data types in burial analysis. Stjernquist, B. (ed.). *Prehistoric graves as a source of information: symposium at Kastlösa, Öland, May 21–23, 1992*. KVHAA. Stockholm.
- Jaamits, L., 1957. Neue Gräberfunde auf dem spätneolithischen Wohnplatz Tamula in Estland. Meinander, C.F. (ed.). *Studia neolithica in honorem Aarne Äyräpää*. Suomen Muinaismuistoyhdistyksen Aikakauskirja 58. Helsinki.
- Karjalainen, T., 1992. *Sulkava Viljakjärvi. Kivikautisen asuinpaikan kaivaus 1991*. Archive report, National Board of Antiquities, Helsinki.
- Katiskoski, K., 1999. Taipalsaari Vaateranta. Kivikautisen kalmiston ja asuinpaikan kaivaus 1998. Archive report, National Board of Antiquities, Helsinki.



- 2003. Cemetery and the dwelling site Vaateranta in Taipalsaari, southeastern Finland. *Suomen Museo* 110. Helsinki.
- Kjällquist, M., 2001. Gåvor eller avfall? En studie av sex mesolitiska gravar från Tågerup. Knarrström, B. & Karsten, P. (eds). *Tågerup specialstudier*. Riksantikvarieämbetet. Lund.
- Koivisto, S. & Nurminen, K., 2015. Go with the flow: stationary wooden fishing structures and the significance of estuary fishing in Subneolithic Finland. *Fennoscandia archaeologica* XXXII. Helsinki.
- Kostyleva, E.L. & Utkin, V.A., 2010. *Neo-eneoliticheskie mogil'niki Verkhnego Povolzh'ya i Volga-Okskogo Mezhdurech'ya: Planigraficheskie i khronologicheskie struktury*. Moscow.
- Kriiska, A., 2015. Foreign materials and artefacts in the 4th and 3rd millennia BCE Estonian Comb Ware Complex. Espak, P et al. (eds). *When gods spoke: researches and reflections on religious phenomena and artefacts. Studia in honorem Tarmo Kulmar*. Tartu.
- Lappalainen, M., 2007. Punamullan pauloissa. Kivikauden hautatutkimuksen tutkimushistoria Suomessa. *Muinaistutkija* 2007:3. Helsinki.
- Larsson, Å.M., 2009a. *Breaking and making bodies and pots. Material and ritual practices in Sweden in the 3rd millennium BC*. Aun 40. Uppsala.
- 2009b. Pots, pits and people: hunter-gatherer pottery traditions in Neolithic Sweden. Gheorghiu, D. (ed.). *Early farmers, late foragers, and ceramic traditions: on the beginning of pottery in the Near East and Europe*. Cambridge.
- Larsson, L., 1989. Big dog and poor man. Mortuary practices in Mesolithic societies in Southern Sweden. Larsson, T.B. & Lundmark, H. (eds). *Approaches to Swedish Prehistory. A spectrum of problems and perspectives in contemporary research*. BAR International Series 50. Oxford.
- Larsson, L. & Zagorska, I., 2006. *Back to the origin. New research in the Mesolithic–Neolithic Zvejnieki cemetery and environment, Northern Latvia*. Acta Archaeologica Lundensia, Series in Octavo 52. Lund.
- Lehtosalo-Hilander, P-L., 1973. Ruumishautakaivaukset. Purhonen, P. & Söyrintki, L. (eds). *Arkeologin kenttätyöt*. Lahti.
- Leskinen, S. & Pesonen P., 2008. *Vantaan esihistoria*. Keuruu.
- Löhmus, M., 2007. Mortuary practices during the Comb Ware cultures in Estonia and the problems of their interpretation. Merkevicius, A. (ed.). *Colours of archaeology. Material culture and the society. Papers from the Second Theoretical Seminar of the Baltic Archaeologists (BASE) held at the University of Vilnius, Lithuania, October 21–22, 2005*. Interarchaeologia 2. Vilnius.
- Miettinen, M., 1992. The Stone Age cemetery of Hartikka in Laukaa, central Finland. Lang, V. & Selirand, J. (eds). *Cultural heritage of the Finno-Ugrians and Slavs: papers presented by the participants in the Soviet–Finnish archaeological symposium 10–16 May 1990 in Tallinn*. Tallinn.
- 2006. *Evijärvi Timonen 1. Kivikautisen asuinpaikan kaivaus 1971 ja 1972*. Archive report, National Board of Antiquities, Helsinki.
- Mökkönen, T., 2011. *Studies on Stone Age house pits in Fennoscandia (4000–2000 cal BC). Changes in ground plan, site location and degree of sedimentism*. Helsinki.
- 2013. 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. *Fennoscandia archaeologica* XXX. Helsinki.
- Nilsson Stutz, L., 2003. *Embodied rituals & ritualized bodies. Tracing ritual practices in Late Mesolithic burials*. Lund.
- 2006. Unwrapping the dead. In Larsson & Zagorska 2006.
- 2010a. A Baltic way of death? A tentative exploration of identity in Mesolithic Cemetery practices. Larsson, Å.M. & Pappmehl-Dufay, L. (eds). *Uniting Sea II. Stone Age societies in the Baltic region*. OPIA 51. Uppsala.
- 2010b. The way we bury our dead. Reflections on mortuary ritual, community and identity at the time of the Mesolithic-Neolithic transition. *Documenta Praehistorica* XXXVII. Ljubljana.
- Nilsson Stutz, L., Larsson, L. & Zagorska, I., 2013. The persistent presence of the dead: recent excavations at the hunter-gatherer cemetery at Zvejnieki (Latvia). *Antiquity* 87. Cambridge.
- Nordqvist, K. & Herva, V-P., 2013. Copper use, cultural change and neolithization in North-Eastern Europe (c. 5500–1800 BC). *European Journal of Archaeology* 16:3. London.
- Nordqvist, K. & Håkälä, P., 2014. Distribution of Corded Ware in the areas north of the Gulf of Finland – an update. *Estonian Journal of Archaeology* 18. Tartu.
- Oshibkina, S.V., 1989. The material culture of the Veretye-type sites in the region to the east of the Lake Onega. Bonsall, C. (ed.). *The Mesolithic in Europe. Papers presented at the Third International Symposium, Edinburgh 1985*. Edinburgh.
- Pader, E-J., 1982. *Symbolism, social relations and the interpretation of mortuary remains*. B.A.R. Oxford.
- Parker Pearson, M. 1999., *The Archaeology of Death and Burial*. Thrupp.
- Piezonka, H., Kostyleva, E., Zhilin, M., Dobrovolskaya, M. & Terberger, T., 2013. Flesh or fish? First results of archaeometric research of prehistoric burials from Saktysk Ila, Upper Volga region, Russia. *Documenta Praehistorica* XL. Ljubljana.
- Purhonen, P., 1980. Jönsaksen punamultahaudat – vanhimmat Suomesta tunnetut hautaukset? Hako, J. (ed.). *Helsingin pitäjä* 1980. Vantaa.

- Saxe, A.A., 1970. *Social dimensions of mortuary practices*. University of Michigan.
- Schulz, E-L., 2006. Joroisten Kanavan radiohiiliajoitukset. Pesonen, P. & Mökkönen, T. (eds). *Arkeologia ja kulttuuri. Uutta kivikauden tutkimuksessa. Arkeologipäivät* 2005. Helsinki.
- Schulz, E-L., 1999. Red ochre grave at Äkälänniemi in Kajaani, North Finland. Huurre, M. (ed.). *Dig it all. Papers dedicated to Ari Siiriäinen*. Helsinki.
- 2006. Joroisten Kanavan radiohiiliajoitukset. Pesonen, P. & Mökkönen, T. (eds). *Arkeologia ja kulttuuri. Uutta kivikauden tutkimuksessa. Arkeologipäivät* 2005. Helsinki.
- Shanks, M. & Tilley, C., 1992. Ideology, symbolic power and ritual communication: a reinterpretation of Neolithic mortuary practices. Hodder, I. (ed.). *Symbolic and structural archaeology*. Cambridge.
- Tallavaara, M., 2015. *Humans under climate forcing: how climate change shaped hunter-gatherer population dynamics in Europe 30,000–4000 years ago*. Helsinki.
- Timofeev, V.I., 2000. On the problem of the Scandinavian Pitted Ware origin and the definition of the eastern component in this process. Jaanits, L. & Lang, V. (eds). *De temporibus antiquissimis ad honorem Lembit Jaanits*. Muinasaja teadus 8. Tallinn.
- Torvinen, M., 1979. Liedon Kukarkosken kivikautinen kalmisto. *Suomen museo* 82. Helsinki.
- Törv, M., 2016. *Persistent practices. Multi-disciplinary study of hunter-gatherer mortuary remains from c. 6500–2600 cal. BC, Estonia*. Dissertationes Archaeologiae Universitatis Tartuensis 5. Tartu.
- Ukkonen, P., 2001. *Shaped by the Ice Age. Reconstructing the history of mammals in Finland during the Late Pleistocene and Early Holocene*. Helsinki.
- Vanhanen, S. & Pesonen, P., 2016. Wild plant gathering in Stone Age Finland. *Quaternary International* 404. London.
- Vikkula, A., 1987. The Stone Age graves of Nästinristi site in Latvia, SW Finland. *Suomen museo* 92. Helsinki.
- Wickholm, A., 2001. *Karis Kroggård Säterigatan. Utgrävningsrapport över en stenåldersboplats och en rödockragrav* 2000. Archive report, National Board of Antiquities, Helsinki.
- Williams, H., 2006. *Death and memory in Early Medieval Britain*. Cambridge.
- Zagorska, I., 2001. Amber graves of Zvejnieki burial ground. Butrimas, A. (ed.). *Baltic amber. Proceedings of the international interdisciplinary conference Baltic Amber in natural sciences, archaeology and applied arts 13–18 September 2001, Vilnius, Palanga, Nida*. Acta Academiae Artium Vilnensis 21. Vilnius.
- Zagorskis, F., 2004 [1987]. *Zvejnieki (Northern Latvia) Stone Age Cemetery*. Translated from Latvian by V. Berzins. B.A.R. International Series 1292. Oxford.